October 2022
Freeman Logistics

ANCHOR QEA

Critical Areas Report

Prepared for Vector Development Company

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Prepared for
Vector Development Company
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ABBREVIATIONS

2010 Regional Supplement	Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region
BFE	base flood elevation
BMP	best management practice
CAR	Critical Areas Report
City	City of Puyallup
DP	data plot
Ecology	Washington State Department of Ecology
ESA	Endangered Species Act
FAC	facultative
FACU	facultative upland
FACW	facultative wetland
HGM	hydrogeomorphic
NAVD88	North American Vertical Datum of 1988
NMFS	National Marine Fisheries Service
NRCS	National Resources Conservation Service
OBL	obligate wetland
PEM	palustrine emergent
PFO	palustrine forested
PHS	Priority Habitats and Species
PMC	Puyallup Municipal Code
Project	Freeman Logistics project
PSS	palustrine scrub-shrub
redox	redoximorphic
Third-Party Report	Third-Party Review of Critical Areas Report
USFWS	U.S. Fish and Wildlife Service
WDFW	Washington Department of Fish and Wildlife
WSDOT	Washington State Department of Transportation

1 Introduction

Vector Development Company is proposing construction of new industrial buildings as part of the Freeman Logistics project (Project), east of Freeman Road and west of the future Washington State Department of Transportation (WSDOT) SR 167 Extension project. The Project includes redevelopment of 15 adjacent parcels (parcel numbers 0420174075, 0420201040, 0420201039, 0420201045, 0420201066, 0420201101, 0420205003, 0420205017, 0420201027, 0420201052, 0420201034, 0420201036, 0420201042, 0420205004, 0420205016) in Puyallup, Washington. A vicinity map is shown in Figure 1, and an aerial photograph of the Project area and relevant adjoining parcels is shown in Figure 2.

The proposed development would include two commercial warehouses, vehicle and truck parking, widening of access roads, stormwater management, landscaping, and improvements along Freeman Road (Appendix A). The Project has been designed to be consistent with local regulations.

This Critical Areas Report (CAR) has been prepared by Anchor QEA, LLC, ecologists to support the local permitting and land use review of the Project. The CAR evaluates the presence of critical areas within the Project area and potential impacts to existing critical areas and associated regulated buffers, as defined in the City of Puyallup (City) Municipal Code (PMC) Chapter 21 (City of Puyallup 2022a). The format of this CAR has been prepared consistent with PMC 21.06. Critical areas regulated under PMC Chapter 21 include wetlands, streams, fish and wildlife habitat conservation areas, frequently flooded areas, and minor lakes.

Anchor QEA ecologists gathered and reviewed existing information consistent with PMC Chapter 21 to identify and assess existing critical areas. To support this review, Anchor QEA ecologists performed critical areas site visits to the Project site on April 1 and September 28, 2021, and March 11, 2022. The information provided in this CAR has been prepared by professional ecologists using the best available science to provide an accurate evaluation of critical areas and potential impacts. This CAR identifies no wetlands or streams present within the Project area.

1.1 Review of Existing Information

As part of the analysis to identify critical areas, Anchor QEA ecologists reviewed the following sources of information to support field observations:

- PMC (City of Puyallup 2022a)
- City of Puyallup GIS Portal Wetland and Stream Maps (City of Puyallup 2022b)
- Pierce County PublicGIS Interactive Mapping Tool (Pierce County 2022a)
- U.S. Department of Agriculture Natural Resources Conservation Service Web Soil Survey (NRCS 2022)

- National Marine Fisheries Service (NMFS) Endangered Species Act (ESA) status reviews and listing information (NMFS 2022)
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory Wetlands Mapper (USFWS 2022a)
- USFWS ESA Status Reviews and Listing Information (USFWS 2022b)
- Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS) Maps (WDFW 2022a)
- WDFW SalmonScape Mapping System (WDFW 2022b)
- Aerial photographs publicly available
- Third-Party Review of Critical Areas Report (Third-Party Report) produced by Confluence Environmental Company (Confluence Environmental Group 2022)

1.2 Qualifications

This CAR was prepared following site visits conducted by Anchor QEA on the following dates:

- April 1, 2021
- September 28, 2021
- March 11, 2022

Personnel who contributed to the surveys and preparation of this CAR are listed below:

- Calvin Douglas: Former Anchor QEA wetland scientist, now serving as Senior Ecologist at Confluence Environmental Company responsible for field investigations and reporting; BS Wildlife Biology, University of Washington; Pierce County Certified Wetland Scientist and Wildlife Biologist; Qualified Senior Writer for Biological Assessment, WSDOT, through 2024.
- Laura Caron: Staff 2 Wetland Biologist responsible for field investigations and reporting; BA Environmental Studies and Geology, University of Colorado; MNRS Natural Resource Management and Ecological Restoration, Colorado State University; Certified Wetland Delineator, USACE, 2021; Certified Wetland Rater, Ecology, 2022; Qualified Junior Author for Biological Assessment, WSDOT, through 2028; Qualified Biologist for Preliminary Hydraulic Stream Design and Restoration, WSDOT, 2022.
- Jakob Rowny: Senior Wetland Biologist and Environmental Scientist responsible for reporting; BS Ecology and Evolutionary Biology, University of California; MS Environmental Sciences and Engineering, University of North Carolina; 7 years of wetland delineation, categorization, and critical area assessment and reporting experience in Washington State and Oregon.
- Josh Jensen: Senior Managing Planner responsible for field oversight and code compliance; BS Economics and Environmental Studies, 2007, Western Washington University; MEM 2017, Duke University.

- Dan Berlin, PWS: Principal Scientist responsible for directing and reviewing all field work and documentation; BA Biology, Kalamazoo College; MEM Wetland Science, Duke University.

2 Study Area Description

The Study Area for this CAR includes the 15 adjacent parcels where the Project is located. The Project site encompasses 23.68 acres along Freeman Road (Figure 2). The Project site consists of open lawn areas, residential housing, active livestock and agricultural fields, and gravel roadways. A portion of the eastern boundary is developed; within the undeveloped portion, an agricultural drainage ditch is adjacent to the property on the northeast corner. The west boundary of the Project site is bounded by Freeman Road East. The project site is currently developed for residential and agricultural uses. Photographs of the Study Area are included in Appendix B. No wetlands or streams are located in the Project site. However, WSDOT is working with WDFW to provide a jurisdictional determination for the agricultural ditch and possible wetland boundary delineations and categorizations immediately off-site to the east. Depending on the findings, riparian and wetland habitat buffers may extend into the Study Area (per PMC 21.06).

2.1 Soils

The underlying soils in the Study Area consist of Sultan silt loam and Puyallup fine sandy loam (NRCS 2022). Natural Resources Conservation Service (NRCS) mapped soils are shown in Figure 3.

2.2 Hydrology

The Study Area is located within the Puyallup-White Watershed, Water Resource Inventory Area 10 (Ecology 2022). Hydrologic characteristics in the Study Area are influenced by the areas that drain to the Puyallup River, which originates on Mount Rainier, and Wapato Creek, which is located several thousand feet to the north.

No stream channels or seeps were identified within the Study Area's existing conditions during site visits. During our March 2022 field investigation, a small, disturbed area containing ponded water approximately 3 inches deep was identified at the east side of parcel number 0420174075. WDFW PHS and SalmonScape data do not identify any freshwater surface stream channels to the Puyallup River or Wapato Creek within the Study Area (WDFW 2022a, 2022b).

2.3 Plant Communities

Some undisturbed native vegetation communities are located within the Study Area, but most of the vegetation is composed of open lawn areas, residential homes, active livestock grazing pastures, and gravel roads, with small patches of planted native and ornamental trees and shrubs. The majority of the plantings are shrubs and ground cover species, which appear to receive regular maintenance. Areas of native vegetation are present along the central and eastern border of the Study Area. Photographs of the Study Area are included in Appendix B. Existing plant species within the Study Area are described in Section 3.4.1.

The USFWS National Wetlands Inventory Wetlands Mapper (USFWS 2022a), Pierce County critical area maps (Pierce County 2022), and City sensitive areas maps (City of Puyallup 2022b) do not identify any freshwater wetland habitat within the Study Area (see Figures 4, 5, and 6). Anchor QEA ecologists did not identify any freshwater wetlands in the Study Area during the field investigation in October 2021. During our March 2022 field investigation, Anchor QEA ecologists identified and delineated an artificial wetland in a disturbed area at the east side of parcel number 0420174075. It is our best professional opinion that this wetland is not jurisdictional. Additional information is provided in Section 3.2. Buffers in association with the off-site wetlands and potential riparian area in the WSDOT right-of-way are depicted in Figure 7.

3 Critical Areas Assessment

This section describes and assesses critical areas within and near the Study Area as defined per PMC Chapter 21 (City of Puyallup 2022a) including wetlands, streams, fish and wildlife habitat conservation areas, and frequently flooded areas.

3.1 Methods

To document and describe wetlands, streams, fish and wildlife habitat conservation areas, and frequently flooded areas within the Study Area, Anchor QEA reviewed existing information (Section 1.1) and performed an aerial photograph assessment. Anchor QEA ecologists performed critical areas site visits to the Study Area on April 1 and September 28, 2021, and March 11, 2022, as part of the analysis for the Project. The entire Study Area was accessible during the investigation. During the Project site visits, Anchor QEA ecologists documented general information regarding habitats and dominant plant species and communities. Potential wetland features were evaluated according to methods presented in the U.S. Army Corps of Engineers Wetland Delineation Manual (Environmental Laboratory 1987); the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (2010 Regional Supplement; USACE 2010); and Field Indicators of Hydric Soils in the United States: A Guide for Identifying and Delineating Hydric Soils, Version 8.1, 2017 (USDA and NRCS 2016). Soil colors were classified by their numerical description as identified on a Munsell Soil Color Chart (Munsell 2000).

The ordinary high water mark of the agricultural ditch—located outside of the Study Area to the east—was not delineated during the Project site visit but was estimated using aerial photos because it is artificially created and the low and high water elevations are dependent upon irrigation in the adjacent agricultural fields east of the Study Area. All wildlife species, tracks, and other signs observed during the Project site visit were documented. All observations were qualitative; no quantitative wildlife surveys were performed. Photographs taken to document vegetation and habitat conditions are included in Appendix B.

This CAR evaluates terrestrial and aquatic habitats and plant communities based on physical observations. Existing information described in WDFW-documented species and priority habitats and ESA-listed species and critical habitats, within and near the Study Area, are also evaluated.

3.2 Wetlands

3.2.1 On-Site Areas

No on-site wetland conditions were observed by Anchor QEA ecologists within the Study Area during the Project site visits, except for the artificial wetland at the east side of parcel number 0420174075 identified in March 2022. Wetland data sheets completed during the September 2021

and March 2022 Project site visits are provided in Appendix C, corresponding to the locations shown in Figure 6. Test plot locations (Figure 6) were collected from the areas that contained an unverified wetland layer (Figure 5) according to City sensitive areas maps (City of Puyallup 2022b), but wetland conditions related to this unverified wetland area were not present anywhere within the Study Area. Additionally, USFWS National Wetlands Inventory data (Figure 4; USFWS 2022a), WDFW PHS data (WDFW 2022a), and Pierce County critical area maps (Pierce County 2022) do not identify wetland areas within at least 1,500 feet of the Study Area, except to the south of 19th Avenue Northwest.

During our March 2022 field investigation, a small disturbed and inundated area was identified at the east side of parcel number 04020174075 (Figures 1 and 7). A total of three Data Plots (DPs) were explored, and our results are included in Appendix C. At DP-9, located at the center and at the lowest elevation of the inundated area, we identified hydric soil and wetland hydrology, but the area had no vegetation. However, at the other two DPs (DP-10 and DP-11) we did not observe all three criteria. In a signed letter dated March 20, 2022 (Appendix D), the previous property owner writes:

> My wife and I have owned this property for over 20 years at the time of selling it in November 2021. During that time, there were two old barns as it was used as an animal farm. At no point in our ownership period was there standing water on the property. We had torn down the shed structures […] In addition to this work, we had begun to relocate soil from the northeast corner of the property (adjacent to the WSDOT shared property line) to the location of the sheds, with the intent of raising the elevation in the footprint of the sheds. While excavating soil from the northeast, we noticed groundwater seeping up, which led us to stop using material from that location. We left the source material for the soil relocation bare and flat, which resulted in slightly lower elevations than surrounding areas. At no point during our 20+ year ownership was there ponding on-site or even puddles forming during heavy rain events.

Based on this information, and on our observations of site vegetation, soils, and hydrology, it is Anchor QEA's best professional opinion that the disturbed and partially inundated area is a created or artificial wetland and would be non-jurisdictional.

The same definition of wetlands is used in all three of the Washington State laws that regulate wetlands: the Growth Management Act, the Shoreline Management Act, and the Water Pollution Control Act. This definition distinguishes between "natural" and "artificial" wetlands:

> "Wetlands" means areas that are inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically

> adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands do not include those artificial wetlands intentionally created from non-wetland sites including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street, or highway. Wetlands may include those artificial wetlands intentionally created from non-wetland areas to mitigate the conversion of wetlands.

Washington Department of Ecology provided additional guidance on artificial wetlands in a July 2010 memo titled Focus on Irrigation-Influenced Wetlands (Publication No. 10-06-015; Appendix F) and provides the following test for artificial wetlands:

> In order for a wetland to be considered artificial, it must meet both of the following characteristics:
>
> a. It was intentionally created; and
> b. It is in a formerly non-wetland (upland) site.

Our best professional judgment is that the on-site wetland meets both criteria and is therefore artificial and should be treated as exempt from regulation. The excavation was constructed intentionally. Additionally, the development proposed at the Project site may eliminate surface water runoff to the location of the artificial wetland, and this change may permanently deprive the area of the necessary hydrological input to support the artificial wetland's continuance. Even in cases where wetlands are found to have been unintentionally created—such as those resulting from a leaking irrigation or drainage pipe—repairs made to improve water conservation are not regulated, even if the repair or change in water regime results in the loss of the artificial wetlands.

Our review of Pierce soil mapping in this location (Figure 3*)* supports the determination that the wetlands are located in a formerly non-wetland area, with moderately well-drained soils typically associated with upland plant communities. NRCS maps soils across this portion of the Study Area as Sultan silt loam series and hydric soils are not indicated in close proximity by Pierce County PublicGIS. Because NRCS mapping does not include hydric soils in this area, it is unlikely that the Project site supported any wetlands prior to the excavation. Therefore, being both intentionally created and found in a formerly non-wetland (upland) site, the wetlands observed at the site are artificial and should be treated as exempt from regulation.

3.2.2 Southern Utility Easement Area

Adjacent properties south of 19th Avenue Northwest contain wetlands and associated buffers. These buffers do not extend onto the development area north of 19th Avenue Northwest, because the buffers are interrupted by the roadway. Regulatory buffers only occur on the same side of an existing roadway as the wetland and do not extend to the opposite side from the sensitive area. However, sewer and water lines will be installed in an easement just south of 19th Avenue Northwest that extends to the east and then south to North Levee Road East. During our March 2022 site investigation, Anchor QEA conducted additional wetland delineation work at the northern and eastern sides of the off-site wetland located south of 19th Avenue Northwest to confirm the utility easement would not extend into the wetland area. We recorded our findings in six Wetland Determination Data Forms (Appendix C). The wetland delineation is depicted in Figure 5. A preliminary rating is provided in Appendix C. Off-site Wetland A buffers will be temporarily impacted south of 19th Avenue Northwest during the construction of sewer and water utilities. Potential impacts to off-site Wetland A and associated buffers will be mitigated by construction stormwater best management practices following Pierce County's current Stormwater and Site Development Manual (Pierce County 2022b).

3.2.3 Eastern WSDOT Right-of-Way

As discussed, an agricultural ditch is present east of the Study Area. No wetlands were found to the west of the agricultural ditch during our March 2022 site visit that are in proximity to the Study Area. The Third-Party Report indicated the presence of potential wetland soils west of the ditch; however, our March 2022 site visit determined those soils to be side-cast soils from ditch maintenance that contained hydric soils. These soils are representative of the saturated condition of the ditch sediments prior to being side cast and do not qualify as wetland because they were relocated from the ditch.

However, our communications with the City and our review of the Third-Party Report indicate the presence of off-site wetlands to the east of the Study Area located at parcel numbers 0420201110 and 0420201111 within the WSDOT right-of-way. These two wetlands include Wetland 87, which is a small wetland east of the ditch, and Wetland 85, which is a large wetland located within active agricultural areas east of the ditch. These areas were not directly assessed as they are presumed to be delivered as part of the WSDOT SR 167 Extension project, currently in planning and design stages. Preliminary estimated wetland boundaries and associated buffers are presented in this report, which will be updated once those findings are finalized and made available.

3.2.4 Northwest of Study Area

The Third-Party Report also indicates an additional off-site wetland located to the northwest of the Study Area on the western edge of Freeman Road at parcel number 0420174032. As we did not have

permission to access the property, no delineation or rating information is provided in this report. A review of historical aerial imagery and observations from Freeman Road made during the March 2022 site investigation support the likely presence of wetlands at this location. The wetlands likely cover much of the central portion of the parcel and likely has PM1C and PSS1C Cowardin components. Any wetland buffers associated with this wetland are interrupted by Freeman Road, which lies between the off-site wetland and the Study Area.

3.3 Streams

No streams, drainage channels, seeps, or associated riparian habitats were observed by Anchor QEA ecologists within the Study Area during the September or March Project site visits. Additionally, WDFW PHS data (WDFW 2022a), SalmonScape data (WDFW 2022b), and City sensitive areas maps (City of Puyallup 2022b) do not identify any stream channels within 2,000 feet of the Study Area. Pierce County critical area maps (Pierce County 2022) identify Wapato Creek north of the Study Area and the Puyallup River south of the Project site, but they are not located within the Study Area and will not be affected by the Project.

An agricultural ditch is located adjacent to the Study Area to the northeast. This appears to be an artificially created linear feature that may not be regulated as a stream or fish and wildlife habitat conservation area or a shoreline of statewide significance, per PMC Chapter 21 (City of Puyallup 2022a). However, our conversation with the City and review of the Third-Party Report indicates that this status may change based on the findings of WSDOT and WDFW in their critical area assessment related to the WSDOT SR 167 Extension project. For the purposes of this report, a stream buffer has been applied to the ditch, but it is preliminary and conservative in order to support the critical area review for this project. This report will be updated when those findings are made available to us.

3.4 Fish and Wildlife Habitat Conservation Areas

Per PMC 21.06, fish and wildlife habitat conservation areas are areas that provide important nesting territory, as well as spawning and protection areas, for state and federally listed endangered, threatened, and sensitive species that have a primary association with the habitat area and state priority habitats (including species of local importance). No fish and wildlife habitat conservation areas are located within the Study Area.

3.4.1 Vegetation

Some undisturbed native vegetation communities are located within the Study Area. Areas of native vegetation occur along the eastern border of the Project site but are primarily east of the Study Area. Native plant species observed include black cottonwood (*Populus balsamifera*), red alder (*Alnus rubra*), red osier dogwood (*Cornus sericea*), Oregon ash (*Fraxinus latifolia*), Pacific crabapple (*Malus fusca*), common snowberry (*Symphoricarpos albus*), Nootka rose (*Rosa nutkana*), salal (*Gaultheria*

shallon), northern bracken fern (*Pteridium aquilinum*), English holly *(Ilex aquifolium*), and field horsetail (*Equisetum arvense*). Many invasive species or noxious weeds were also noted as present, including include English ivy (*Hedera helix*), Himalayan blackberry (*Rubus armeniacus*), Evergreen blackberry (*Rubus laciniatus*), Canada thistle (*Cirsium arvense*), and reed canary grass *(Phalarais arundinacea*).

Areas located west of the fence line in the agricultural pastures included varieties of *Agrostis* and *Fescue* grasses, which were regularly mowed or grazed by sheep and llamas. Photographs of vegetation in the Project area are included in Appendix B.

3.4.2 Wildlife and Habitat

The majority of the Study Area includes a managed landscape with mowed grass and ornamental vegetation. Potential habitat is limited to the small patches of native vegetation along the eastern property boundary. Wildlife use of the terrestrial habitat is likely dominated by disturbance-tolerant species typical of urban areas. Habitat surrounding the Project site includes fragmented and disturbed areas associated with residential and commercial development. Wildlife species observed during the September 2021 Project site visit included bird species common in urban areas of Pierce County, including crows (*Corvus brachyrhynchos*), house sparrows (*Passer domesticus*), and gull species (*Larus* spp.). No amphibian, reptile, or mammal species; tracks; or signs were observed during the Project site visits.

The on-site hydrology of the Study Area provides no habitat for aquatic species. The habitat within the agricultural ditch east of the Study Area is dominated by shallow standing water with little to no noticeable flow.

Our review of the Third-Party Report suggests that the off-site ditch may be reclassified from a non-jurisdictional ditch to a stream. According to PMC 21.06.1050, Type I, II, III, and IV streams require buffers widths of 150, 100, 50, and 35 feet, respectively. If the ditch is regulated as a stream, it would be categorized as a Type III stream with a 50-foot-wide buffer because it is not used by anadromous fish (no fish species have been documented in the ditch according to the WDFW PHS and SalmonScape websites) and it is wider than 2 feet (Figure 7).

3.4.3 Priority Species and Habitats

The WDFW PHS data (WDFW 2022a) do not document occurrences of any terrestrial species or priority habitats in the Study Area or within 3,000 feet of the Project site. No fish species have been documented in the off-site ditch according to the WDFW PHS and SalmonScape (WDFW 2022b) websites.

3.4.3.1 ESA-Listed Species and Critical Habitat

The assessment for ESA-listed species and critical habitats for this Project was performed based on data provided for the Project site. The following subsections describe ESA-listed species and critical habitats that may occur in the vicinity of the Study Area.

ESA-listed species and critical habitats under NMFS and USFWS jurisdiction in Western Washington are referenced on the agencies' websites. NMFS identifies ESA-listed species that occur or may occur within a broad geographic area, such as an evolutionarily significant unit or a distinct population segment, rather than a project-specific location (NMFS 2022). The USFWS identifies ESA-listed species that occur or may occur within a specific location where a project is proposed (USFWS 2021b).

3.4.3.2 Federally Listed Species That May Occur in the Study Area

The September 2022 status of federally listed species and critical habitats protected under the ESA that occur or may occur within the Study Area is presented in Table 1. As shown in Table 1, three ESA-listed bird species occur or may occur within the Study Area. One ESA-listed insect species is identified as potentially occurring within the Study Area. Four ESA-listed fish species are present in the nearby Puyallup River, and steelhead trout (*Oncorhynchus mykiss*), Chinook salmon (*Oncorhynchus tshawytscha*), bull trout (*Salvelinus confluentus*), and Dolly Varden (*S. malma*). All four have a designated critical habitat in the Puyallup River. However, these species do not occur or are very unlikely to occur in the Study Area based on the species' life history and habitat requirements. No ESA-listed plant or mammal species are identified as potentially occurring within the Study Area. Fish species listed in Table 1 are located within the Puyallup River but not in the agricultural ditch. These species would not be susceptible to impacts related to construction, as no in-water work is proposed, but they are relevant considering the Project is located within the Puyallup River floodplain.

Table 1
Federally Listed Species That May Occur in Study Area

Species	Status	Agency	Critical Habitat
Birds			
Marbled murrelet (*Brachyramphus marmoratus*)	Threatened	USFWS	Designated (does not include Study Area)
Streaked horned lark (*Eremophila alpestris strigata*)	Threatened	USFWS	Designated (does not include Study Area)
Yellow-billed cuckoo (*Cocczyus americanus*)	Threatened	USFWS	Designated (does not include Study Area)
Insects			
Monarch butterfly (*Danaus plexippus*)	Candidate	USFWS	Designated (does not include Study Area)
Fish			
Steelhead trout (*Oncorhynchus mykiss*)	Threatened	NMFS	Designated – Puyallup River
Chinook salmon (*Oncorhynchus tshawytscha*)	Threatened	NMFS	Designated – Puyallup River
Bull trout (*Salvelinus malma/S. confluentus*)	Threatened	USFWS	Designated – Puyallup River
Dolly Varden (*S. malma/S. confluentus*)	Threatened	USFWS	Designated – Puyallup River

Marbled murrelets are more commonly associated with marine habitat instead of the freshwater habitat in the Study Area. The urbanized and industrial areas within the Project site are unfavorable to marbled murrelets, streaked horned larks, and yellow-billed cuckoos.

3.5 Special Flood Hazard Areas

The Puyallup River flows approximately 1,200 feet south of the Study Area, south of North Levee Road East. The Study Area is located within the 100-year floodplain of the Puyallup River within FEMA Flood Zone AE (FEMA 1999). The base flood elevation (BFE) for the Puyallup River is 33 feet North American Vertical Datum of 1988 (NAVD88); however, the levee along North Levee Road East is not officially certified, meaning the floodplain is mapped as extending onto the Study Area. Per PMC 21.07, the floodplain within the Study Area is a special flood hazard area and a habitat assessment should be prepared by a qualified professional to evaluate the effects and/or indirect effects of the proposed development (during both construction and operation) on floodplain functions. Section 5 of this report documents that the proposed development will not result in impacts to any species listed as threatened or endangered under the ESA.

4 Wetland Delineation

Anchor QEA wetland scientists performed wetland delineation field work on March 11, 2022. One wetland was delineated off-site: Wetland A, a category III emergent scrub-shrub and forested depressional wetland located to the south of 19th Avenue Northwest. One artificial wetland was delineated on-site: Wetland B, an unrated emergent depressional wetland located on the eastern portion of parcel number 0420174075. Following our review of the Third-Party Report, we also identified four other off-site wetlands, with three located on the WSDOT owned properties to the east and one located to the west of Freeman Road. Once the results of the WSDOT SR 167 Extension CAR are provided, this report will be updated to include the off-site wetland's final ratings and associated wetland buffer widths. Figure 7 provides a preliminary depiction of the wetlands and how their anticipated buffers may extend onto the eastern side of the Study Area.

The following sections describe the methodology and results of the wetland delineation. Critical areas figures are attached to this CAR, including wetland delineation results in Figure 5. Site photos are included in Appendix B, wetland determination data forms and wetland rating forms are provided in Appendix C.

4.1 Methodology

This section describes the methodology used to perform the wetland delineation, including the review of existing information and field investigation procedures. These methods are consistent with current federal and state agency requirements, as well as local jurisdiction requirements, for performing wetland delineations and identifying protective wetland buffer widths.

Field work was conducted according to methods presented in the U.S. Army Corps of Engineers Wetland Delineation Manual (Environmental Laboratory 1987); 2010 Regional Supplement (USACE 2010); and Field Indicators of Hydric Soils in the United States: A Guide for Identifying and Delineating Hydric Soils, Version 8.1, 2017 (USDA and NRCS 2016). Soil colors were classified by their numerical description as identified on a Munsell Soil Color Chart (Munsell 2000).

The U.S. Army Corps of Engineers defines wetlands as follows:

> Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. (Environmental Laboratory 1987)

The method for delineating wetlands is based on the presence of three parameters: hydrophytic vegetation, hydric soils, and wetland hydrology. Hydrophytic vegetation is "the macrophytic plant life

that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present" (Environmental Laboratory 1987). Hydric soils are "formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part" (Environmental Laboratory 1987). Wetland hydrology "encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface for a sufficient duration during the growing season" (Ecology 1997). Data collection methods for each of these parameters are described in the following subsections.

A total of 12 data plots were sampled and recorded. Vegetation, soils, and hydrology information were collected at each of the plots and recorded on field data sheets (Appendix C). Wetland boundaries were determined based upon plot data and visual observations of the wetland. The wetland location, wetland boundary, and data plot locations were flagged and recorded by Anchor QEA wetland scientists using a Trimble Geo7x GPS unit.

4.1.1 Vegetation

Plant species occurring in each plot were recorded on field data forms, with one data form per plot. Percent cover for each plant species was estimated in the plot, and dominant plant species were identified. At each plot, trees within a 30-foot radius, shrubs and saplings within a 15-foot radius, and herb and forb species within a 5-foot radius from the center of the plot were identified and recorded. Plant indicator status was determined using the National Wetland Plant List: 2016 Wetland Ratings (Lichvar et al. 2016), and a determination was made as to whether the vegetation in the plot was hydrophytic. To meet the hydrophytic parameter, more than 50% of the dominant species, with 20% or greater cover, must have an indicator of obligate wetland (OBL), facultative wetland (FACW), or facultative (FAC). Table 2 shows the definitions for each wetland indicator status category.

Table 2
Wetland Plant Indicator Status Definitions

Indicator Status	Description
Obligate Wetland (OBL)	Plant species occur almost always in wetlands (estimated probability greater than 99%) under natural conditions.
Facultative Wetland (FACW)	Plant species usually occur in wetlands (estimated probability 67% to 99%) but are occasionally found in non-wetlands.
Facultative (FAC)	Plant species are equally likely to occur in wetlands or non-wetlands (estimated probability 34% to 66%).
Facultative Upland (FACU)	Plant species usually occur in non-wetlands (estimated probability 67% to 99%) but are occasionally found in wetlands.
Obligate Upland (UPL)	Plant species occur almost always in non-wetlands (estimated probability greater than 99%) under natural conditions.

Source: Reed 1988

4.1.2 Soils

Soils were sampled in each plot and evaluated for hydric soil indicators. Soil pits were dug to a depth of 18 inches, unless a restrictive layer was present. Hydric soil indicators include low soil matrix chroma, gleying, and redoximorphic (redox) features. Redox features are spots of contrasting color that occur within the soil matrix (the predominant soil color). Gleyed soils are predominantly bluish, greenish, or grayish in color.

4.1.3 Hydrology

Wetland hydrology was evaluated at each plot to determine whether it "encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface for a sufficient duration during the growing season" (Ecology 1997). Field observations of saturation, inundation, and other indicators of wetland hydrology, such as water-stained leaves and drainage patterns in wetlands, were recorded.

4.1.4 Wetland Community Types

Wetland community types are discussed according to the USFWS classification developed by Cowardin et al. (1979) for use in the National Wetlands Inventory (Cowardin system). This system, published in 1979 by a team of USFWS scientists led by L.M. Cowardin, bases the classification of wetlands on their physical characteristics, such as the general type of vegetation in the wetland (e.g., trees, shrubs, grass) and how much, and where, water is present in the wetland. The Cowardin system provides a classification for every known wetland type that occurs throughout the United States, and under this system a wetland can be classified as having one or more wetland community types. The community types found during this investigation included the following:

- **Palustrine emergent (PEM):** These wetlands have erect, rooted, herbaceous vegetation present for most of the growing season in most years.
- **Palustrine scrub-shrub (PSS):** These wetlands have 30% cover of woody vegetation that is less than 20 feet high.
- **Palustrine forested (PFO):** These wetlands have at least 30% cover of woody vegetation that is at least 20 feet high.

4.1.5 Wetland Ratings

Wetland ratings were determined using the most current version of the *Washington State Wetland Rating System for Western Washington: 2014 Update* (Washington rating system; Hruby 2014) and according to the City of Puyallup wetland rating criteria, as defined in the PMC. The Washington rating system was updated by Ecology as of January 1, 2015.

The system developed by Ecology is used to differentiate wetlands based on their sensitivity to disturbance, their significance in the watershed, their rarity, our ability to replace them, and the

beneficial functions they provide to society. The Washington rating system requires the user to collect specific information about the wetland in a step-by-step process. Three major functions are analyzed: water quality improvement, hydrologic functions, and wildlife habitat. Ratings are based on a point system, where points are given if a wetland meets specific criteria related to the wetland's potential and opportunity to provide certain benefits.

Per the Washington rating system, wetlands are categorized according to the following criteria and associated point system where points are awarded to three functional value categories (water quality improvement, hydrologic functions, and habitat):

- **Category I wetlands** (23 or more points) represent a unique or rare wetland type, are more sensitive to disturbance, or are relatively undisturbed and contain ecological attributes that are impossible to replace within a human lifetime.
- **Category II wetlands** (20 to 22 points) are difficult, though not impossible, to replace and provide high levels of some functions.
- **Category III wetlands** (16 to 19 points) have moderate levels of functions. They have been disturbed in some ways and are often less diverse or more isolated from other natural resources in the landscape than category II wetlands.
- **Category IV wetlands** (less than 16 points) have the lowest levels of functions and are often heavily disturbed.

PMC classifies wetlands into four categories (categories I, II, III, and IV) based on the Washington rating system.

4.1.6 Wetlands Function Assessment

The functions of wetlands were rated according to the Washington rating system. Using this system, wetlands were rated based on points awarded to three categories of functions: water quality, hydrologic functions, and wildlife habitat. Detailed scoring, based on Washington wetland rating forms, is provided in Appendix C.

4.1.7 State Hydrogeomorphic Classification System

Scientists have come to understand that wetlands can perform functions in different ways. The way a wetland functions depends to a large degree on hydrologic and geomorphic conditions. To recognize these differences among wetlands, a way to group or classify them has been developed. This classification system, called the hydrogeomorphic (HGM) classification, groups wetlands into categories based on the geomorphic and hydrologic characteristics that control many functions.

The Washington rating system incorporates the HGM classification as part of the questionnaire for characterizing a wetland's functions. The Washington rating system uses only the highest grouping in the HGM classification: wetland class. Wetland classes are based on geomorphic settings, such as

riverine, slope, lake fringe, or depressional. A classification key is provided within the rating form to help identify which of the following HGM classifications apply to the wetland: riverine, depressional, slope, lake fringe, tidal fringe, or flats.

4.2 Results

Anchor QEA wetland scientists delineated one wetland (Wetland A; off-site) and one artificial wetland (Wetland B; on-site) within the Study Area (Figure 7). These wetlands are summarized in Tables 3 and 4 and described in more detail in the following subsections. Site photographs showing these features are included in Appendix B. Wetland determination data forms are provided in Appendix C.

Table 3
Wetlands Delineated Within the Study Area

Wetland	Cowardin Class[1]	HGM Class	Category	Total Wetland Area	
				Square Feet	Acres
A	PEM1C, PSS1C PFO1C	Depressional	III	323,650	7.43
B	PEM1C	Depressional	Artificial	1,218	0.03

Notes:

1. PEM1C: palustrine, emergent, persistent, seasonally flooded; PSS1: palustrine, scrub-shrub, persistent, seasonally flooded: PFO1C: palustrine, forested, persistent, seasonally flooded

For the Washington rating system, a low, moderate, or high rating is based on three functions: improving water quality, hydrologic, and habitat. Within each of these three functions are three subfunction categories: site potential, landscape potential, and value. Each of these subfunction categories is rated as low, moderate, or high. Wetland functions and scores for Wetland A using the Washington rating system are shown in Table 5. The Washington wetland rating forms are provided in Appendix C.

Table 4
Summary of Scores for Wetland Functions and Values

Wetland and Function	Improving Water Quality	Hydrologic	Habitat	Total Functions Score[1]	Washington State Rating	Puyallup Rating
Wetland A						
Site Potential	Moderate	Moderate	Moderate	--	--	--
Landscape Potential	Moderate	High	Low	--	--	--
Value	Moderate	Moderate	Low	--	--	--
Score Based on Rating[1]	6	7	4	17	III	III

Wetland and Function	Improving Water Quality	Hydrologic	Habitat	Total Functions Score[1]	Washington State Rating	Puyallup Rating
Wetland B						
Site Potential	NA	NA	NA	--	--	--
Landscape Potential	NA	NA	NA	--	--	--
Value	NA	NA	NA	--	--	--
Score Based on Rating[1]	-	-	-	-	-	-

Notes: Potential total score per function is 9, for a potential total score of 27. Wetland B rating is not applicable (NA), as it is an artificial wetland.

The following sections describe the wetlands identified during our field investigations and wetland delineation. The wetland is classified and rated according to the Cowardin system and the Washington rating system.

4.2.1 Wetland A

Wetland A is 7.43 acres (323,650 square feet) with PEM, PSS, and PFO vegetation classes and has a depressional HGM classification. The approximate wetland position is mapped on Pierce County's PublicGIS wetland inventory (Pierce County 2022). In March 2022, Anchor QEA ecologists provided an additional delineation along the northern and eastern boundaries and the current extent was confirmed (Figure 7).

4.2.1.1 Vegetation

Wetland A is dominated by forest vegetation species such as black cottonwood (*Populus trichocarpa*; FAC), red alder (*Alnus rubra*; FAC), and red osier dogwood (*cornus sericea*; FACW), interspersed with a few patches of Himalayan blackberry (*Rubus armeniacus*; FAC). Other species found along the eastern edge of the wetland include Sitka spruce (*Picea sitchensis*; FAC), osoberry (*Oemleria cerasiformis;* FACU), snowberry (*Symphoricarpos albus*; FACU), red current (*Ribes sanguineum*; FACU), salmonberry (*Rubus spectabilis*; FAC), and common ivy (*Hedera helix*; FACU).

Overall, the vegetation in Wetland A meets the dominance test hydrophytic vegetation indicator and satisfies the hydrophytic vegetation criteria of the 2010 Regional Supplement (USACE 2010).

4.2.1.2 Soils

Soils in Wetland A are mapped as Pilchuck fine sand, a soil type that is classified as hydric. The soils observed in Wetland A were generally dark at the surface, with a depleted matrix below and redoximorphic features increasing with depth. Upon inspection, the predominant textures were confirmed to be silt loam and sandy loam.

Overall, soil samples met the Depleted Below Dark Surface (A11) hydric soil indicator, satisfying the hydric soil criteria of the 2010 Regional Supplement.

4.2.1.3 Hydrology

Wetland hydrology was confirmed in Wetland A at two data points by a surface water (A1), high water table (A2), saturation (A3), inundation visible on aerial imagery (B7), sparsely vegetated concave surface (B8), and water-stained leaves (B9). The primary water regimes of Wetland A were determined to be permanently flooded, seasonally flooded, and saturated.

4.2.1.4 Boundary Determination

The eastern and northern wetland and upland boundaries of Wetland A were determined by an abrupt change in topography and the presence of hydric soils, wetland hydrology, and hydrophytic vegetation. The southern boundary was estimated from publicly available aerial imagery and the Pierce County GIS Wetlands Layer. The southern boundary was not delineated during the March 11, 2022, site visit.

4.2.1.5 Wetland Functions Scores and Rating

Wetland A is rated as a category III wetland, with a score of six for water quality functions, a score of seven for hydrologic functions, and a score of four for habitat functions. The ratings are discussed in more detail in the following sections, and the wetland rating form for Wetland A is provided in Appendix C. Wetland B was not rated as it is artificial and likely non-jurisdictional.

4.2.1.5.1 Water Quality Functions

Wetland A has moderate functions for improving water quality based on the Washington rating system for all three components: site potential, landscape potential, and value. Contributing factors to this function rating include that the wetland is in a depression with no surface water leaving it (no outlet), persistent not grazed plants covering more than 50% of the wetland, the absence of septic systems within 150 feet, and the presence of a 303(d)-listed aquatic resource within the subbasin.

4.2.1.5.2 Hydrologic Functions

Wetland A has moderate, high, and moderate hydrologic functions based on the Washington rating system for site potential, landscape potential, and value, respectively. Factors that contribute to this function include marks of ponding greater than 3 feet deep, intensive land uses within the subbasin, stormwater discharging directly into the wetland, and surface flooding problems in a subbasin further down-gradient from the wetland.

4.2.1.5.3 Habitat Functions

Wetland A has moderate, moderate, and low habitat functions based on the Washington rating system for site potential, landscape potential, and value, respectively. Factors that contribute to this

function include: the presence of three Cowardin plant classes and three hydroperiods; large, downed woody debris; standing snags; stable steep banks of fine material; thin-stemmed persistent plants for amphibian habitat; adjacent high land use intensity; and the lack of nearby undisturbed habitat.

4.2.1.6 Puyallup Wetland Buffer Guidance

Required wetland buffers have been identified according to the current PMC. PMC identifies minimum protective buffer widths for category III wetlands based on the Ecology habitat rating score, per the Washington rating system, and land use intensity. Per PMC 21.06.930 2 (D), the minimum proposed buffer width for a category III wetland with a habitat score of 3 to 5 points and high land use intensity on the upland side of the buffer is 80 feet, measured from the wetland boundary as delineated in the field. Therefore, the proposed buffer width for Wetland A is 80 feet. However, any Wetland A buffer that may project onto the Study Area is interrupted by a roadway (19th Avenue Northwest) that lies between the wetland and the Study Area. The temporary impacts from the proposed sewer easement through the northern and eastern buffer are discussed in Section 5.

4.2.2 Wetland B

As discussed in Section 3.2.1, Wetland B is an artificial wetland and is not regulated.

4.2.3 Eastern WSDOT Right-of-Way

A small wetland, identified as Wetland 87, was delineated on the WSDOT right-of-way property by WSDOT consultants. It is located east of the ditch. The preliminary rating is a category III wetland with a low habitat score, which is based on field reconnaissance nearby the wetland from the west side of the ditch. Per PMC 21.06.930 2 (D), the minimum proposed buffer width for a category III wetland with a habitat score of 3 to 5 points and high land use intensity on the upland side of the buffer is 80 feet, measured from the wetland boundary as delineated in the field. This buffer does not extend onto the Study Area.

A larger wetland, identified as Wetland 85, was delineated on the WSDOT right-of-way property by WSDOT consultants. It is located east of the ditch and is in an active agricultural area. The preliminary rating is a category IV wetland with a low habitat score, based on field reconnaissance near the wetland from the west side of the ditch. Per PMC 21.06.930 2 (E), the minimum proposed buffer width for a category IV wetland with a high land use intensity on the upland side of the buffer is 50 feet, measured from the wetland boundary as delineated in the field. This buffer does not extend onto the Study Area.

5 Critical Areas Impact Assessment

This section provides a summary of potential impacts to wetlands and fish and wildlife habitat conservation areas.

Project construction activities will not occur in stream or regulated wetland areas. The Project will not have measurable short-term or long-term impacts on wildlife species. Noise associated with construction activities could result in avoidance behavior by some wildlife species, if they are present. However, the Study Area is an industrial, agricultural, and residential area that experiences ongoing human disturbance. Noise levels associated with operation of the Project site after construction are expected to be consistent with current ambient noise levels.

5.1 On-Site Wetlands and Buffers

A sewer line is proposed to be installed within the Wetland A buffer. This will result in a temporary impact to the buffer, which will be restored following construction. The easement is 40 feet wide and is located south of 19th Avenue Northwest, extending to the east on parcel 0420201114 for about 640 feet and south for about 310 feet until it meets the O'Reilly Auto Parts property (total easement area is 37,973 square feet). Temporary impacts will result from removal of black cottonwood, red alder, and red osier dogwood trees, along with removal of Himalayan blackberry and a few native shrubs. Large trees within the 40-foot easement will be avoided, to the extent feasible. The temporary impact area will be restored with installation of native shrubs, such as osoberry, snowberry, red current, and salmonberry, and a native grass seed mix.

Buffers for wetlands located around the Study Area do not extend onto the proposed development area. Therefore, no permanent impacts are anticipated for wetland buffers. This includes buffers for Wetlands 85 and 87 located in the WSDOT right-of-way and for the off-site wetland located east of Freeman Road.

5.2 On-Site Stream Buffer

The agricultural ditch may be classified as a class III stream, which would carry a 50-foot buffer, pending final determination from WDFW. A 50-foot buffer projected onto the Study Area results in approximately 1,540 square feet, with 1319 square feet on parcel 0420174075 and 221.10 square feet on parcel 0420205016. We estimate the maximum width of the on-site buffer to be approximately 29 feet. The proposed development has been reduced to avoid impacts to this stream buffer, as shown in the Preliminary Site Plans included in Appendix A.

5.3 Special Flood Hazard Areas Habitat Assessment

The Study Area is located within the 100-year floodplain of the Puyallup River and within a Pierce County designated special flood hazard area. As discussed in Section 3.5, the Puyallup River flows

approximately 1,200 feet south of the Study Area, south of North Levee Road East. The proposed Project includes construction activities within the 100-year floodplain (Appendix A). The Project will be constructed within the footprint of current low-density residential lots and agricultural fields that experience ongoing human use and disturbance from automobiles, livestock, and agricultural activities.

The BFE varies across the Study Area between 32 and 33.7 feet NAVD88, and the two warehouse buildings will be elevated so that the finished floor is elevated approximately 1 foot above the BFE. This will place all electrical and other equipment at least 1 foot above the BFE as well. These design features will avoid or minimize potential impacts to the floodplain, reduce the potential for inundation during flood events, and meet City of Puyallup requirements. The orientation of the proposed warehouses will be situated in line with one another (the northern warehouse will be within the hydraulic shadow of the southern building to align with anticipated flood flows through the property when they occur). This design is intended to minimize potential impacts on floodwater velocity.

To construct the proposed structures, a net cut of material will be achieved within the floodplain through proposed final grades and by the use of compensatory storage west of the northern building (Building A). The proposed grading will result in an increase of local floodwater storage volume. Material removed from the floodplain will be located within the same floodplain cross section and perpendicular to the flow. These mitigation measures are anticipated to result in zero net fill and will not cause any rise to the BFE within the floodplain, consistent with PMC 21.07.

The federal habitat assessment guidelines require an analysis of other potential impacts to the floodplain environment. The following includes an analysis of habitat assessment elements per the minimum habitat assessment standards:

- **Project and action area description, maps, and site plans have been provided.** See Project Description and figures in Appendix A.
- **Methods of work are described.** See Project Description and figures in Appendix A.
- **Projects in the Protected Area are designed to inherently avoid detrimental impacts without mitigation**. The Project is located within the footprint of residential and agricultural fields that experience ongoing human use and disturbance. The Project is designed to avoid or minimize potential detrimental impacts through the orientation of the buildings relative to flood flows, stormwater facilities, and removal of soils from other properties within the floodplain.
- **Direct and indirect impacts.** Direct impacts include minor impacts to the floodplain from construction as described in this CAR. Long-term impacts include the presence of structures within the floodplain in an area previously used for residences and agriculture. The long-term environmental benefits from the Project, including improved water quality from runoff, are

anticipated to offset any potential short-term impacts from construction and operation of the facility. Indirect impacts from the Project may include improved downstream water quality in the Puyallup River and reductions in nutrient loads to the Puyallup River from runoff and during flood events.

- **Interrelated and interdependent activities.** All development impacts associated with this Project are described in this CAR. No other projects are known that would result in interrelated and interdependent activities.
- **Cumulative impacts.** Cumulative impacts are those that could result in the combination of effects from individual project actions occurring over time. If left unmitigated, the cumulative or incremental effects of these actions have the potential to result in significant environmental impacts. The Project is located within an area characterized by residences, agricultural fields and associated structures, and industrial buildings, such as warehouses. At the time of publication, there are no nearby projects that are anticipated to contribute to cumulative impacts at this time. However, it is anticipated that future projects in the area would be required to conduct a separate, project-specific environmental review, as appropriate. It is anticipated that mitigation measures implemented for each project would decrease the potential for cumulative adverse effects on the environment.
- **Other habitat assessment elements include the following:**
    1. **Water quantity and quality.** As described previously, the Project is anticipated to result in a net improvement to water quality from runoff and during flood events due to the construction of stormwater facilities. During construction, stormwater control measures will be implemented to avoid or minimize potential short-term construction impacts on water quality to be shown in a Stormwater Pollution Prevention Plan and Temporary Erosion and Soil Control Plan. A Stormwater Site Plan will also be prepared, describing the stormwater control best management practices (BMPs) incorporated into the Project to meet the requirements of the City of Puyallup stormwater regulations. The Project will have no impact on water quantity.
    2. **Flood velocities and volumes.** As described previously, the Project has been designed to accommodate flood velocities through orientation of the structures (with the north warehouse designed to be within the hydraulic shadow of south warehouse) and to align them with floodwaters. The Project will not create any rapid water runoff conditions and therefore will not impact flood flows downstream. The Project will have a negligible impact on flood volumes.
    3. **Flood storage capacity.** Earthwork cuts and fills will be balanced at the site to the extent possible. The construction of improvements at the proposed stormwater facilities will provide no net loss to flood storage capacity.
    4. **Riparian vegetation.** The Project is located over 1,200 feet from the Puyallup River and associated riparian buffers. No riparian vegetation will be impacted by the Project.

5. **Measures to preserve habitat forming processes.** No in-water work is proposed, and no impacts to habitat forming processes will occur from the Project; therefore, no measures to preserve habitat forming processes are proposed.
6. **Refuge from higher velocity floodwaters is provided.** The presence of the structures within the floodplain may provide limited refuge from higher velocity floodwaters. No additional measures are proposed.
7. **Spawning substrate is provided or protected.** No in-water work or work in the vicinity of salmonid spawning habitat is proposed, and no impacts to spawning substrate will occur from the Project; therefore, no spawning substrate needs to be provided by the Project.
8. **No adverse effects from habitat isolation, bank armoring, channel straightening, construction effects (transport of sediment from the work area, noise, etc.), or direct effects.** No habitat isolation, bank armoring, or channel straightening is proposed as part of the Project. To avoid or minimize potential construction effects from the Project, stormwater control measures will be implemented to avoid or minimize potential construction impacts on water quality and will be shown in the Stormwater Pollution Prevention Plan and Temporary Erosion and Soil Control Plan. As described above, a Stormwater Site Plan will also be prepared describing the stormwater control BMPs incorporated into the Project to meet the requirements of the City of Puyallup stormwater regulations. Overall, the long-term environmental benefits from the Project, including improved water quality from runoff, are anticipated to offset any potential short-term impacts from construction and operation of the facility.

For the reasons stated above, the proposed project may affect, but is not likely to adversely affect, listed fish NMFS species, as evaluated per the NMFS Biological Opinion for the NFIP (NMFS 2008), or listed USFWS species.

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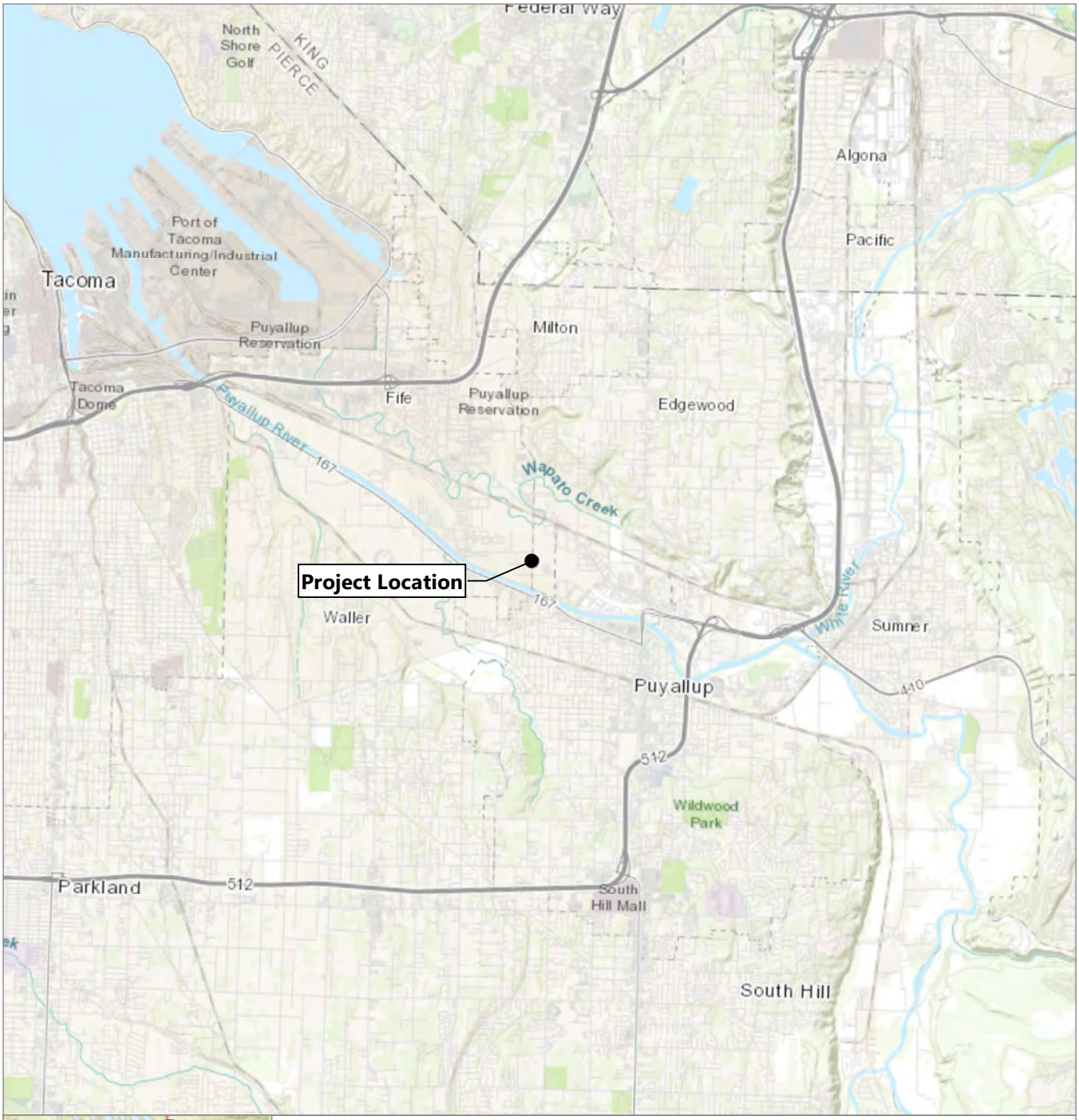
Figures



NOTES:
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

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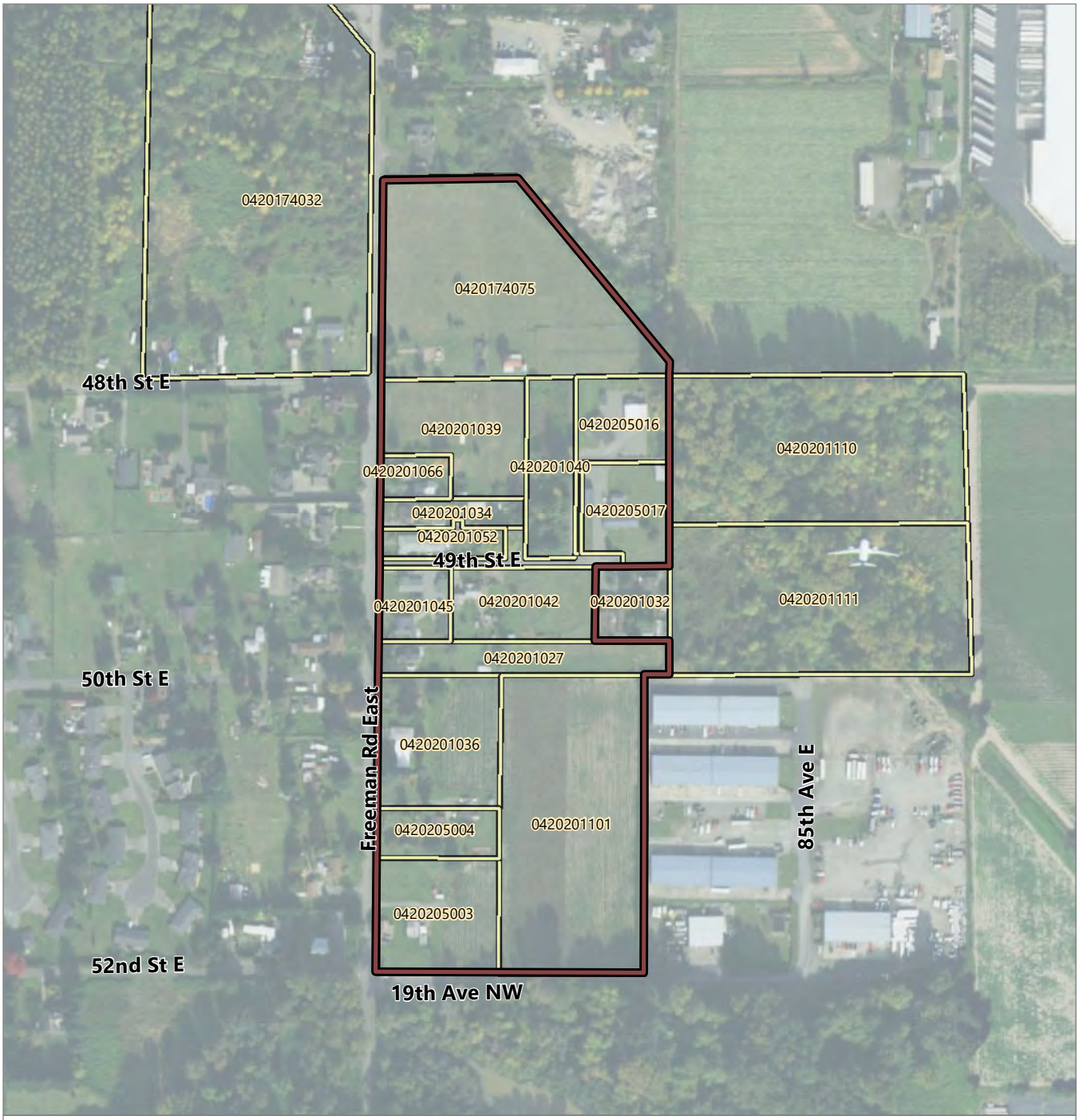
Figure 1
Vicinity Map
Critical Area Report
Freeman Road Logistics



LEGEND:

- Study Area
- Parcel Boundary

NOTES:

1. Parcel boundaries acquried from Pierce County on October 14, 2012.
2. Aerial image is U.S. Department of Agriculture National Agriculture Imagery Program (USDA 2019a).

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Feet

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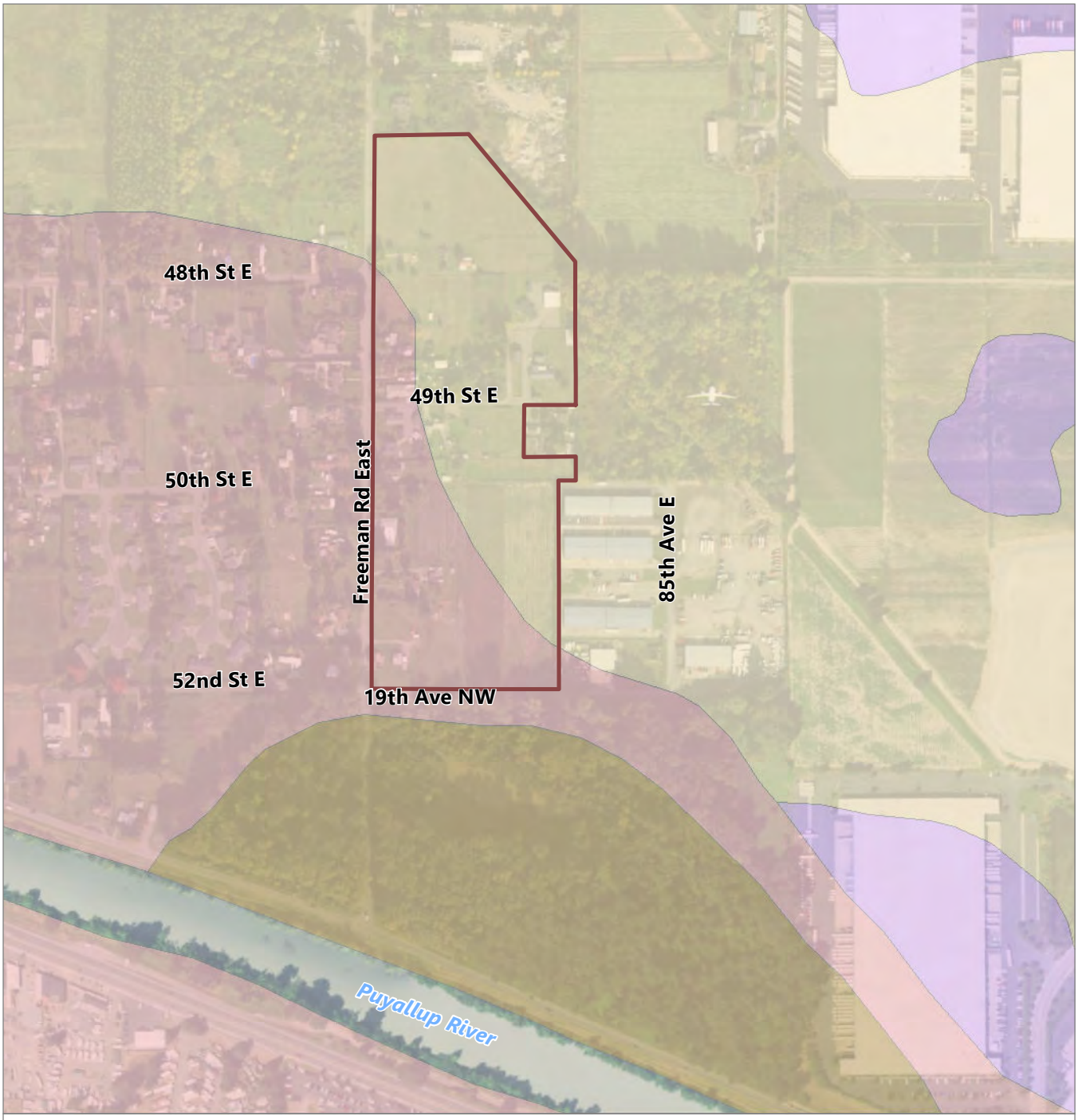
Figure 2
Study Area and Existing Conditions
Critical Area Report
Freeman Road Logistics



LEGEND:

- Study Area

NRCS Soils

- Briscot loam
- Pilchuck fine sand
- Puyallup fine sandy loam
- Sultan silt loam

NOTES:
NRCS: Natural Resouces Conservation Service
1. Soil data acquired from USDA Natural Resouces Conservation Service SSURGO soil survey (USDA 2019b).
2. Aerial image is U.S. Department of Agriculture National Agriculture Imagery Program (USDA 2019).

0 500
Feet

Publish Date: 2022/09/14, 10:41 AM | User: jlarson
Filepath: \\orcas\GIS\Jobs\Vector_Development_Company_2141\Freeman_Road\Maps\CAR\FreemanRd_Fig3_CAR_NRCS_Soils.mxd

ANCHOR QEA

Figure 3
NRCS Soils Map
Critical Area Report
Freeman Road Logistics

Publish Date: 2022/10/17, 1:20 PM | User: jlarson
Filepath: \\orcas\gis\Jobs\Vector_Development_Company_2141\Freeman_Road\Maps\CAR\FreemanRd_Fig4_CAR_NWI.mxd

ANCHOR QEA

Figure 4
USFWS National Wetlands Inventory Map
Critical Area Report
Freeman Road Logistics

LEGEND:

- Study Area
- Field Delineation Line

City of Puyallup Wetlands Inventory

- Field Verified
- Unverified
- Field Verified Upland
- On-Site Artificial Wetland B

NOTES:

1. City of Puyallup Wetlands Inventory data acquired from City of Puyallup.
2. Aerial image is U.S. Department of Agriculture National Agriculture Imagery Program (USDA 2019).

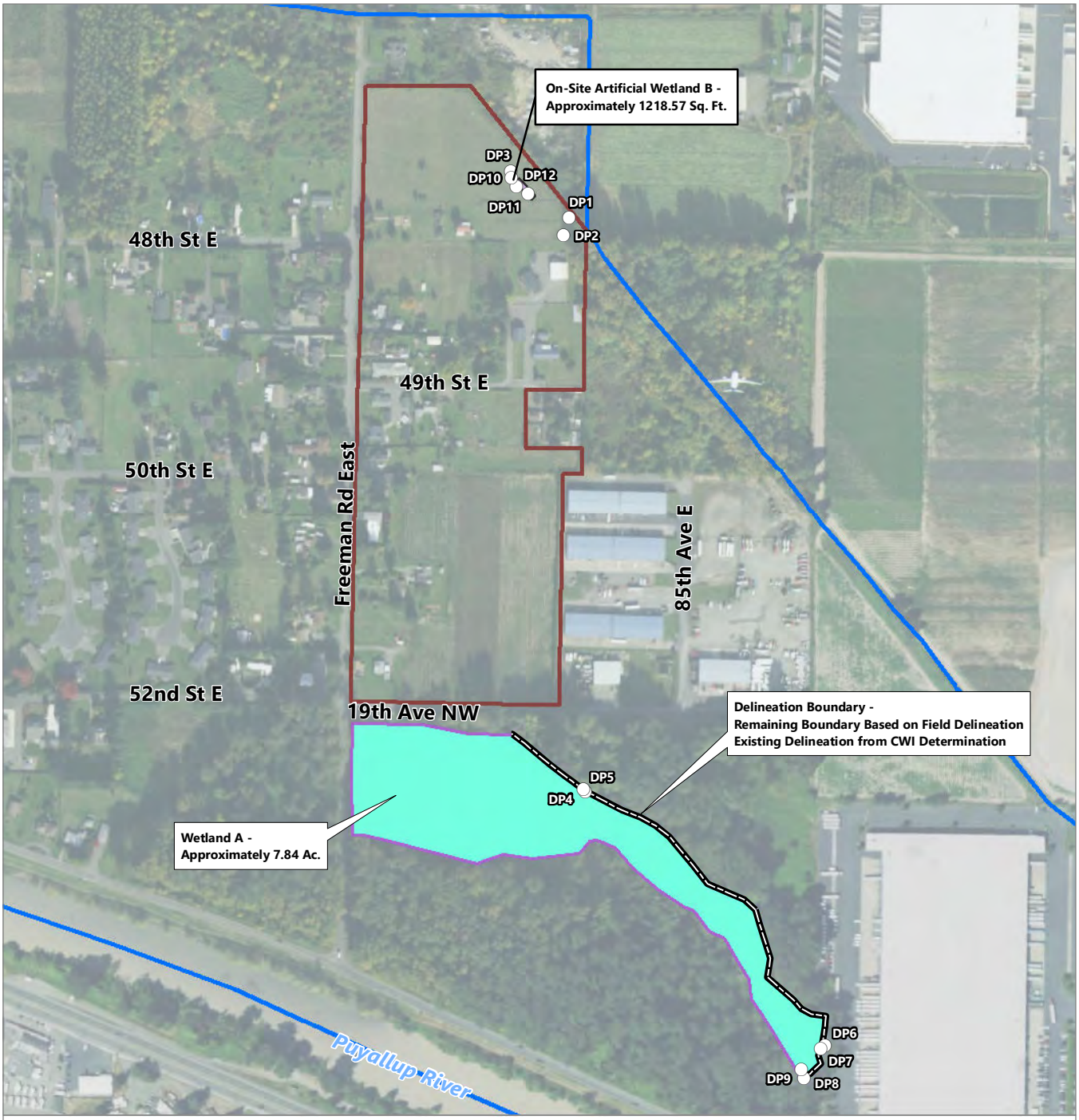
0 500

Feet

Publish Date: 2022/09/16, 10:43 AM | User: jlarson
Filepath: \\orcas\GIS\Jobs\Vector_Development_Company_2141\Freeman_Road\Maps\CAR\FreemanRd_Fig5_CAR_Puyallup_Wetlands.mxd

ANCHOR QEA

Figure 5
City of Puyallup Wetlands Inventory Map
Critical Area Report
Freeman Road Logistics



LEGEND:

- Study Area
- Wetland Test Plot Location
- Off-site Wetland
- On-Site Artificial Wetland B
- Stream (No fish observed)
- Field Delineation Line

NOTES:
DP: Data Plot
USDA: U.S. Department of Agriculture

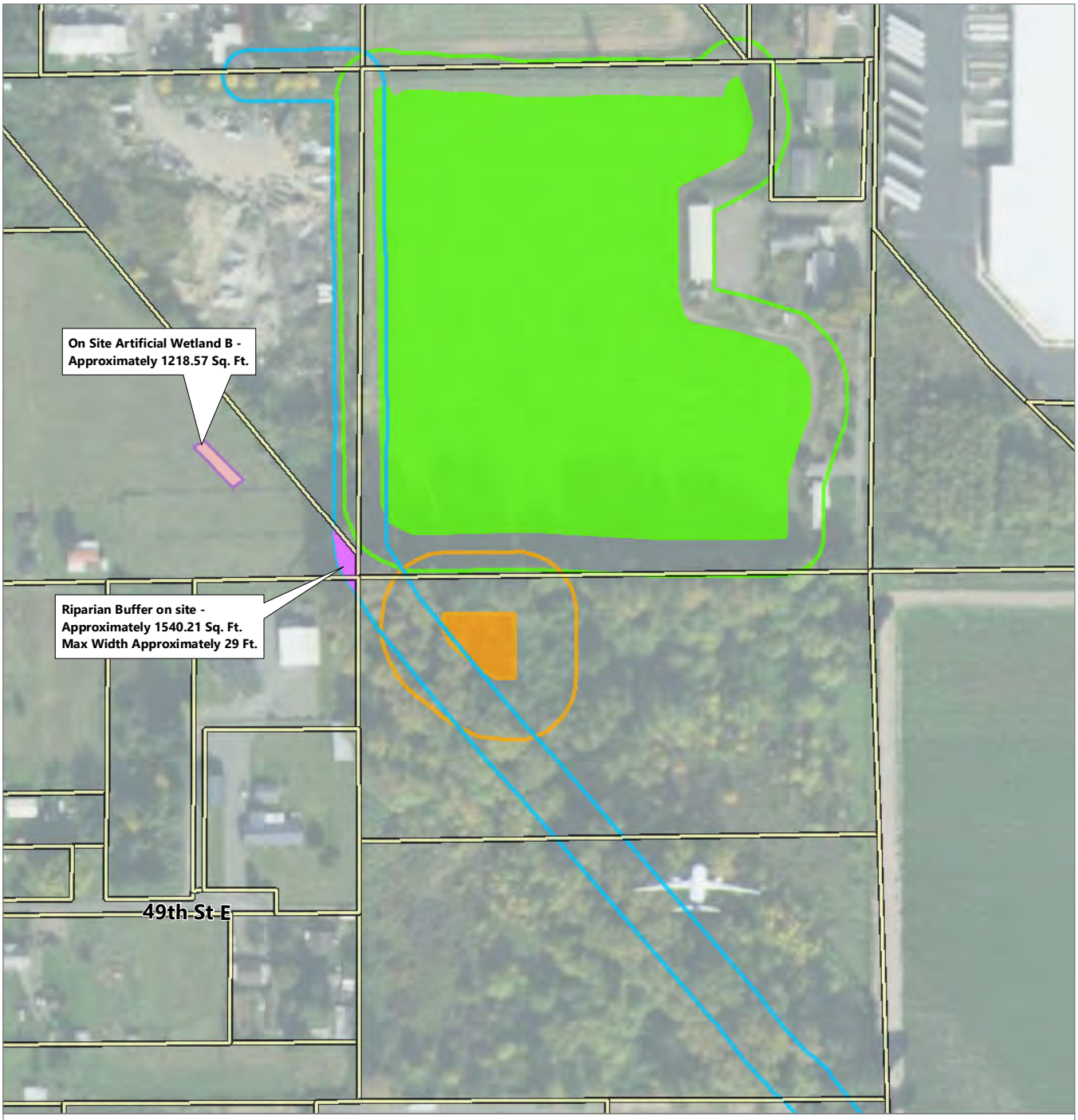
SOURCES:
1. Stream data acquired from Pierce County.
2. Aerial image is USDA National Agriculture Imagery Program (USDA 2019).

0 450
Feet

Publish Date: 2022/09/16, 9:17 AM | User: jlarson
Filepath: \\orcas\GIS\Jobs\Vector_Development_Company_2141\Freeman_Road\Maps\CAR\FreemanRd_Fig6_CAR_Critical_Area_Field_Results.mxd

ANCHOR QEA

Figure 6
Critical Area Results
Critical Area Report
Freeman Road Logistics



LEGEND:

- Category 3 Wetland
- Category 4 Wetland
- Category 3 - 50' Riparian Buffer
- Category 3 - 80' Wetland' Buffer
- Category 4 - 50' Wetland Buffer
- On-site Wetland
- Riparian Buffer On Site

NOTES:
USDA: U.S. Department of Agriculture

SOURCES:
1. Stream data acquired from Pierce County.
2. Aerial image is USDA National Agriculture Imagery Program (USDA 2021).

0 200
Feet

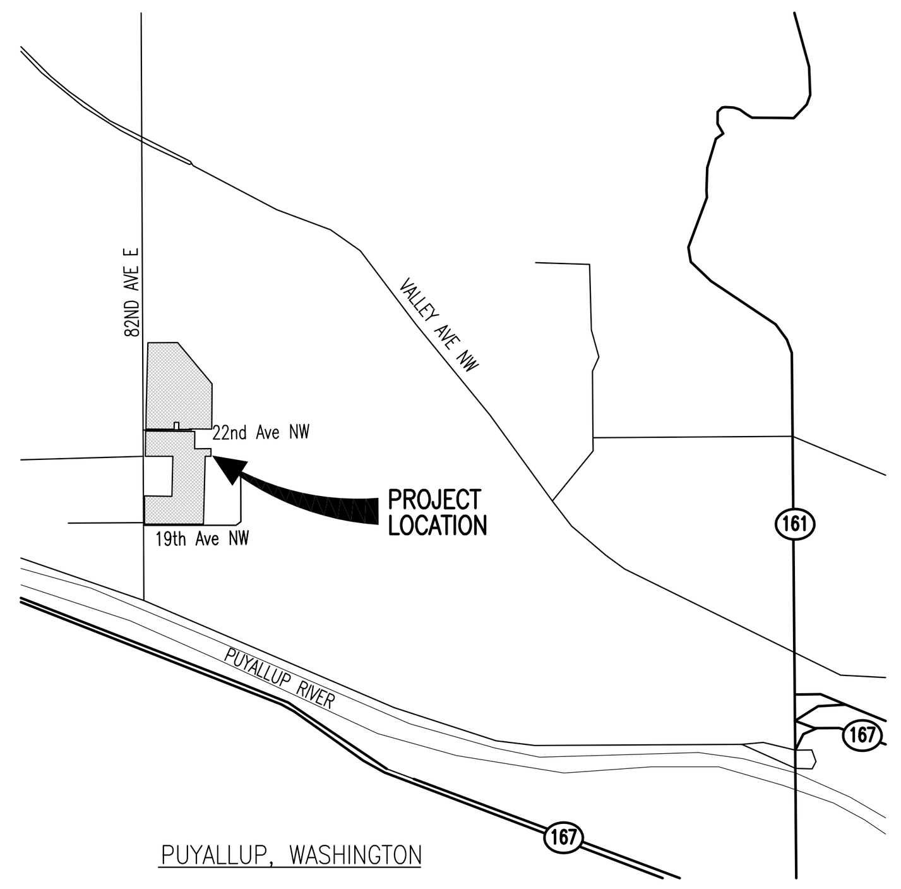
Publish Date: 2022/09/16, 10:57 AM | User: jlarson
Filepath: \\orcas\GIS\Jobs\Vector_Development_Company_2141\Freeman_Road\Maps\CAR\FreemanRd_Fig7_CAR_Critical_Areas_and_Buffers.mxd

ANCHOR QEA

Figure 7
Off-Site WSDOT Parcels Critical Areas and Buffers
Critical Area Report
Freeman Road Logistics

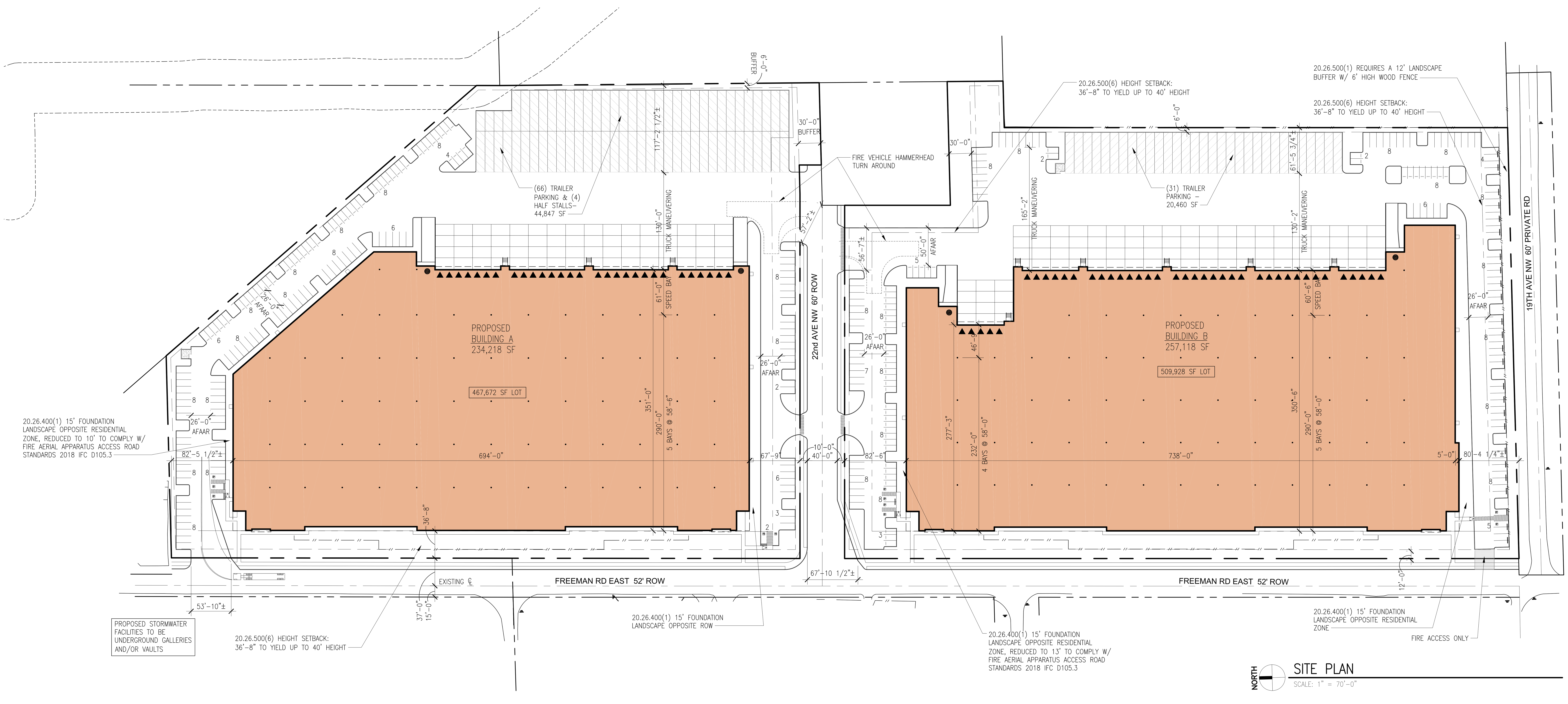
Appendix A
Preliminary Plan Set

VICINITY MAP



PROJECT DATA

SITE AREA	977,600	SF
BUILDING AREA	491,336	SF
COVERAGE	50.3%	
BUILDING A PARKING REQUIRED	145.4	
10,000 SF OFFICE @ 1:300	33.3	
224,218 SF WHSE @ 1:2000	112.1	
PARKING PROVIDED		149
BUILDING B PARKING REQUIRED	156.9	
10,000 SF OFFICE @ 1:300	33.3	
247,118 SF WHSE @ 1:2000	123.6	
PARKING PROVIDED		162
▲ 9'x10' DOCK DOOR		69
● 12'x14' GRADE ACCESS DOOR		4



SITE PLAN
SCALE: 1" = 70'-0"

SYNTHESIS PLLC
THE FUSION OF ARCHITECTURE, DESIGN TECHNOLOGY & PEOPLE
12503 Bel-Red Road, Suite 100
Bellevue, WA 98005
p 425 646 1818 f 425 646 4141

VECTOR
Development Company
11411 NE 124th Street
Suite 190
Kirkland, WA 98034

REVISIONS

ISSUE NO.	DATE	ITEM
1	08 10 22	SEPA RESUBMITTAL
D	10 19 21	DESIGN REVIEW APPLICATION
C	09 15 21	PRELIMINARY BID
B	03 19 21	SEPA APPLICATION
A	01 05 21	PRE-APPLICATION

PROFESSIONAL STAMP

PROGRESS PRINTING
August 30, 2022

NOT FOR CONSTRUCTION

PROJECT INFORMATION

FREEMAN ROAD LOGISTICS
Puyallup, WA – 98371

SHEET INFORMATION

RELEASE FOR: SEPA RESUBMITTAL
TITLE: SITE PLAN
DESIGNED BY:
DRAWN BY:
REVIEWED BY:
APPROVED BY:
DATE: 01 05 21
SHEET NO: A1.1
PROJECT NO: 201401.13.031

www.synthesispllc.com

GRADING AND DRAINAGE PLAN
OF
FREEMAN LOGISTICS
PTNS. OF THE SE1/4, OF SEC. 17, TWP. 20 N., RGE 4 EAST, W. M.
AND PTNS. OF THE NE1/4, OF SEC. 20, TWP. 20 N., RGE 4 EAST, W. M.
PIERCE COUNTY, WASHINGTON

N

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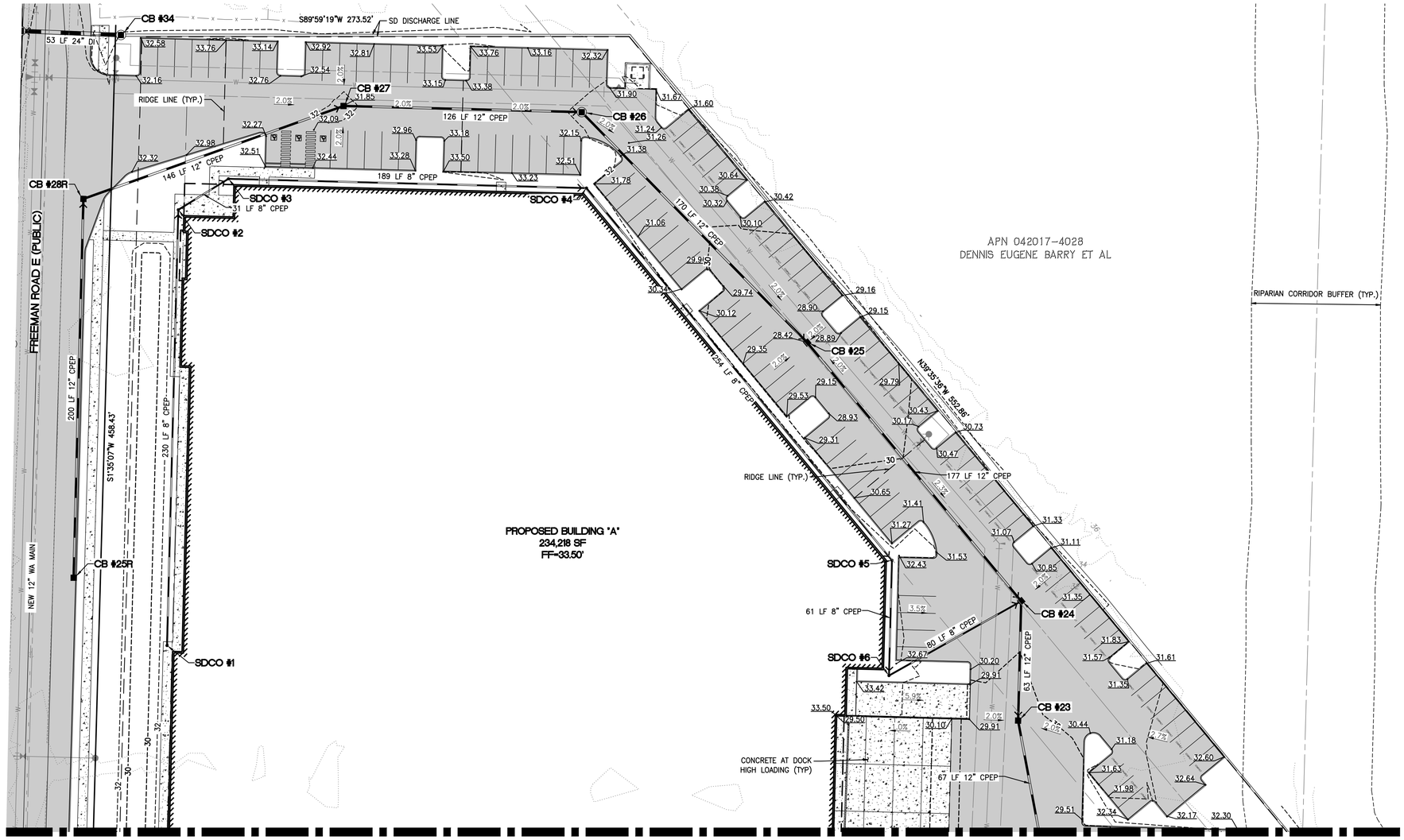
SCALE: 1"=30'



MATCHLINE- SEE SHEET C8 FOR CONTINUATION

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APPROVED

BY _____
CITY OF PUYALLUP
DEVELOPMENT ENGINEERING

DATE _____

NOTE: THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE. THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS. FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE DEVELOPMENT ENGINEERING MANAGER.

No.	Date	By	Ckd.	Appr.	Revision

Title: **GRADING AND DRAINAGE PLAN**
FOR
FREEMAN LOGISTICS

For:
VECTOR DEVELOPMENT COMPANY
11411 NE 124TH STREET
SUITE 190
KIRKLAND, WA 98034

BENJAMIN H. ELDER
STATE OF WASHINGTON
22766
REGISTERED
PROFESSIONAL ENGINEER
PRELIMINARY
9/12/22

Scale: Horizontal 1"=30' Vertical N/A

Designed JSM Drawn DTC Checked JSM Approved BHE Date 9/12/22

Barghausen
Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

Job Number 21585

Sheet C7 of 29

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GRADING AND DRAINAGE PLAN
OF
FREEMAN LOGISTICS
PTNS. OF THE SE1/4, OF SEC. 17, TWP. 20 N., RGE 4 EAST, W. M.
AND PTNS. OF THE NE1/4, OF SEC. 20, TWP. 20 N., RGE 4 EAST, W. M.
PIERCE COUNTY, WASHINGTON

MATCHLINE- SEE SHEET C7 FOR CONTINUATION

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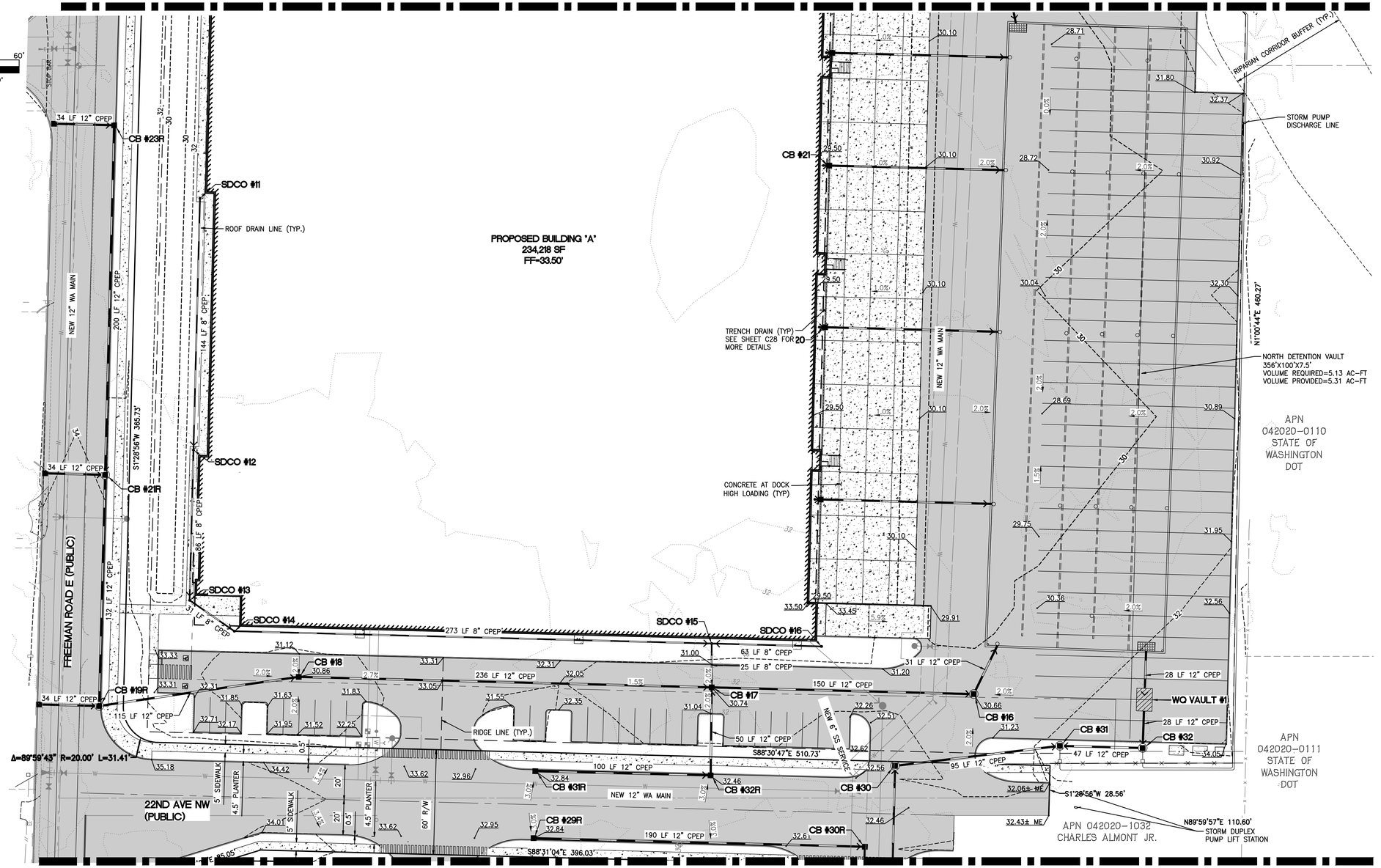
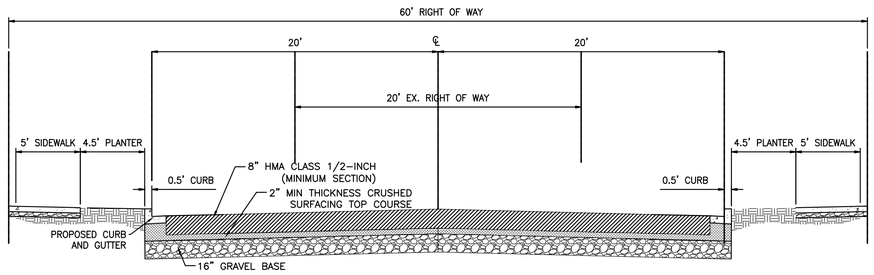
SCALE: 1"=30'



MATCHLINE- SEE SHEET C9 FOR CONTINUATION



C/C 22ND AVE NW SECTION C
NOT TO SCALE

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APPROVED

BY _____
CITY OF PUYALLUP
DEVELOPMENT ENGINEERING

DATE _____

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No.	Date	By	Ckd.	Appr.	Revision

Title: **GRADING AND DRAINAGE PLAN**

FOR
FREEMAN LOGISTICS

For:
VECTOR DEVELOPMENT COMPANY
11411 NE 124TH STREET
SUITE 190
KIRKLAND, WA 98034

BENJAMIN H. BLOOD
STATE OF WASHINGTON
22766
REGISTERED
PROFESSIONAL ENGINEER
PRELIMINARY
9/12/22

Scale: Horizontal 1"=30' Vertical N/A

Designed JSM Drawn DTC Checked JSM Approved BHB Date 9/12/22

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222 barghausen.com

Job Number 21585

Sheet C8 of 29

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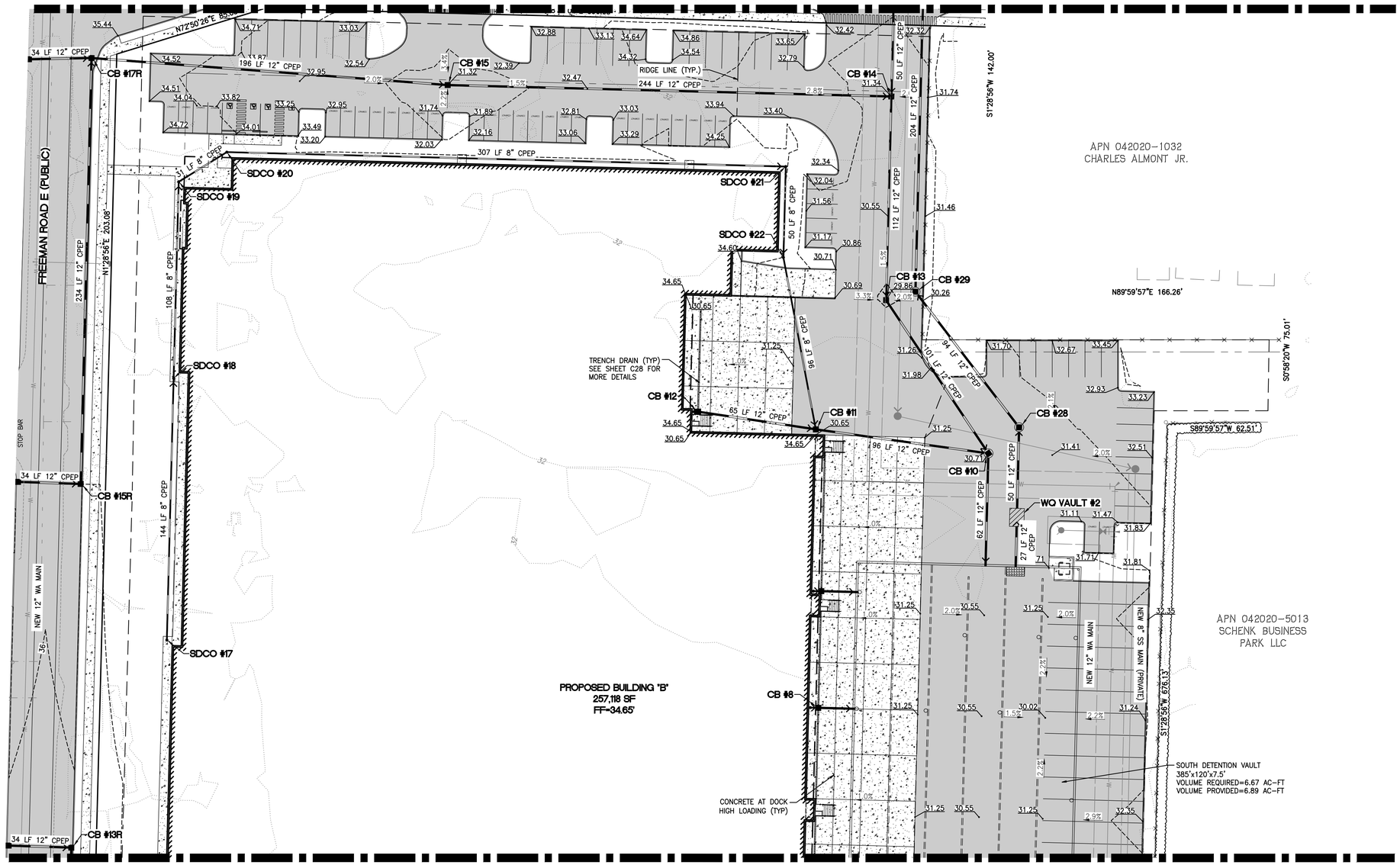
GRADING AND DRAINAGE PLAN
OF
FREEMAN LOGISTICS
PTNS. OF THE SE1/4, OF SEC. 17, TWP. 20 N., RGE 4 EAST, W. M.
AND PTNS. OF THE NE1/4, OF SEC. 20, TWP. 20 N., RGE 4 EAST, W. M.
PIERCE COUNTY, WASHINGTON



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CITY OF PUYALLUP
DEVELOPMENT ENGINEERING

DATE _____

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FOR
FREEMAN LOGISTICS

For: VECTOR DEVELOPMENT COMPANY
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SUITE 190
KIRKLAND, WA 98034

BENJAMIN H. ELDER
STATE OF WASHINGTON
22766
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Scale: Horizontal 1"=30' Vertical N/A

Designed JSM Drawn DTC Checked JSM Approved BHE Date 9/12/22

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

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Sheet C9 of 29

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GRADING AND DRAINAGE PLAN
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FREEMAN LOGISTICS
PTNS. OF THE SE1/4, OF SEC. 17, TWP. 20 N., RGE 4 EAST, W. M.
AND PTNS. OF THE NE1/4, OF SEC. 20, TWP. 20 N., RGE 4 EAST, W. M.
PIERCE COUNTY, WASHINGTON

N

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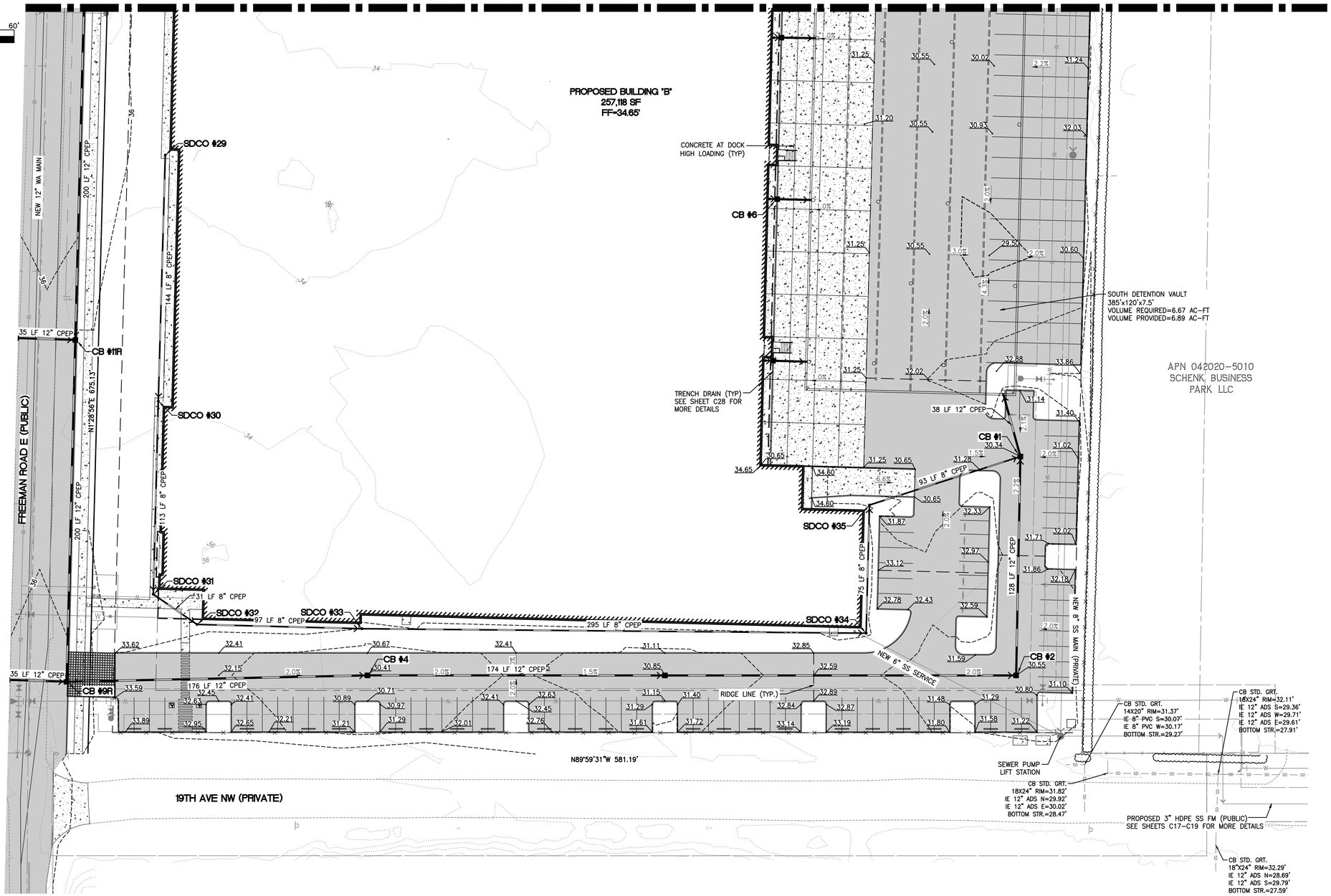
SCALE: 1"=30'

MATCHLINE- SEE SHEET C9 FOR CONTINUATION



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APPROVED

BY _____
CITY OF PUYALLUP
DEVELOPMENT ENGINEERING

DATE _____

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SUITE 190
KIRKLAND, WA 98034

BENJAMIN H. FLORES
STATE OF WASHINGTON
22766
REGISTERED PROFESSIONAL ENGINEER
PRELIMINARY
9/12/22

Scale: Horizontal 1"=30' Vertical N/A

Designed JSM Drawn DTC Checked JSM Approved BHE Date 9/12/22

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

Job Number 21585

Sheet C10 of 29

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OFFSITE ROAD IMPROVEMENT FREEMAN AND LEVEE INTERSECTION

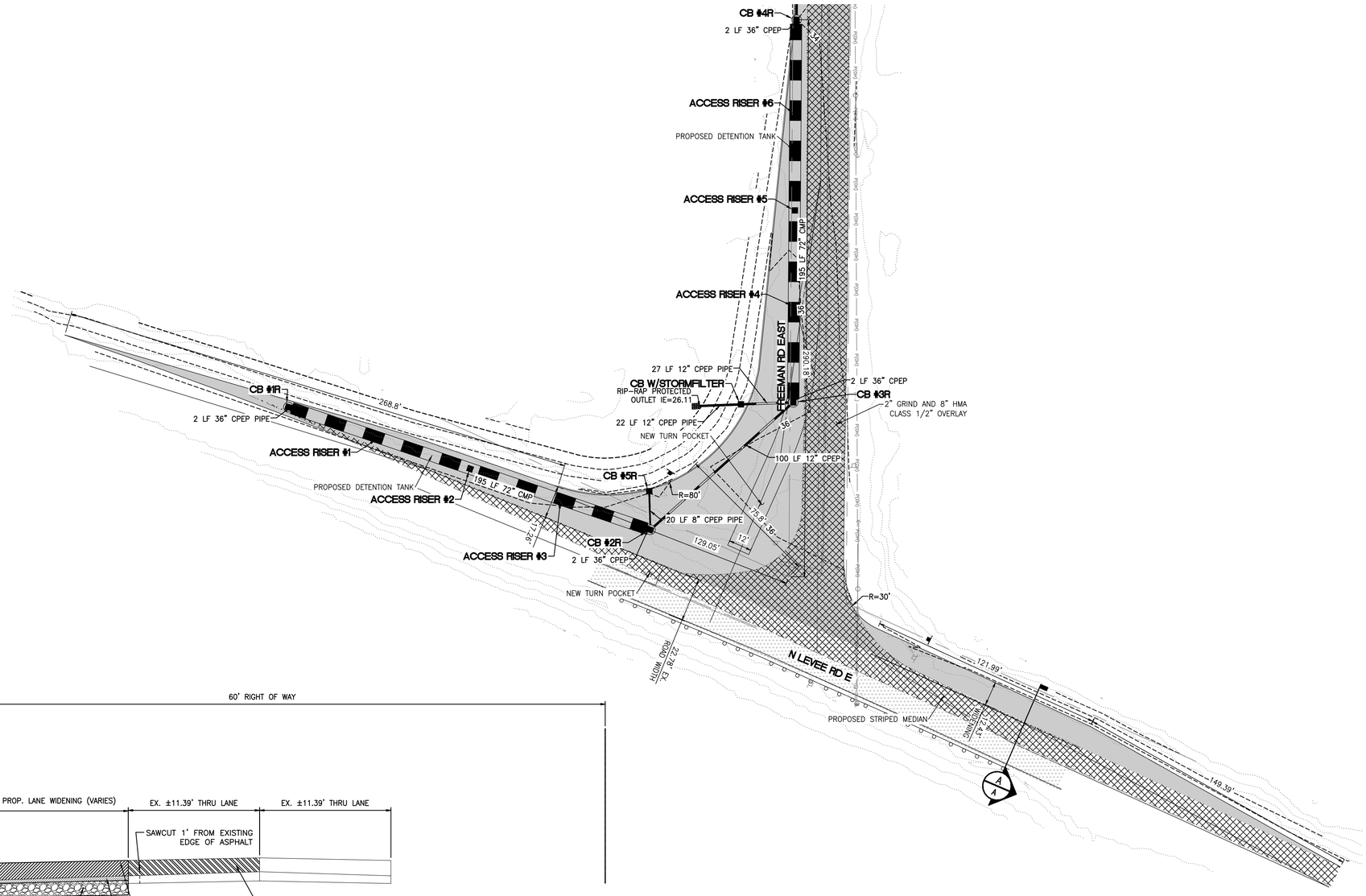
OF

FREEMAN LOGISTICS

PTNS. OF THE SE1/4, OF SEC. 17, TWP. 20 N., RGE 4 EAST, W. M.
AND PTNS. OF THE NE1/4, OF SEC. 20, TWP. 20 N., RGE 4 EAST, W. M.
PIERCE COUNTY, WASHINGTON

N

0 15' 30' 60'
SCALE: 1"=30'



A

NORTH LEVEE ROAD EAST SECTION A

NOT TO SCALE

FRONTAGE LEGEND:

(NOTE: NOT ALL SYMBOLS MAY APPEAR ON THE MAP)

- TYPE II CATCH BASIN
- TYPE I CATCH BASIN
- STORM DRAIN FLOW ARROW
- STORM DRAINAGE LINE
- FIRE HYDRANT
- WATER VALVE
- CONCRETE BLOCKING
- 90° BEND
- SPOT ELEVATIONS 300.48
- CONTOURS 150
- 2" GRIND AND 8" HMA CLASS 1/2" OVERLAY
- PROPOSED ASPHALT PAVEMENT
- EXISTING PAVEMENT

APPROVED

BY _____
CITY OF PUYALLUP
DEVELOPMENT ENGINEERING

DATE _____

NOTE: THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE. THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS. FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE DEVELOPMENT ENGINEERING MANAGER.

CALL BEFORE YOU DIG:
1-800-424-5555

UTILITY CONFLICT NOTE:

CAUTION:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION, DIMENSION, AND DEPTH OF ALL EXISTING UTILITIES WHETHER SHOWN ON THESE PLANS OR NOT BY POTHOLING THE UTILITIES AND SURVEYING THE HORIZONTAL AND VERTICAL LOCATION PRIOR TO CONSTRUCTION. THIS SHALL INCLUDE CALLING UTILITY LOCATE @ 1-800-424-5555 AND THEN POTHOLING ALL OF THE EXISTING UTILITIES AT LOCATIONS OF NEW UTILITY CROSSINGS TO PHYSICALLY VERIFY WHETHER OR NOT CONFLICTS EXIST. LOCATIONS OF SAID UTILITIES AS SHOWN ON THESE PLANS ARE BASED UPON THE UNVERIFIED PUBLIC INFORMATION AND ARE SUBJECT TO VARIATION. IF CONFLICTS SHOULD OCCUR, THE CONTRACTOR SHALL CONSULT BARGHAUSEN CONSULTING ENGINEERS, INC. TO RESOLVE ALL PROBLEMS PRIOR TO PROCEEDING WITH CONSTRUCTION.

No.	Date	By	Ckd.	Appr.	Revision

Title: OFFSITE ROAD IMPROVEMENT FREEMAN AND LEVEE INTERSECTION FOR FREEMAN LOGISTICS

For: VECTOR DEVELOPMENT COMPANY
11411 NE 124TH STREET
SUITE 190
KIRKLAND, WA 98034

BENJAMIN H. ELDER — STATE OF WASHINGTON — 22766 — REGISTERED PROFESSIONAL ENGINEER

PRELIMINARY

9/12/22

Scale: Horizontal 1"=30' Vertical N/A

Designed JSM Drawn DTC Checked JSM Approved BHE Date 9/12/22

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

Job Number 21585

Sheet C20 of 29

P:\21000s\21585\engineering\SEPA SET\21585-R.dwg 9/12/2022 2:55 PM DCASEY

OFFSITE ROAD IMPROVEMENTS STA 50+00 TO 55+00

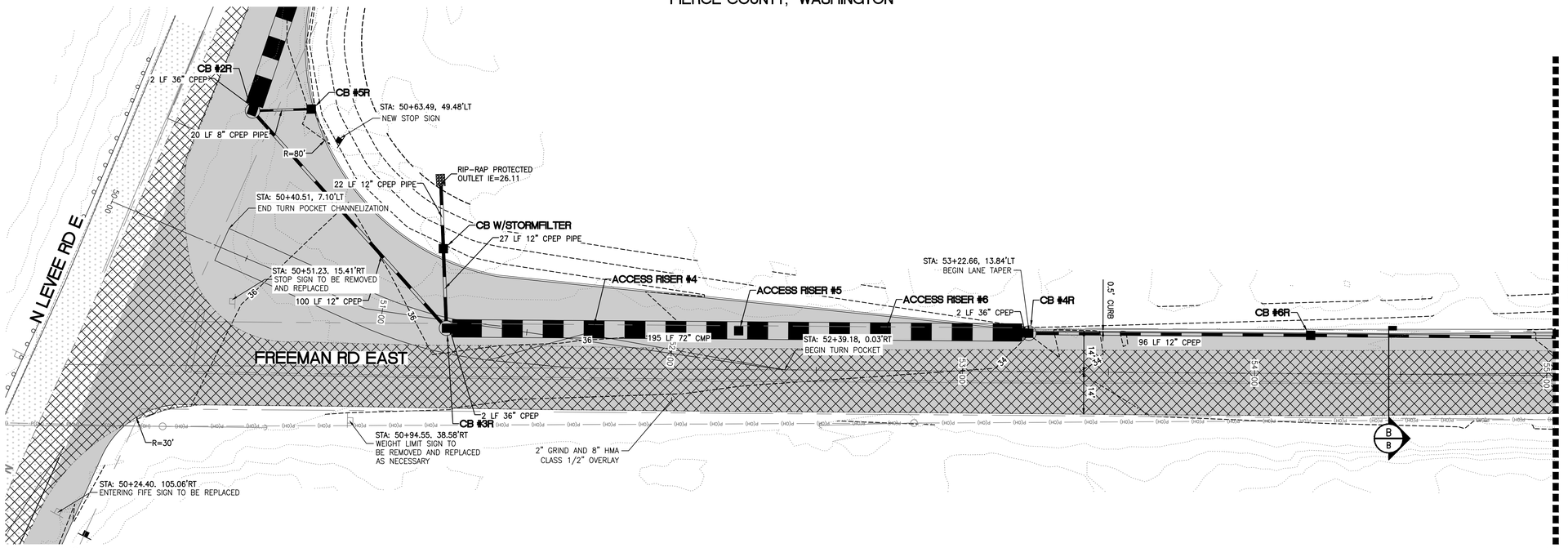
OF

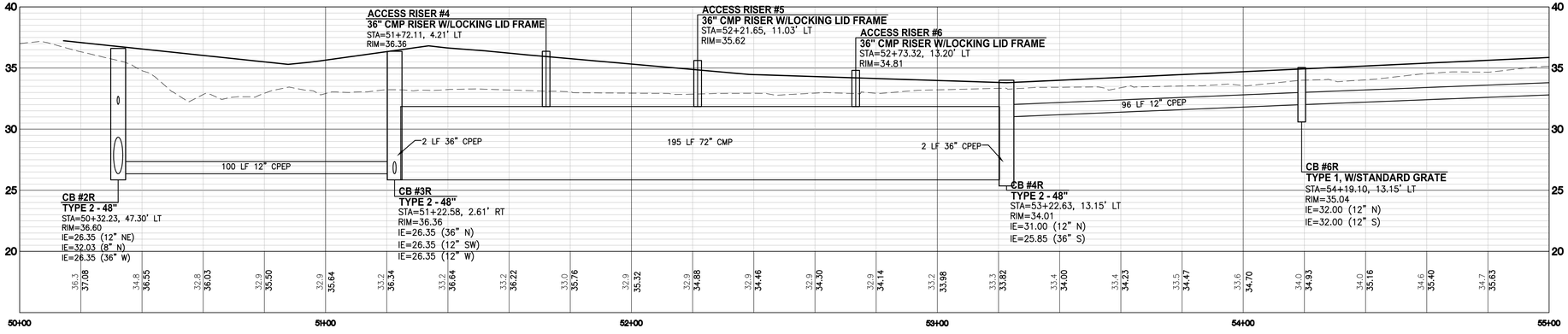
FREEMAN LOGISTICS

PTNS. OF THE SE1/4, OF SEC. 17, TWP. 20 N., RGE 4 EAST, W. M.
AND PTNS. OF THE NE1/4, OF SEC. 20, TWP. 20 N., RGE 4 EAST, W. M.
PIERCE COUNTY, WASHINGTON

N

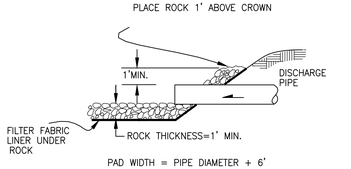
0 10' 20' 40'
SCALE: 1"=20'





FREEMAN ROAD EAST STA: 50+00 TO 55+00

SCALE: HORIZ. 1"=20' VERT. 1"=5'

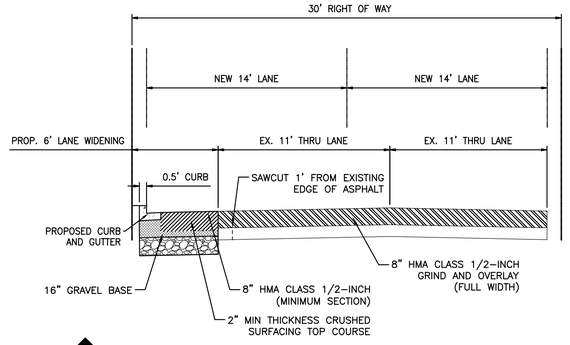


PAD WIDTH = PIPE DIAMETER + 6'
PAD LENGTH = 8' OR 4 x PIPE DIAMETER

RIP RAP SHALL BE QUARRY SPALLS WITH FOLLOWING GRADATION:
PASSING 8" SQUARE SIEVE = 100%
PASSING 3" SQUARE SIEVE = 40%-60% MAX.
PASSING ¾" SQUARE SIEVE = 0%-10% MAX.

RIP RAP PAD DETAIL

NOT TO SCALE



B/B

FREEMAN ROAD EAST SECTION B

NOT TO SCALE

FRONTAGE LEGEND:

(NOTE: NOT ALL SYMBOLS MAY APPEAR ON THE MAP)

- TYPE II CATCH BASIN
- TYPE I CATCH BASIN
- STORM DRAIN FLOW ARROW
- STORM DRAINAGE LINE
- FIRE HYDRANT
- WATER VALVE
- CONCRETE BLOCKING
- 90° BEND
- SPOT ELEVATIONS 300.48
- CONTOURS 150
- 2" GRIND AND 6" HMA CLASS 1/2" OVERLAY
- PROPOSED ASPHALT PAVEMENT
- EXISTING PAVEMENT

CALL BEFORE YOU DIG:
1-800-424-5555

UTILITY CONFLICT NOTE:

CAUTION:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION, DIMENSION, AND DEPTH OF ALL EXISTING UTILITIES WHETHER SHOWN ON THESE PLANS OR NOT BY POTHOLING THE UTILITIES AND SURVEYING THE HORIZONTAL AND VERTICAL LOCATION PRIOR TO CONSTRUCTION. THIS SHALL INCLUDE CALLING UTILITY LOCATE @ 1-800-424-5555 AND THEN POTHOLING ALL OF THE EXISTING UTILITIES AT LOCATIONS OF NEW UTILITY CROSSINGS TO PHYSICALLY VERIFY WHETHER OR NOT CONFLICTS EXIST. LOCATIONS OF SAID UTILITIES AS SHOWN ON THESE PLANS ARE BASED UPON THE UNVERIFIED PUBLIC INFORMATION AND ARE SUBJECT TO VARIATION. IF CONFLICTS SHOULD OCCUR, THE CONTRACTOR SHALL CONSULT BARGHAUSEN CONSULTING ENGINEERS, INC. TO RESOLVE ALL PROBLEMS PRIOR TO PROCEEDING WITH CONSTRUCTION.

APPROVED

BY _____
CITY OF PUYALLUP
DEVELOPMENT ENGINEERING

DATE _____

NOTE: THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE. THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND OR OMISSIONS ON THESE PLANS.
FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE DEVELOPMENT ENGINEERING MANAGER.

No.	Date	By	Ckd.	Appr.	Revision

Title: OFFSITE ROAD IMPROVEMENTS STA 50+00 TO 55+00 FOR FREEMAN LOGISTICS

For: VECTOR DEVELOPMENT COMPANY
11411 NE 124TH STREET
SUITE 190
KIRKLAND, WA 98034

BENJAMIN H. ELDER
STATE OF WASHINGTON
22766
REGISTERED PROFESSIONAL ENGINEER
PRELIMINARY
9/12/22

Scale: Horizontal 1"=20' Vertical 1"=5'

Designed JSM Drawn DTC Checked JSM Approved BHE Date 9/12/22

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222 barghausen.com

Job Number 21585

Sheet C21 of 29

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OFFSITE ROAD IMPROVEMENTS STA 55+00TO 60+00

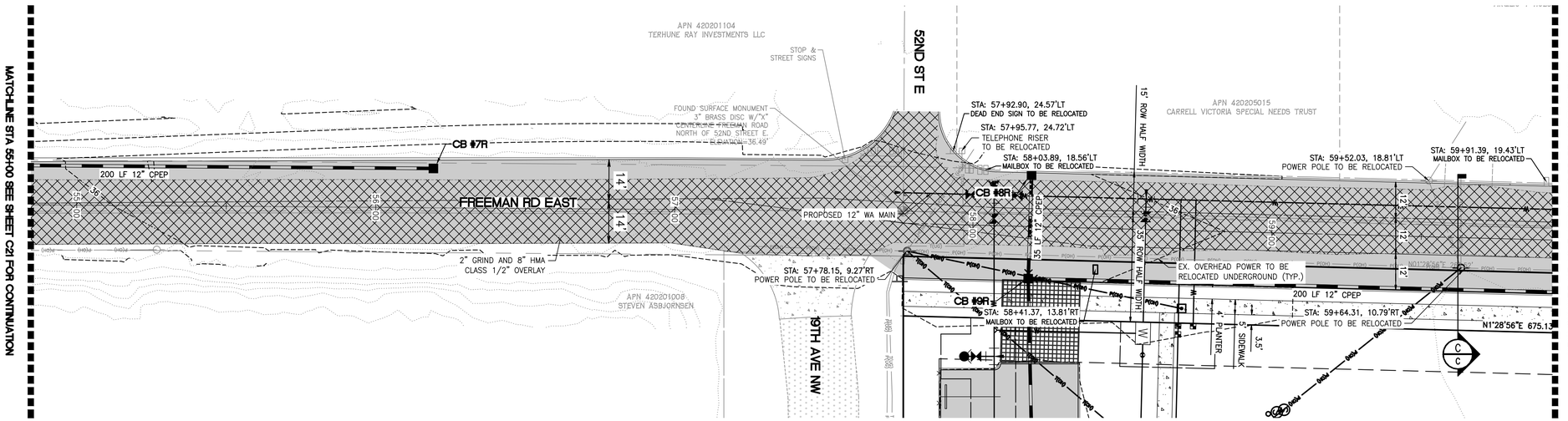
OF

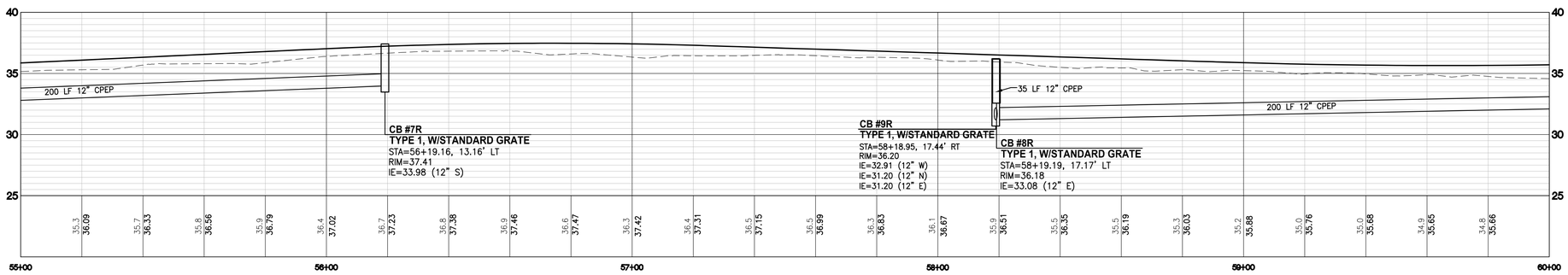
FREEMAN LOGISTICS

PTNS. OF THE SE1/4, OF SEC. 17, TWP. 20 N., RGE 4 EAST, W. M.
AND PTNS. OF THE NE1/4, OF SEC. 20, TWP. 20 N., RGE 4 EAST, W. M.
PIERCE COUNTY, WASHINGTON

N

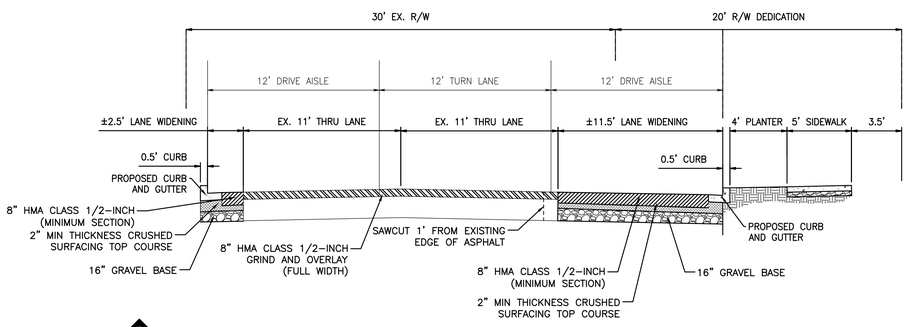
0 10' 20' 40'
SCALE: 1"=20'





FREEMAN ROAD EAST STA: 55+00 TO 60+00

SCALE: HORIZ. 1"=20' VERT. 1"=5'



C C FREEMAN ROAD EAST SECTION C

NOT TO SCALE

FRONTAGE LEGEND:

(NOTE: NOT ALL SYMBOLS MAY APPEAR ON THE MAP)

- TYPE II CATCH BASIN
- TYPE I CATCH BASIN
- STORM DRAIN FLOW ARROW
- STORM DRAINAGE LINE
- SANITARY SEWER LINE
- SANITARY SEWER CLEANOUT
- FIRE HYDRANT
- WATER VALVE
- CONCRETE BLOCKING
- 90° BEND
- SPOT ELEVATIONS 300.48
- CONTOURS 150
- 2" GRIND AND 8" HMA CLASS 1/2" OVERLAY
- PROPOSED ASPHALT PAVEMENT
- EXISTING PAVEMENT

CALL BEFORE YOU DIG:
1-800-424-5555

UTILITY CONFLICT NOTE:

CAUTION:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION, DIMENSION, AND DEPTH OF ALL EXISTING UTILITIES WHETHER SHOWN ON THESE PLANS OR NOT BY POTHOLING THE UTILITIES AND SURVEYING THE HORIZONTAL AND VERTICAL LOCATION PRIOR TO CONSTRUCTION. THIS SHALL INCLUDE CALLING UTILITY LOCATE @ 1-800-424-5555 AND THEN POTHOLING ALL OF THE EXISTING UTILITIES AT LOCATIONS OF NEW UTILITY CROSSINGS TO PHYSICALLY VERIFY WHETHER OR NOT CONFLICTS EXIST. LOCATIONS OF SAID UTILITIES AS SHOWN ON THESE PLANS ARE BASED UPON THE UNVERIFIED PUBLIC INFORMATION AND ARE SUBJECT TO VARIATION. IF CONFLICTS SHOULD OCCUR, THE CONTRACTOR SHALL CONSULT BARGHAUSEN CONSULTING ENGINEERS, INC. TO RESOLVE ALL PROBLEMS PRIOR TO PROCEEDING WITH CONSTRUCTION.

APPROVED

BY _____
CITY OF PUYALLUP
DEVELOPMENT ENGINEERING

DATE _____

NOTE: THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE. THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS. FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE DEVELOPMENT ENGINEERING MANAGER.

No.	Date	By	Ckd.	Appr.	Revision

Title: OFFSITE ROAD IMPROVEMENTS STA 10+00 TO 15+00 FOR FREEMAN LOGISTICS

For: VECTOR DEVELOPMENT COMPANY
11411 NE 124TH STREET
SUITE 190
KIRKLAND, WA 98034

BENJAMIN H. FLOYD — STATE OF WASHINGTON — 22766 — REGISTERED PROFESSIONAL ENGINEER
PRELIMINARY
9/12/22

Scale: Horizontal 1"=20' Vertical 1"=5'

Designed JSM Drawn DTC Checked JSM Approved BHF Date 9/12/22

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222 barghausen.com

Job Number 21585

Sheet C1.5 of 29

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OFFSITE ROAD IMPROVEMENTS STA 60+00 TO 65+00

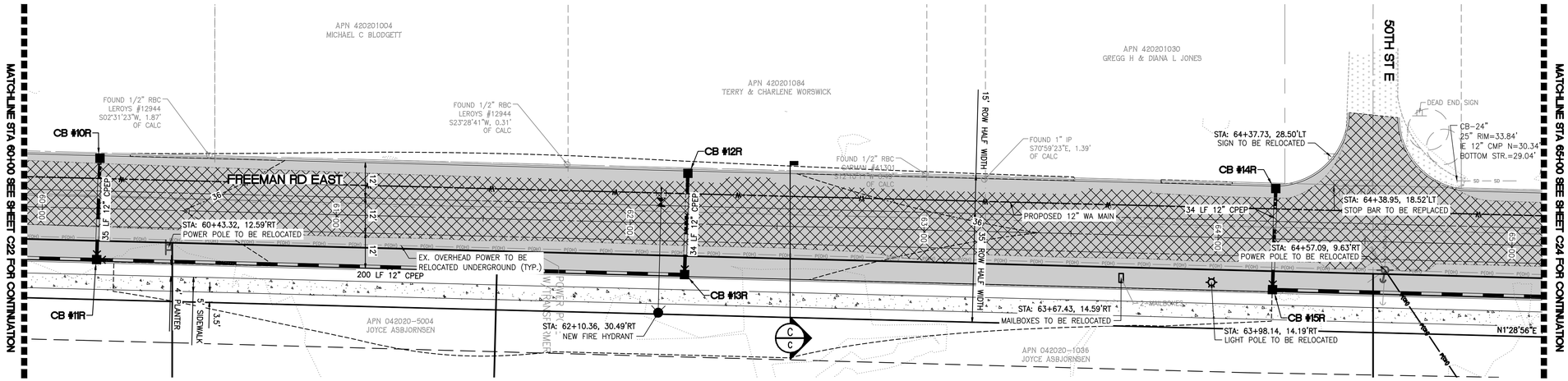
OF

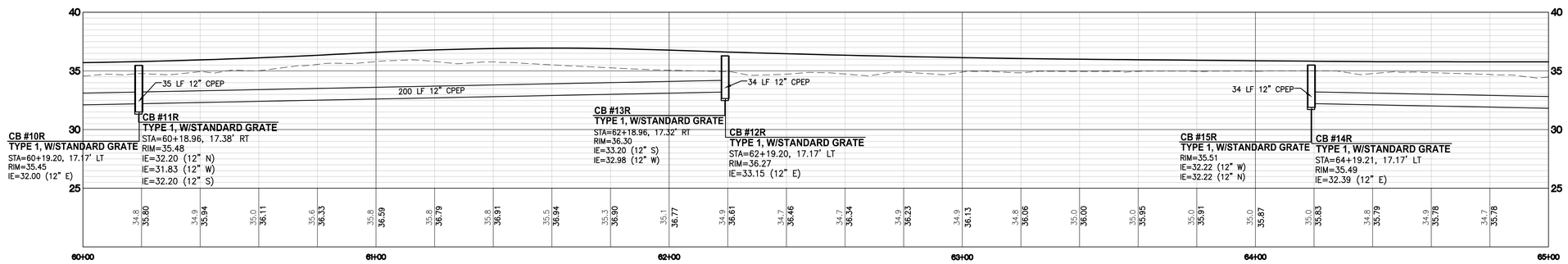
FREEMAN LOGISTICS

PTNS. OF THE SE1/4, OF SEC. 17, TWP. 20 N., RGE 4 EAST, W. M.
AND PTNS. OF THE NE1/4, OF SEC. 20, TWP. 20 N., RGE 4 EAST, W. M.
PIERCE COUNTY, WASHINGTON

N

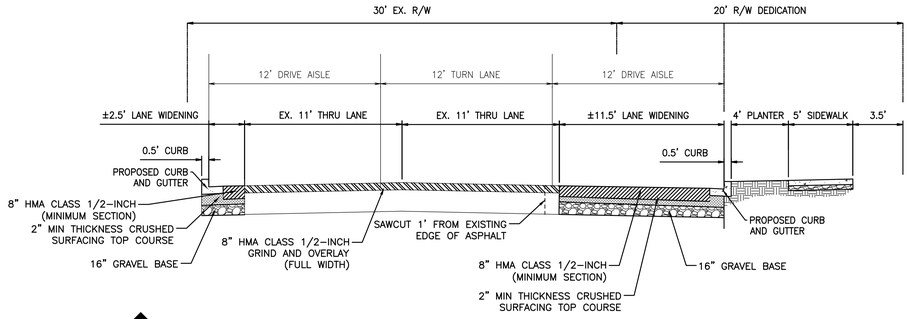
0 10' 20' 40'
SCALE: 1"=20'





FREEMAN ROAD EAST STA: 60+00 TO 65+00

SCALE: HORIZ. 1"=20' VERT. 1"=5'



FREEMAN ROAD EAST SECTION C

NOT TO SCALE

FRONTAGE LEGEND:

(NOTE: NOT ALL SYMBOLS MAY APPEAR ON THE MAP)

- TYPE II CATCH BASIN
- TYPE I CATCH BASIN
- STORM DRAIN FLOW ARROW
- STORM DRAINAGE LINE
- SANITARY SEWER LINE
- SANITARY SEWER CLEANOUT
- FIRE HYDRANT
- WATER VALVE
- CONCRETE BLOCKING
- 90° BEND
- SPOT ELEVATIONS 300.48
- CONTOURS 150
- 2" GRIND AND 8" HMA CLASS 1/2" OVERLAY
- PROPOSED ASPHALT PAVEMENT
- EXISTING PAVEMENT

CALL BEFORE YOU DIG:
1-800-424-5555

UTILITY CONFLICT NOTE:

CAUTION:
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APPROVED

BY _____
CITY OF PUYALLUP
DEVELOPMENT ENGINEERING

DATE _____

NOTE: THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE. THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS. FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE DEVELOPMENT ENGINEERING MANAGER.

No.	Date	By	Ckd.	Appr.	Revision

Title: OFFSITE ROAD IMPROVEMENTS STA 60+00 TO 65+00 FOR FREEMAN LOGISTICS

For: VECTOR DEVELOPMENT COMPANY
11411 NE 124TH STREET
SUITE 190
KIRKLAND, WA 98034

BENJAMIN H. ELDRIDGE
STATE OF WASHINGTON
22766
REGISTERED PROFESSIONAL ENGINEER
PRELIMINARY
9/12/22

Scale: Horizontal 1"=20' Vertical 1"=5'

Designed JSM Drawn DTC Checked JSM Approved BHE Date 9/12/22

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

Job Number 21585

Sheet C23 of 29

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OFFSITE ROAD IMPROVEMENTS STA 65+00 TO 70+00

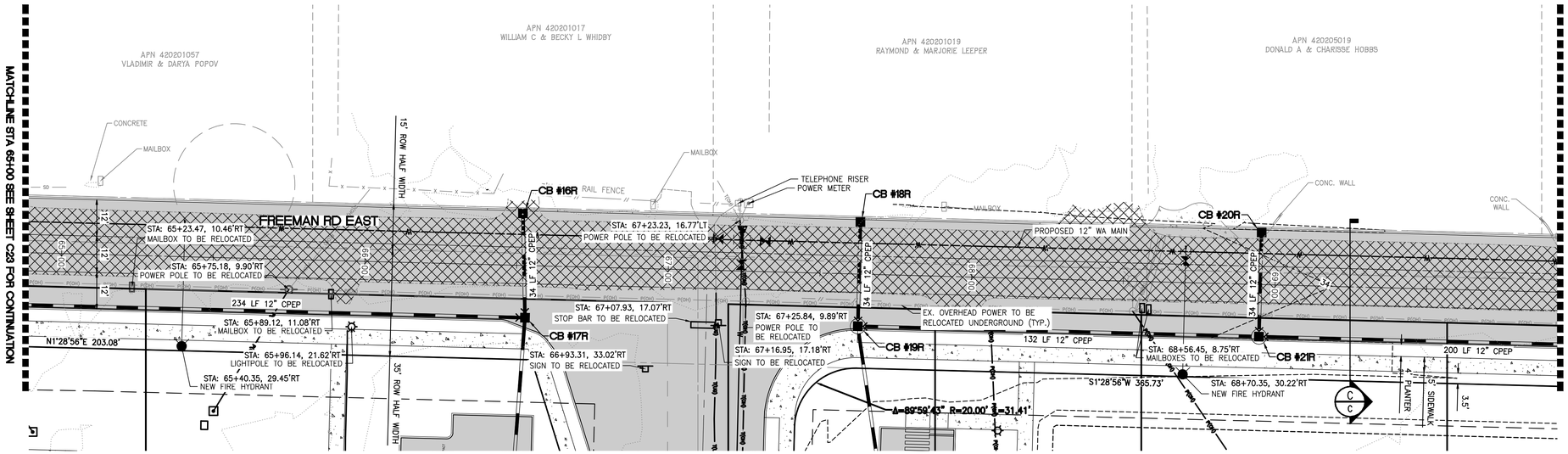
OF

FREEMAN LOGISTICS

PTNS. OF THE SE1/4, OF SEC. 17, TWP. 20 N., RGE 4 EAST, W. M.
AND PTNS. OF THE NE1/4, OF SEC. 20, TWP. 20 N., RGE 4 EAST, W. M.
PIERCE COUNTY, WASHINGTON

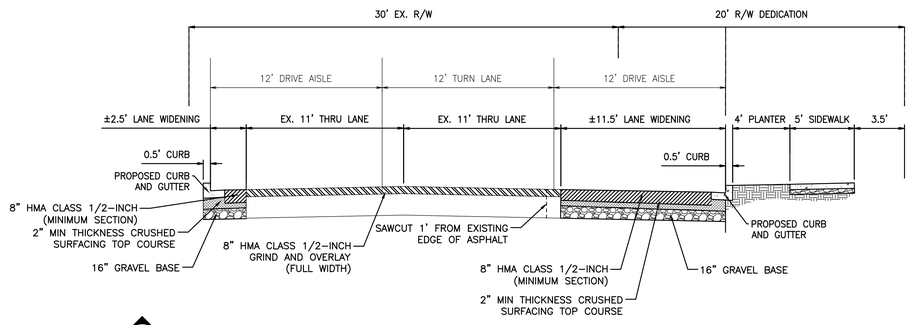
N

0 10' 20' 40'
SCALE: 1"=20'



FREEMAN ROAD EAST STA: 65+00 TO 70+00

SCALE: HORIZ. 1"=20' VERT. 1"=5'



C/C FREEMAN ROAD EAST SECTION C

NOT TO SCALE

FRONTAGE LEGEND:

(NOTE: NOT ALL SYMBOLS MAY APPEAR ON THE MAP)

- TYPE II CATCH BASIN
- TYPE I CATCH BASIN
- STORM DRAIN FLOW ARROW
- STORM DRAINAGE LINE
- SANITARY SEWER LINE
- SANITARY SEWER CLEANOUT
- FIRE HYDRANT
- WATER VALVE
- CONCRETE BLOCKING
- 90° BEND
- SPOT ELEVATIONS 300.48
- CONTOURS 150
- 2" GRIND AND 8" HMA CLASS 1/2" OVERLAY
- PROPOSED ASPHALT PAVEMENT
- EXISTING PAVEMENT

CALL BEFORE YOU DIG:
1-800-424-5555

UTILITY CONFLICT NOTE:

CAUTION:
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APPROVED

BY _____
CITY OF PUYALLUP
DEVELOPMENT ENGINEERING

DATE _____

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No.	Date	By	Ckd.	Appr.	Revision

Title: OFFSITE ROAD IMPROVEMENTS STA 65+00 TO 70+00 FOR FREEMAN LOGISTICS

For: VECTOR DEVELOPMENT COMPANY
11411 NE 124TH STREET
SUITE 190
KIRKLAND, WA 98034

BENJAMIN H. FLOYD
STATE OF WASHINGTON
22766
REGISTERED PROFESSIONAL ENGINEER
PRELIMINARY
9/12/22

Scale: Horizontal 1"=20' Vertical 1"=5'

Designed JSM Drawn DTC Checked JSM Approved BHF Date 9/12/22

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222 barghausen.com

Job Number 21585

Sheet C24 of 29

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OFFSITE ROAD IMPROVEMENTS STA 70+00 TO 75+00

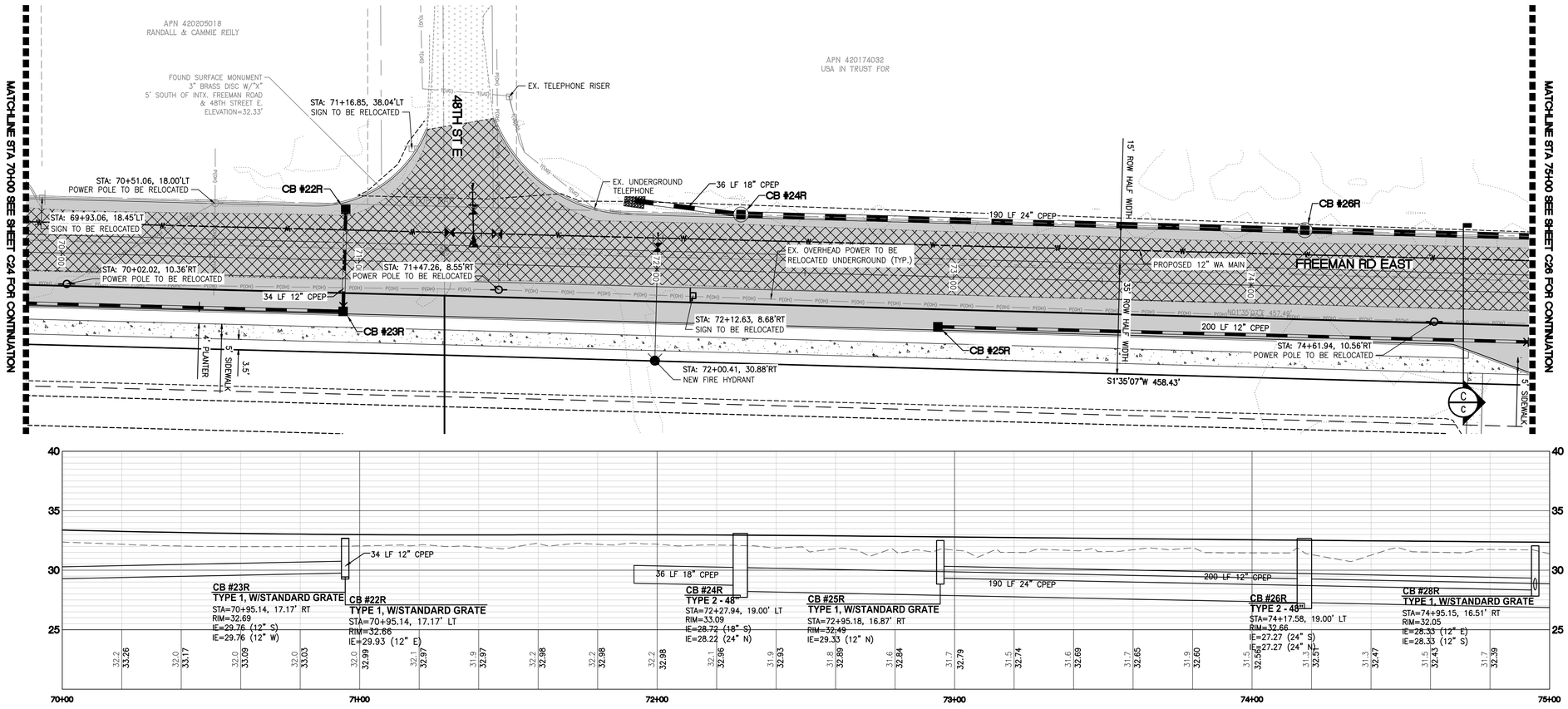
OF

FREEMAN LOGISTICS

PTNS. OF THE SE1/4, OF SEC. 17, TWP. 20 N., RGE 4 EAST, W. M.
AND PTNS. OF THE NE1/4, OF SEC. 20, TWP. 20 N., RGE 4 EAST, W. M.
PIERCE COUNTY, WASHINGTON

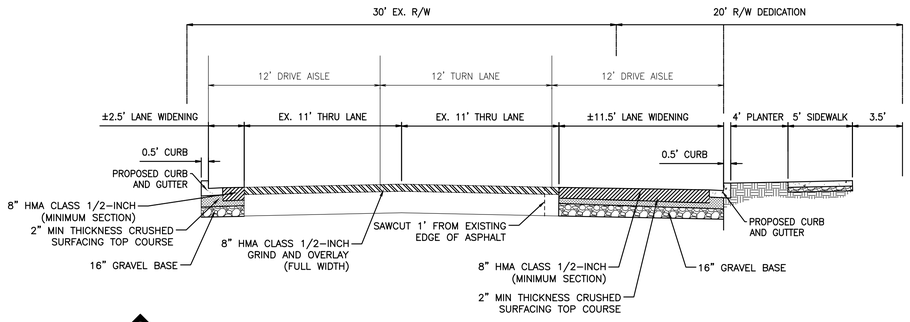
N

0 10' 20' 40'
SCALE: 1"=20'



FREEMAN ROAD EAST STA: 70+00 TO 75+00

SCALE: HORIZ. 1"=20' VERT. 1"=5'



FREEMAN ROAD EAST SECTION C

NOT TO SCALE

FRONTAGE LEGEND:

(NOTE: NOT ALL SYMBOLS MAY APPEAR ON THE MAP)

- TYPE II CATCH BASIN
- TYPE I CATCH BASIN
- STORM DRAIN FLOW ARROW
- STORM DRAINAGE LINE
- SANITARY SEWER LINE
- SANITARY SEWER CLEANOUT
- FIRE HYDRANT
- WATER VALVE
- CONCRETE BLOCKING
- 90° BEND
- SPOT ELEVATIONS 300.48
- CONTOURS ------150------
- 2" GRIND AND 8" HMA CLASS 1/2" OVERLAY
- PROPOSED ASPHALT PAVEMENT
- EXISTING PAVEMENT

CALL BEFORE YOU DIG:
1-800-424-5555

UTILITY CONFLICT NOTE:

CAUTION:
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APPROVED

BY _____
CITY OF PUYALLUP
DEVELOPMENT ENGINEERING

DATE _____

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FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE DEVELOPMENT ENGINEERING MANAGER.

No.	Date	By	Ckd.	Appr.	Revision

Title: OFFSITE ROAD IMPROVEMENTS STA 70+00 TO 75+00 FOR FREEMAN LOGISTICS

For: VECTOR DEVELOPMENT COMPANY
11411 NE 124TH STREET
SUITE 190
KIRKLAND, WA 98034

BENJAMIN H. ELDER — STATE OF WASHINGTON — 22766 — REGISTERED PROFESSIONAL ENGINEER
PRELIMINARY
9/12/22

Scale: Horizontal 1"=20' Vertical 1"=5'

Designed JSM Drawn DTC Checked JSM Approved BHE Date 9/12/22

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222 barghausen.com

Job Number 21585

Sheet C18 of 29

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OFFSITE ROAD IMPROVEMENTS STA 75+00 TO 77+20

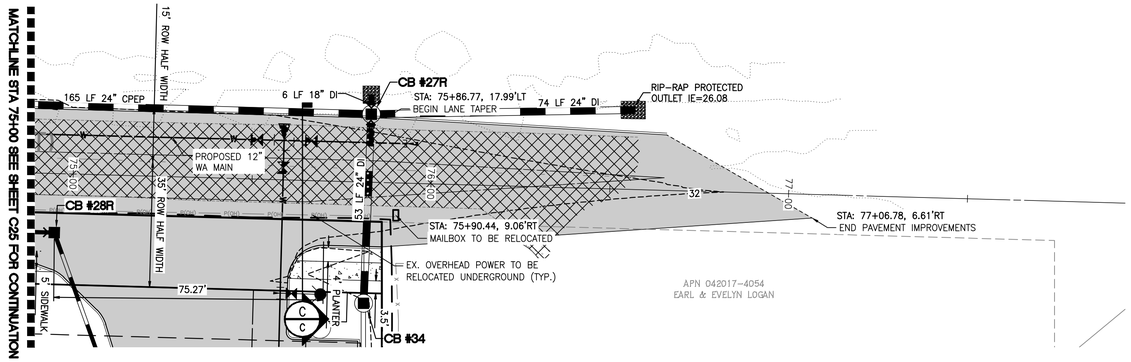
OF

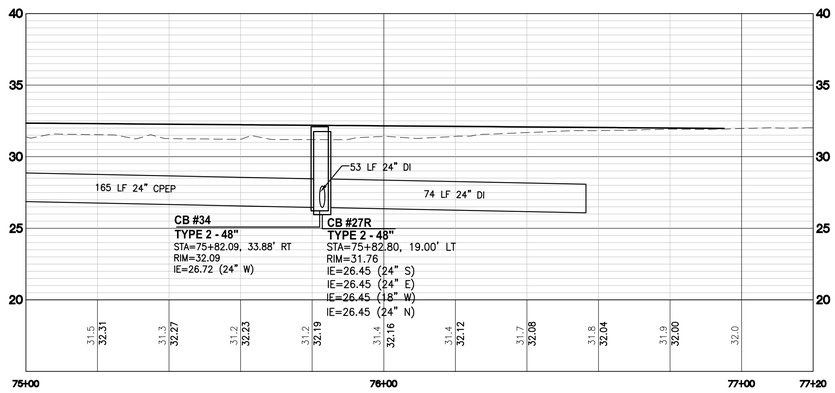
FREEMAN LOGISTICS

PTNS. OF THE SE1/4, OF SEC. 17, TWP. 20 N., RGE 4 EAST, W. M.
AND PTNS. OF THE NE1/4, OF SEC. 20, TWP. 20 N., RGE 4 EAST, W. M.
PIERCE COUNTY, WASHINGTON

N

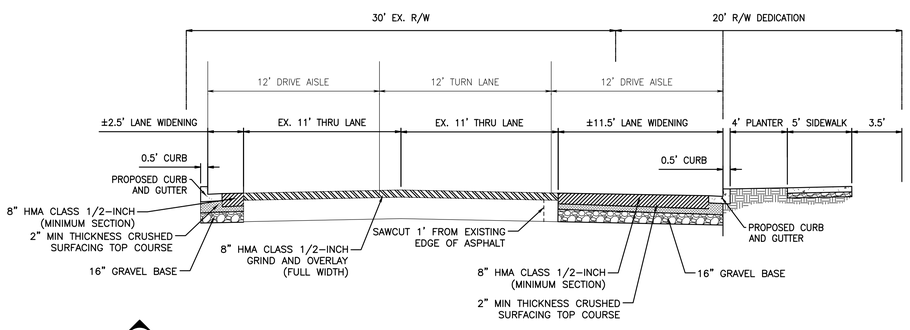
0 10' 20' 40'
SCALE: 1"=20'





FREEMAN ROAD EAST STA: 75+00 TO 77+20

SCALE: HORIZ. 1"=20' VERT. 1"=5'



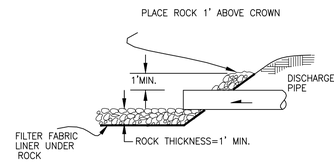
C/C FREEMAN ROAD EAST SECTION C

NOT TO SCALE

FRONTAGE LEGEND:

(NOTE: NOT ALL SYMBOLS MAY APPEAR ON THE MAP)

- TYPE II CATCH BASIN
- TYPE I CATCH BASIN
- STORM DRAIN FLOW ARROW
- STORM DRAINAGE LINE
- SANITARY SEWER LINE
- SANITARY SEWER CLEANOUT
- FIRE HYDRANT
- WATER VALVE
- CONCRETE BLOCKING
- 90° BEND
- SPOT ELEVATIONS 300.48
- CONTOURS ------150------
- 2" GRIND AND 8" HMA CLASS 1/2" OVERLAY
- PROPOSED ASPHALT PAVEMENT
- EXISTING PAVEMENT



PAD WIDTH = PIPE DIAMETER + 6'
PAD LENGTH = 8' OR 4 x PIPE DIAMETER

RIP RAP SHALL BE QUARRY SPALLS WITH FOLLOWING GRADATION:
PASSING 8" SQUARE SIEVE = 100%
PASSING 3" SQUARE SIEVE = 40%-60% MAX.
PASSING ¾" SQUARE SIEVE = 0%-10% MAX.

RIP RAP PAD DETAIL

NOT TO SCALE

CALL BEFORE YOU DIG: 1-800-424-5555

UTILITY CONFLICT NOTE:

CAUTION:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION, DIMENSION, AND DEPTH OF ALL EXISTING UTILITIES WHETHER SHOWN ON THESE PLANS OR NOT BY POTHOLING THE UTILITIES AND SURVEYING THE HORIZONTAL AND VERTICAL LOCATION PRIOR TO CONSTRUCTION. THIS SHALL INCLUDE CALLING UTILITY LOCATE @ 1-800-424-5555 AND THEN POTHOLING ALL OF THE EXISTING UTILITIES AT LOCATIONS OF NEW UTILITY CROSSINGS TO PHYSICALLY VERIFY WHETHER OR NOT CONFLICTS EXIST. LOCATIONS OF SAID UTILITIES AS SHOWN ON THESE PLANS ARE BASED UPON THE UNVERIFIED PUBLIC INFORMATION AND ARE SUBJECT TO VARIATION. IF CONFLICTS SHOULD OCCUR, THE CONTRACTOR SHALL CONSULT BARGHAUSEN CONSULTING ENGINEERS, INC. TO RESOLVE ALL PROBLEMS PRIOR TO PROCEEDING WITH CONSTRUCTION.

APPROVED

BY _____
CITY OF PUYALLUP
DEVELOPMENT ENGINEERING

DATE _____

NOTE: THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE. THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS. FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE DEVELOPMENT ENGINEERING MANAGER.

No.	Date	By	Ckd.	Appr.	Revision

Title: OFFSITE ROAD IMPROVEMENTS STA 75+00 TO 77+20 FOR FREEMAN LOGISTICS

For: VECTOR DEVELOPMENT COMPANY
11411 NE 124TH STREET
SUITE 190
KIRKLAND, WA 98034

BENJAMIN H. FLOYD — STATE OF WASHINGTON — 22766 — REGISTERED PROFESSIONAL ENGINEER
PRELIMINARY
9/12/22

Scale: Horizontal 1"=20' Vertical 1"=5'

Designed JSM Drawn DTC. Checked JSM Approved BHF Date 9/12/22

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222 barghausen.com

Job Number 21585

Sheet C19 of 29

P:\21000s\21585\engineering\SEPA SET\21585-R.dwg 9/12/2022 2:55 PM DCASEY

SEWER FORCE MAIN EXTENTION STA 40+00 TO 47+75

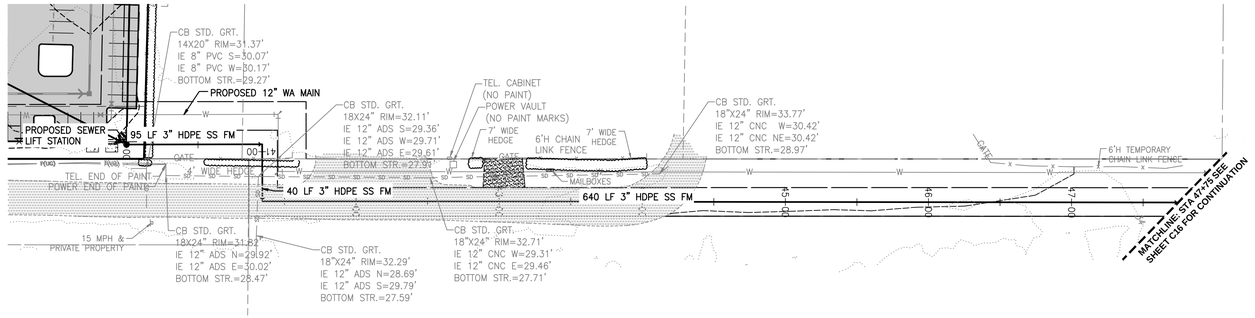
OF

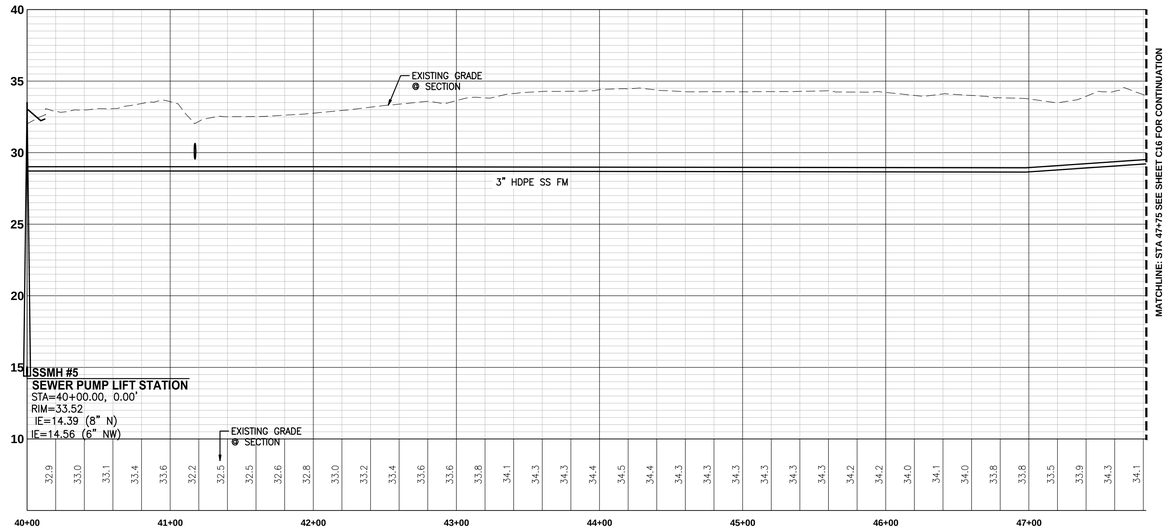
FREEMAN LOGISTICS

PTNS. OF THE SE1/4, OF SEC. 17, TWP. 20 N., RGE 4 EAST, W. M.
AND PTNS. OF THE NE1/4, OF SEC. 20, TWP. 20 N., RGE 4 EAST, W. M.
PIERCE COUNTY, WASHINGTON

N

0 25' 50' 100'
SCALE: 1"=50'





SEWER FORCE MAIN EXTENTION STA: 40+00 TO 47+75

SCALE: HORIZ. 1"=50' VERT. 1"=5'

APPROVED

BY _____
CITY OF PUYALLUP
DEVELOPMENT ENGINEERING

DATE _____

NOTE: THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE.
THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS.
FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE DEVELOPMENT ENGINEERING MANAGER.

No.	Date	By	Ckd.	Appr.	Revision

Title: **SEWER FORCE MAIN EXTENTION STA 40+00 TO 47+75** FOR FREEMAN LOGISTICS

For: VECTOR DEVELOPMENT COMPANY
11411 NE 124TH STREET
SUITE 190
KIRKLAND, WA 98034

BENJAMIN H. FLOYD
STATE OF WASHINGTON
21766
REGISTERED
PROFESSIONAL ENGINEER
PRELIMINARY
9/2/22

Scale: Horizontal 1"=50' Vertical 1"=5'

Designed JSM Drawn DTC Checked JSM Approved BHF Date 9/2/22

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Kent, WA 98032
425.251.6222 barghausen.com

Job Number 21585

Sheet C15 of 29

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SEWER FORCE MAIN EXTENTION STA 47+75 TO 61+00

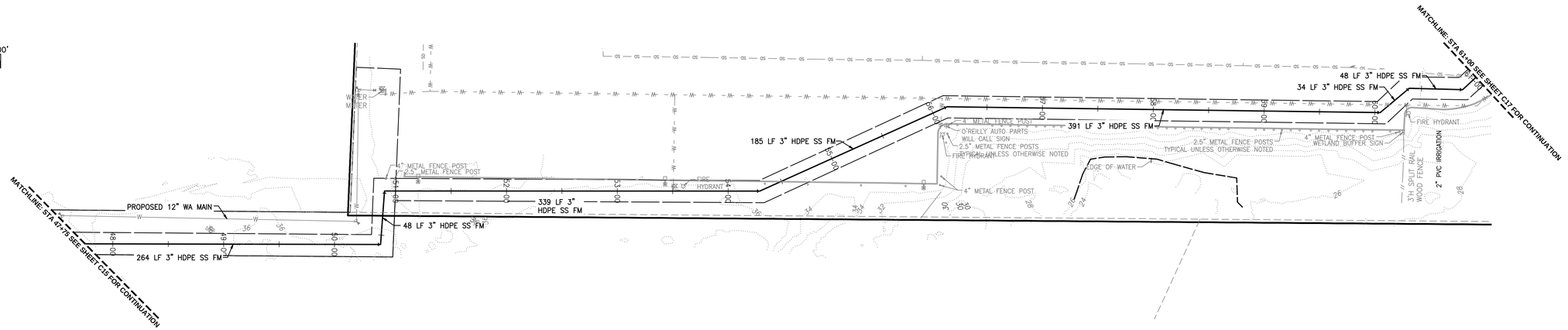
OF

FREEMAN LOGISTICS

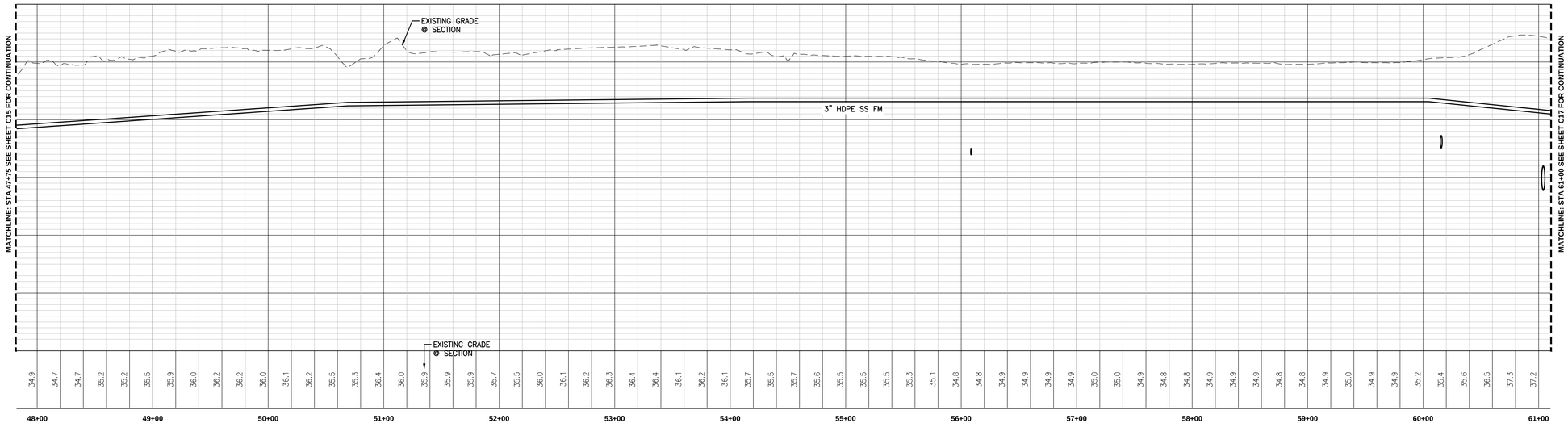
PTNS. OF THE SE1/4, OF SEC. 17, TWP. 20 N., RGE 4 EAST, W. M.
AND PTNS. OF THE NE1/4, OF SEC. 20, TWP. 20 N., RGE 4 EAST, W. M.
PIERCE COUNTY, WASHINGTON

N

0 25' 50' 100'
SCALE: 1"=50'



SEWR FM OF PROFILE



SEWER FORCE MAIN EXTENTION STA: 47+75 TO 61+00

SCALE: HORIZ. 1"=50' VERT. 1"=5'

APPROVED

BY _____
CITY OF PUYALLUP
DEVELOPMENT ENGINEERING

DATE _____

NOTE: THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE. THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS. FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE DEVELOPMENT ENGINEERING MANAGER.

No.	Date	By	Ckd.	Appr.	Revision

Title: **SEWER FORCE MAIN EXTENTION STA 47+75 TO 61+00** FOR FREEMAN LOGISTICS

For: VECTOR DEVELOPMENT COMPANY
11411 NE 124TH STREET
SUITE 190
KIRKLAND, WA 98034

BENJAMIN H. FLORES — STATE OF WASHINGTON — 22668 — REGISTERED PROFESSIONAL ENGINEER
PRELIMINARY
9/2/22

Scale: Horizontal 1"=50' Vertical 1"=5'

Designed JSM Drawn DTC Checked JSM Approved BHF Date 9/2/22

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Kent, WA 98032
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Job Number 21585

Sheet C16 of 29

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SEWER FORCE MAIN EXTENTION STA 61+00 TO 68+60

OF

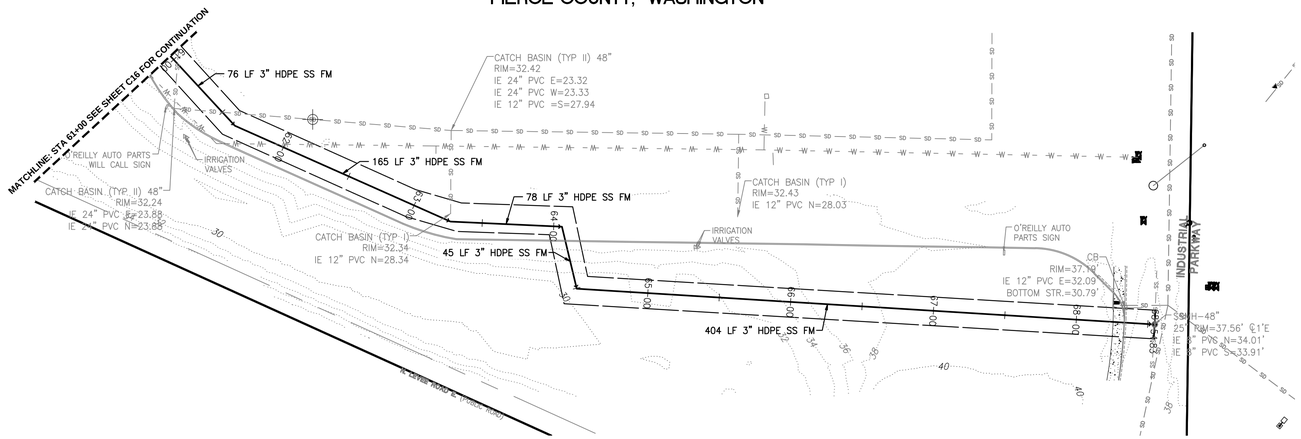
FREEMAN LOGISTICS

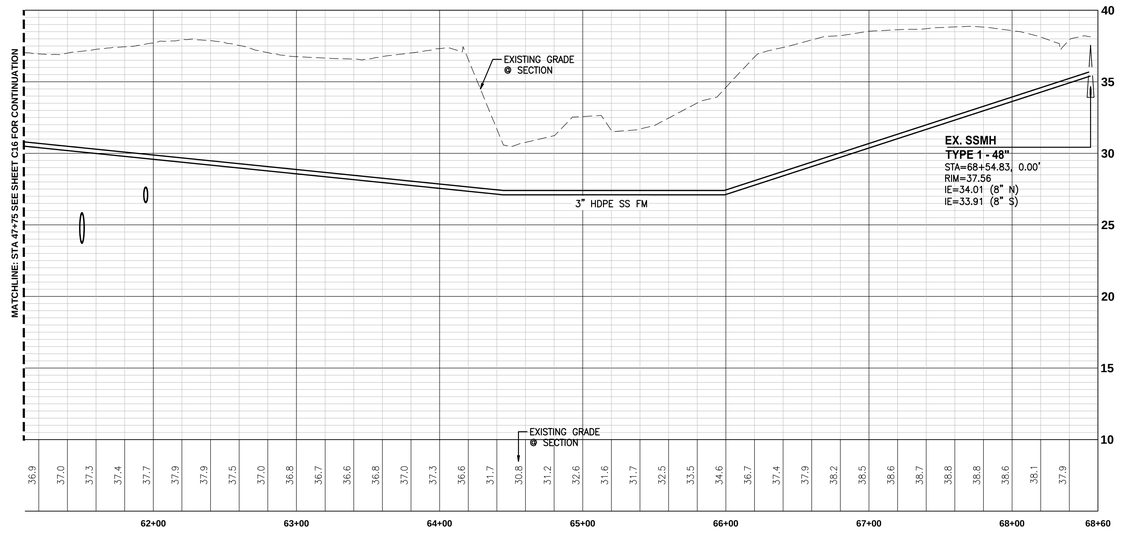
PTNS. OF THE SE1/4, OF SEC. 17, TWP. 20 N., RGE 4 EAST, W. M.
AND PTNS. OF THE NE1/4, OF SEC. 20, TWP. 20 N., RGE 4 EAST, W. M.
PIERCE COUNTY, WASHINGTON

N

0 25' 50' 100'

SCALE: 1"=50'





SEWER FORCE MAIN EXTENTION STA: 61+00 TO 68+60

SCALE: HORIZ. 1"=50' VERT. 1"=5'

APPROVED

BY _____
CITY OF PUYALLUP
DEVELOPMENT ENGINEERING

DATE _____

NOTE: THIS APPROVAL IS VOID AFTER 180 DAYS FROM APPROVAL DATE. THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS.
FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE DEVELOPMENT ENGINEERING MANAGER.

No.	Date	By	Ckd.	Appr.	Revision

Title: **SEWER FORCE MAIN EXTENTION STA 61+00 TO 68+60** FOR FREEMAN LOGISTICS

For: VECTOR DEVELOPMENT COMPANY
11411 NE 124TH STREET
SUITE 190
KIRKLAND, WA 98034

BENJAMIN H. FLOYD
STATE OF WASHINGTON
22766
REGISTERED
PROFESSIONAL ENGINEER
PRELIMINARY
9/2/22

Scale: Horizontal 1"=50' Vertical 1"=5'

Designed JSM Drawn DTC. Checked JSM Approved BHF Date 9/2/22

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Kent, WA 98032
425.251.6222 **barghausen.com**

Job Number 21585

Sheet C17 of 29

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No.	Date	By	Ckd.	Appr.	Revision

Title: VECTOR

####
####
####

For:

Scale: Horizontal Vertical

Designed ___ Drawn ___ Checked ___ Approved ___ Date ___

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Kent, WA 98032
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Sheet ### of

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Appendix B
Study Area Photographs

Appendix B
Study Area Photographs

Photograph 1
Parcels 0420174075 and 0420205016

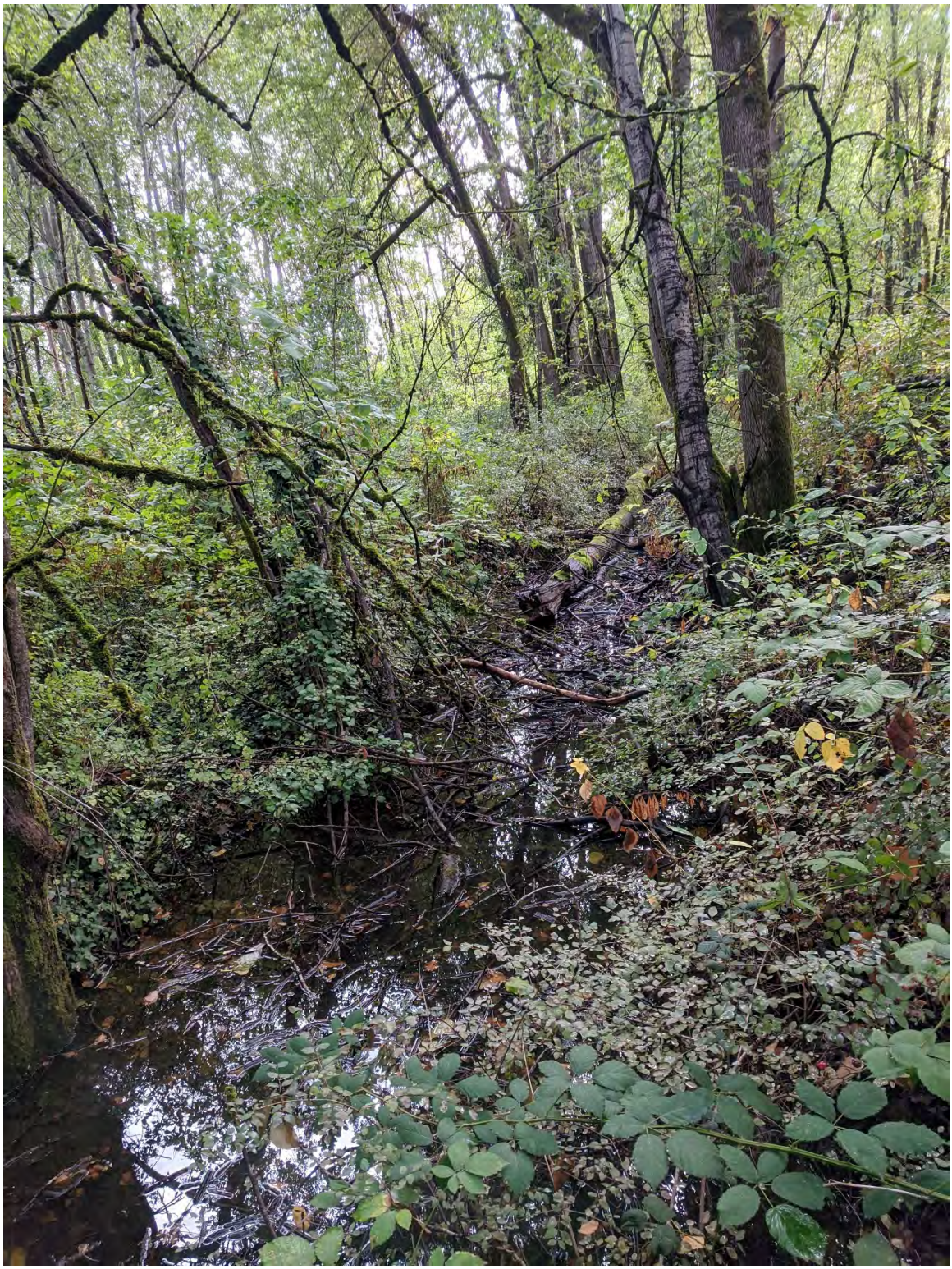
Photograph 2
Agricultural Ditch

Photograph 3
Agricultural Ditch and Adjacent Agricultural Field

Photograph 4
Adjacent Agricultural Fields

Photograph 5
View of DP1

Photograph 6
Agricultural Ditch South



Photograph 7
East Edge of Parcel 0420205016

Photograph 8
Active Grazing in Parcel 0420174075

Photograph 9
Grazing in Parcel 0420174075

Photograph 10
Ditch

Photograph 11
Field Adjacent to DP2

Photograph 12
Landscape View of DP3

Photograph 13
View of DP2

Photograph 14
View of DP3

Photograph 15
Area Near DP3

Photograph 16
Wetlands Mapped South of 52nd Street East

Photograph 17
Wetlands Mapped South of 52nd Street East

Photograph 18
Vegetation in Wetlands Mapped South of 52nd Street East

Photograph 19
Wetland B on Parcel 0420174075 (March 11, 2022)

Photograph 20
Wetland B on Parcel 0420174075 (March 11, 2022)

Photograph 21
Wetland B on Parcel 0420174075 (March 11, 2022)

Appendix C
Wetland Forms

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Freeman Road Logistics City/County: Puyallup/Pierce County Sampling Date: 3/11/2022
Applicant/Owner: Vector Development Company State: WA Sampling Point: Wet A DP1 W
Investigator(s): C. Douglas, M. Curran Section, Township, Range: S17 & 20 R4E T20N
Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): concave Slope: 1-5
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 47.12'33 Long: 122.19'03 Datum: NAD83
Soil Map Unit Name: Pilchuck fine sand NWI Classification: PFO, PSS, POW
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes x No
Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No	**Is the Sampled Area within a Wetland?** **Yes X** **No**
Hydric Soil Present?	Yes **X**	No	
Wetland Hydrology Present?	Yes **X**	No	

Remarks: Delineated northern and eastern boundary of large wetland system to identify potential buffer impacts for utility line construction

VEGETATION

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Populus balsamifera ssp. Trichocarpa*	70	Yes	FAC
2.			
3.			
4.			
5.			
50%= 35 20%= 14 Total Cover:	**70**		
Sapling/Shrub Stratum (Plot size:)			
1. *Cornus sericea*	85	Yes	FACW
2. *Rubus armeniacus*	20	No	FAC
3. *Symphoricarpos albus*	20	No	FACU
4.			
5.			
50%= 62.5 20%= 25 Total Cover:	**125**		
Herb Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
50%= 0 20%= 0 Total Cover:	**0**		
Woody Vine Stratum (Plot size:)			
1.			
2.			
Total Cover:	**0**		
% Bare Ground in Herb Stratum **100** % Cover of Biotic Crust			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)

Total Number of Dominant Species Across All Strata: **2** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x1 =	**0**
FACW species	**85**	x2 =	**170**
FAC species	**90**	x3 =	**270**
FACU species	**20**	x4 =	**80**
UPL species	**0**	x5 =	**0**
Column Totals:	**195** (A)		**520** (B)

Prevalence Index = B/A = **2.7**

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X** **No**

Remarks: 100% FAC vegetation

SOIL

Sampling Point: Wet A DP1 W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/1	100					SiL	
4-9	10YR 3/1	90	10YR 5/4	10	D	M	SL	
9-18	10YR 2/1	95	10YR 4/1	5	D	M	LS	w/gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- x Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks: 1 chroma with redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum one required; check all that apply)

- x Surface Water (A1)
- x High Water Table (A2)
- x Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- x Inundation Visible on Aerial Imagery (B7)
- x Sparsely Vegetated Concave Surface (B8)
- x Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- x Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes x No ___ Depth (inches): 1 inch

Water table Present? Yes x No ___ Depth (inches): at surface

Saturation Present? (includes capillary fringe) Yes x No ___ Depth (inches): at surface

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (Unnamed Tributary gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Standing water >1 ft deep 10 ft from DP

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Freeman Road Logistics City/County: Puyallup/Pierce County Sampling Date: 3/11/2022
Applicant/Owner: Vector Development Company State: WA Sampling Point: Wet A DP2 Up
Investigator(s): C. Douglas, M. Curran Section, Township, Range: S17 & 20 R4E T20N
Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): concave Slope: 1-5
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 47.12'33 Long: 122.19'03 Datum: NAD83
Soil Map Unit Name: Pilchuck fine sand NWI Classification: PFO, PSS, POW
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes x No
Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No **X**	**Is the Sampled Area within a Wetland?** **Yes** **No X**
Hydric Soil Present?	Yes	No **X**	
Wetland Hydrology Present?	Yes **X**	No	

Remarks: Delineated northern and eastern boundary of large wetland system to identify potential buffer impacts for utility line construction

VEGETATION

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Populus balsamifera ssp. Trichocarpa*	80	Yes	FAC
2. *Picea sitchensis*	10	No	FAC
3.			
4.			
5.			
50%= 45 20%= 18 Total Cover:	**90**		
Sapling/Shrub Stratum (Plot size:)			
1. *Cornus sericea*	30	No	FACW
2. *Rubus armeniacus*	20	No	FAC
3. *Symphoricarpos albus*	90	Yes	FACU
4. *Ribes sanguineum*	20	No	FACU
5.			
50%= 80 20%= 32 Total Cover:	**160**		
Herb Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
50%= 0 20%= 0 Total Cover:	**0**		
Woody Vine Stratum (Plot size:)			
1. *Hedera helix*	20		FACU
2.			
Total Cover:	**20**		
% Bare Ground in Herb Stratum **100** % Cover of Biotic Crust			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **2** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **50%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x1 =	**0**
FACW species	**30**	x2 =	**60**
FAC species	**110**	x3 =	**330**
FACU species	**110**	x4 =	**440**
UPL species	**0**	x5 =	**0**
Column Totals:	**250** (A)		**830** (B)

Prevalence Index = B/A = **3.3**

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No X**

Remarks: 50% FAC vegetation

SOIL

Sampling Point: Wet A DP2 Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	100					SiL	w/gravel
8-18	10YR 4/2	100					SL	w/gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** **X**

Remarks: 2 chroma with no redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- **x** Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes **x** No _____ Depth (inches): 10 inches

Wetland Hydrology Present? **Yes** **X** **No** _____

Describe Recorded Data (Unnamed Tributary gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Saturation 10 inches deep, no other hydric indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Freeman Road Logistics City/County: Puyallup/Pierce County Sampling Date: 3/11/2022
Applicant/Owner: Vector Development Company State: WA Sampling Point: Wet A DP3 W
Investigator(s): C. Douglas, M. Curran Section, Township, Range: S17 & 20 R4E T20N
Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): concave Slope: 1-5
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 47.12'33 Long: 122.19'03 Datum: NAD83
Soil Map Unit Name: Pilchuck fine sand NWI Classification: PFO, PSS, POW
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes x No
Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X** No	**Is the Sampled Area within a Wetland?** **Yes X No**
Hydric Soil Present?	Yes **X** No	
Wetland Hydrology Present?	Yes **X** No	

Remarks: Delineated northern and eastern boundary of large wetland system to identify potential buffer impacts for utility line construction

VEGETATION

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Populus balsamifera ssp. Trichocarpa*	60	Yes	FAC
2.			
3.			
4.			
5.			
50%= 30 20%= 12 Total Cover:	**60**		
Sapling/Shrub Stratum (Plot size:)			
1. *Cornus sericea*	80	Yes	FACW
2. *Rubus armeniacus*	20	No	FAC
3. *Rubus spectabilis*	30	Yes	FAC
4.			
5.			
50%= 65 20%= 26 Total Cover:	**130**		
Herb Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
50%= 0 20%= 0 Total Cover:	**0**		
Woody Vine Stratum (Plot size:)			
1.			
2.			
Total Cover:	**0**		

% Bare Ground in Herb Stratum **100** % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **3** (A)

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x1 =	**0**
FACW species	**80**	x2 =	**160**
FAC species	**110**	x3 =	**330**
FACU species	**0**	x4 =	**0**
UPL species	**0**	x5 =	**0**
Column Totals:	**190** (A)		**490** (B)

Prevalence Index = B/A = **2.6**

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks: 100% FAC vegetation

SOIL

Sampling Point: Wet A DP3 W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/1	100					SiL	
5-18	10YR 4/1	85	10YR 5/4	15	D	M	SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- x Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks: 1 chroma with redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum one required; check all that apply)

- ___ Surface Water (A1)
- x High Water Table (A2)
- x Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- x Inundation Visible on Aerial Imagery (B7)
- x Sparsely Vegetated Concave Surface (B8)
- x Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- x Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- x Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes _____	No x	Depth (inches): _____	
Water table Present?	Yes x	No _____	Depth (inches): at surface	
Saturation Present? (includes capillary fringe)	Yes x	No _____	Depth (inches): at surface	

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (Unnamed Tributary gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Standing water >1 ft deep 3 ft from DP

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Freeman Road Logistics City/County: Puyallup/Pierce County Sampling Date: 3/11/2022
Applicant/Owner: Vector Development Company State: WA Sampling Point: Wet A DP4 Up
Investigator(s): C. Douglas, M. Curran Section, Township, Range: S17 & 20 R4E T20N
Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): concave Slope: 1-5
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 47.12'33 Long: 122.19'03 Datum: NAD83
Soil Map Unit Name: Pilchuck fine sand NWI Classification: PFO, PSS, POW
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes x No
Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No **X**	**Is the Sampled Area within a Wetland?** **Yes** **No X**
Hydric Soil Present?	Yes	No **X**	
Wetland Hydrology Present?	Yes **X**	No	

Remarks: Delineated northern and eastern boundary of large wetland system to identify potential buffer impacts for utility line construction

VEGETATION

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Populus balsamifera ssp. Trichocarpa*	80	Yes	FAC
2. *Picea sitchensis*	10	No	FAC
3.			
4.			
5.			
50%= 45 20%= 18 Total Cover: **90**			
Sapling/Shrub Stratum (Plot size:)			
1. *Cornus sericea*	30	No	FACW
2. *Rubus armeniacus*	20	No	FAC
3. *Symphoricarpos albus*	90	Yes	FACU
4. *Ribes sanguineum*	20	No	FACU
5.			
50%= 80 20%= 32 Total Cover: **160**			
Herb Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
50%= 0 20%= 0 Total Cover: **0**			
Woody Vine Stratum (Plot size:)			
1. *Hedera helix*	20		FACU
2.			
Total Cover: **20**			
% Bare Ground in Herb Stratum **100** % Cover of Biotic Crust			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **2** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **50%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x1 =	**0**
FACW species	**30**	x2 =	**60**
FAC species	**110**	x3 =	**330**
FACU species	**110**	x4 =	**440**
UPL species	**0**	x5 =	**0**
Column Totals:	**250** (A)		**830** (B)

Prevalence Index = B/A = **3.3**

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No X**

Remarks: 50% FAC vegetation

SOIL

Sampling Point: Wet A DP4 Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	100					SiL	w/gravel
8-18	10YR 4/2	100					SL	w/gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks: 2 chroma with no redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- **x** Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ___ Depth (inches): ___

Water table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes **x** No ___ Depth (inches): 10 inches

Wetland Hydrology Present? **Yes** **X** **No** ___

Describe Recorded Data (Unnamed Tributary gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Saturation 10 inches deep, no other hydric indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Freeman Road Logistics City/County: Puyallup/Pierce County Sampling Date: 3/11/2022
Applicant/Owner: Vector Development Company State: WA Sampling Point: Wet A DP5 W
Investigator(s): C. Douglas, M. Curran Section, Township, Range: S17 & 20 R4E T20N
Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): concave Slope: 1-5
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 47.12'33 Long: 122.19'03 Datum: NAD83
Soil Map Unit Name: Pilchuck fine sand NWI Classification: PFO, PSS, POW
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes x No
Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No	**Is the Sampled Area within a Wetland?** **Yes X** **No**
Hydric Soil Present?	Yes **X**	No	
Wetland Hydrology Present?	Yes **X**	No	

Remarks: Delineated northern and eastern boundary of large wetland system to identify potential buffer impacts for utility line construction

VEGETATION

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Populus balsamifera ssp. Trichocarpa*	70	Yes	FAC
2.			
3.			
4.			
5.			
50%= 35 20%= 14 Total Cover: **70**			
Sapling/Shrub Stratum (Plot size:)			
1. *Cornus sericea*	85	Yes	FACW
2. *Rubus armeniacus*	20	No	FAC
3. *Symphoricarpos albus*	20	No	FACU
4.			
5.			
50%= 62.5 20%= 25 Total Cover: **125**			
Herb Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
50%= 0 20%= 0 Total Cover: **0**			
Woody Vine Stratum (Plot size:)			
1.			
2.			
Total Cover: **0**			
% Bare Ground in Herb Stratum **100** % Cover of Biotic Crust			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)

Total Number of Dominant Species Across All Strata: **2** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x1 =	**0**
FACW species	**85**	x2 =	**170**
FAC species	**90**	x3 =	**270**
FACU species	**20**	x4 =	**80**
UPL species	**0**	x5 =	**0**
Column Totals:	**195** (A)		**520** (B)

Prevalence Index = B/A = **2.7**

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X** **No**

Remarks: 100% FAC vegetation

SOIL

Sampling Point: Wet A DP5 W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/1	100					SiL	
4-9	10YR 3/1	90	10YR 5/4	10	D	M	SL	
9-18	10YR 2/1	95	10YR 4/1	5	D	M	LS	w/gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- x Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks: 1 chroma with redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum one required; check all that apply)

- x Surface Water (A1)
- x High Water Table (A2)
- x Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- x Inundation Visible on Aerial Imagery (B7)
- x Sparsely Vegetated Concave Surface (B8)
- x Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- x Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes x No ___ Depth (inches): 1 inch

Water table Present? Yes x No ___ Depth (inches): at surface

Saturation Present? (includes capillary fringe) Yes x No ___ Depth (inches): at surface

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (Unnamed Tributary gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Standing water >1 ft deep 10 ft from DP

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Freeman Road Logistics City/County: Puyallup/Pierce County Sampling Date: 3/11/2022
Applicant/Owner: Vector Development Company State: WA Sampling Point: Wet A DP6 Up
Investigator(s): C. Douglas, M. Curran Section, Township, Range: S17 & 20 R4E T20N
Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): concave Slope: 1-5
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 47.12'33 Long: 122.19'03 Datum: NAD83
Soil Map Unit Name: Pilchuck fine sand NWI Classification: PFO, PSS, POW
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes x No
Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X** No	**Is the Sampled Area within a Wetland?** **Yes** **No X**
Hydric Soil Present?	Yes No **X**	
Wetland Hydrology Present?	Yes No **X**	

Remarks: Delineated northern and eastern boundary of large wetland system to identify potential buffer impacts for utility line construction

VEGETATION

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Alnus rubra*	10	No	FAC
2. *Populus balsamifera ssp. Trichocarpa*	60	Yes	FAC
3.			
4.			
5.			
50%= 35 20%= 14 Total Cover: **70**			
Sapling/Shrub Stratum (Plot size:)			
1. *Oemleria cerasiformis*	30	Yes	FACU
2. *Rubus armeniacus*	70	Yes	FAC
3.			
4.			
5.			
50%= 50 20%= 20 Total Cover: **100**			
Herb Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
50%= 0 20%= 0 Total Cover: **0**			
Woody Vine Stratum (Plot size:)			
1. *Hedera helix*	30		FACU
2.			
Total Cover: **30**			
% Bare Ground in Herb Stratum **100** % Cover of Biotic Crust			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)
Total Number of Dominant Species Across All Strata: **3** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **67%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x1 =	**0**
FACW species	**0**	x2 =	**0**
FAC species	**140**	x3 =	**420**
FACU species	**30**	x4 =	**120**
UPL species	**0**	x5 =	**0**
Column Totals:	**170** (A)		**540** (B)

Prevalence Index = B/A = **3.2**

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X** **No**

Remarks: 67% FAC vegetation

SOIL

Sampling Point: Wet A DP6 Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 3/3	100					SiL	w/gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks: 3 chroma with no redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (Unnamed Tributary gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No hydric indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Freeman Road Logistics City/County: Puyallup/Pierce County Sampling Date: 3/11/2022
Applicant/Owner: Vector Development Company State: WA Sampling Point: Wet A DP7 W
Investigator(s): C. Douglas, M. Curran Section, Township, Range: S17 & 20 R4E T20N
Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): concave Slope: 1-5
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 47.12'33 Long: 122.19'03 Datum: NAD83
Soil Map Unit Name: Pilchuck fine sand NWI Classification: PFO, PSS, POW
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes x No
Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes **X** No
Hydric Soil Present? Yes **X** No
Wetland Hydrology Present? Yes **X** No

Is the Sampled Area within a Wetland? **Yes X** **No**

Remarks: Delineated northern and eastern boundary of large wetland system to identify potential buffer impacts for utility line construction

VEGETATION

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Populus balsamifera ssp. Trichocarpa*	60	Yes	FAC
2.			
3.			
4.			
5.			
50%= 30 20%= 12 Total Cover: **60**			
Sapling/Shrub Stratum (Plot size:)			
1. *Cornus sericea*	80	Yes	FACW
2. *Rubus armeniacus*	20	No	FAC
3. *Rubus spectabilis*	30	Yes	FAC
4.			
5.			
50%= 65 20%= 26 Total Cover: **130**			
Herb Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
50%= 0 20%= 0 Total Cover: **0**			
Woody Vine Stratum (Plot size:)			
1.			
2.			
Total Cover: **0**			
% Bare Ground in Herb Stratum **100** % Cover of Biotic Crust			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **3** (A)
Total Number of Dominant Species Across All Strata: **3** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x1 =	**0**
FACW species	**80**	x2 =	**160**
FAC species	**110**	x3 =	**330**
FACU species	**0**	x4 =	**0**
UPL species	**0**	x5 =	**0**
Column Totals:	**190** (A)		**490** (B)

Prevalence Index = B/A = **2.6**

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X** **No**

Remarks: 100% FAC vegetation

SOIL

Sampling Point: Wet A DP7 W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/1	100					SiL	
5-18	10YR 4/1	85	10YR 5/4	15	D	M	SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- x Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks: 1 chroma with redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum one required; check all that apply)

- ___ Surface Water (A1)
- x High Water Table (A2)
- x Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- x Inundation Visible on Aerial Imagery (B7)
- x Sparsely Vegetated Concave Surface (B8)
- x Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- x Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- x Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No x Depth (inches): ___

Water table Present? Yes x No ___ Depth (inches): at surface

Saturation Present? (includes capillary fringe) Yes x No ___ Depth (inches): at surface

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (Unnamed Tributary gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Standing water >1 ft deep 3 ft from DP

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Freeman Road Logistics City/County: Puyallup/Pierce County Sampling Date: 3/11/2022
Applicant/Owner: Vector Development Company State: WA Sampling Point: Wet A DP8 Up
Investigator(s): C. Douglas, M. Curran Section, Township, Range: S17 & 20 R4E T20N
Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): concave Slope: 1-5
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 47.12'33 Long: 122.19'03 Datum: NAD83
Soil Map Unit Name: Pilchuck fine sand NWI Classification: PFO, PSS, POW
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes x No
Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No	**X**
Hydric Soil Present?	Yes	No	**X**
Wetland Hydrology Present?	Yes	No	**X**

Is the Sampled Area within a Wetland? **Yes** **No** **X**

Remarks: Delineated northern and eastern boundary of large wetland system to identify potential buffer impacts for utility line construction

VEGETATION

	Absolute % Cover	Dominant Species?	Indicator Status?
Tree Stratum (Plot size:)			
1. *Alnus rubra*	60	Yes	FAC
2. *Populus balsamifera ssp. Trichocarpa*	80	Yes	FAC
3.			
4.			
5.			
50%= 70 20%= 28 Total Cover: **140**			
Sapling/Shrub Stratum (Plot size:)			
1. *Oemleria cerasiformis*	50	Yes	FACU
2. *Rubus armeniacus*	10	No	FAC
3. *Rubus spectabilis*	20	No	FAC
4. *Symphoricarpos albus*	70	Yes	FACU
5.			
50%= 75 20%= 30 Total Cover: **150**			
Herb Stratum (Plot size:)			
1. *Polystichum munitum*	20	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
50%= 10 20%= 4 Total Cover: **20**			
Woody Vine Stratum (Plot size:)			
1. *Hedera helix*	20		FACU
2.			
Total Cover: **20**			
% Bare Ground in Herb Stratum **80** % Cover of Biotic Crust			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **40%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x1 =	**0**
FACW species	**0**	x2 =	**0**
FAC species	**170**	x3 =	**510**
FACU species	**140**	x4 =	**560**
UPL species	**0**	x5 =	**0**
Column Totals:	**310** (A)		**1070** (B)

Prevalence Index = B/A = **3.5**

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No** **X**

Remarks: 40% FAC vegetation

SOIL

Sampling Point: Wet A DP8 Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 3/3	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** X

Remarks: 3 chroma with no redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ___ Depth (inches): ___

Water table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ___ Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (Unnamed Tributary gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No hydric indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Freeman Road Logistics City/County: Puyallup/Pierce County Sampling Date: 3/11/2022
Applicant/Owner: Vector Development Company State: WA Sampling Point: Wet A DP9 W
Investigator(s): C. Douglas, M. Curran Section, Township, Range: S17 & 20 R4E T20N
Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): concave Slope: 1-5
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 47.12'33 Long: 122.19'03 Datum: NAD83
Soil Map Unit Name: Pilchuck fine sand NWI Classification: PFO, PSS, POW
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes x No
Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No	**Is the Sampled Area within a Wetland?** **Yes X** **No**
Hydric Soil Present?	Yes **X**	No	
Wetland Hydrology Present?	Yes **X**	No	

Remarks: Delineated northern and eastern boundary of large wetland system to identify potential buffer impacts for utility line construction

VEGETATION

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Alnus rubra*	70	Yes	FAC
2. *Populus balsamifera ssp. Trichocarpa*	20	Yes	FAC
3.			
4.			
5.			
50%= 45 20%= 18 Total Cover: **90**			
Sapling/Shrub Stratum (Plot size:)			
1. *Cornus sericea*	70	Yes	FACW
2. *Rubus armeniacus*	20	No	FAC
3. *Rubus spectabilis*	20	No	FAC
4. *Ribes sanguineum*	5	No	FACU
5. *Symphoricarpos albus*	5	No	FACU
50%= 60 20%= 24 Total Cover: **120**			
Herb Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
50%= 0 20%= 0 Total Cover: **0**			
Woody Vine Stratum (Plot size:)			
1.			
2.			
Total Cover: **0**			
% Bare Ground in Herb Stratum **100** % Cover of Biotic Crust			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **3** (A)

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x1 =	**0**
FACW species	**70**	x2 =	**140**
FAC species	**130**	x3 =	**390**
FACU species	**10**	x4 =	**40**
UPL species	**0**	x5 =	**0**
Column Totals:	**210** (A)		**570** (B)

Prevalence Index = B/A = **2.7**

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X** **No**

Remarks: 100% FAC vegetation

SOIL

Sampling Point: Wet A DP9 W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/1	100					SiL	
4-18	10YR 4/1	80	10YR 5/4	20	D	M	SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- x Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks: 1 chroma with redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum one required; check all that apply)

- x Surface Water (A1)
- x High Water Table (A2)
- x Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- x Inundation Visible on Aerial Imagery (B7)
- x Sparsely Vegetated Concave Surface (B8)
- x Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- x Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- x Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes x No ___ Depth (inches): 1 inch

Water table Present? Yes x No ___ Depth (inches): at surface

Saturation Present? (includes capillary fringe) Yes x No ___ Depth (inches): at surface

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (Unnamed Tributary gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Standing water >1 ft deep 2 ft from DP

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Freeman Road Logistics City/County: Puyallup/Pierce County Sampling Date: 3/11/2022
Applicant/Owner: Vector Development Company State: WA Sampling Point: Wet B DP10 Up
Investigator(s): C. Douglas, M. Curran Section, Township, Range: S17 R4E T20N
Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): concave Slope: 1-5
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 47.12'33 Long: 122.19'03 Datum: NAD83
Soil Map Unit Name: Sultan silt loam NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes x No
Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No **X**	**Is the Sampled Area within a Wetland?** **Yes** **No X**
Hydric Soil Present?	Yes	No **X**	
Wetland Hydrology Present?	Yes **X**	No	

Remarks: Confirming upland conditions in suspect area identified as SP 13 in Confluence Report

VEGETATION

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status?
1. *Populus balsamifera ssp. Trichocarpa*	70	Yes	FAC
2.			
3.			
4.			
5.			
50%= 35 20%= 14 Total Cover: **70**			
Sapling/Shrub Stratum (Plot size:)			
1. *Oemleria cerasiformis*	20	Yes	FACU
2. *Symphoricarpos albus*	80	Yes	FACU
3.			
4.			
5.			
50%= 50 20%= 20 Total Cover: **100**			
Herb Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
50%= 0 20%= 0 Total Cover: **0**			
Woody Vine Stratum (Plot size:)			
1.			
2.			
Total Cover: **0**			
% Bare Ground in Herb Stratum **100** % Cover of Biotic Crust			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **33%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x1 =	**0**
FACW species	**0**	x2 =	**0**
FAC species	**70**	x3 =	**210**
FACU species	**100**	x4 =	**400**
UPL species	**0**	x5 =	**0**
Column Totals:	**170** (A)		**610** (B)

Prevalence Index = B/A = **3.6**

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No X**

Remarks: 33% FAC vegetation

SOIL

Sampling Point: Wet B DP10 Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 3/3	100					SL	gravel below 8 inches

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** X

Remarks: 3 chroma with no redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum one required; check all that apply)

- x Surface Water (A1)
- x High Water Table (A2)
- x Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes x No ___ Depth (inches): 6 inches

Water table Present? Yes x No ___ Depth (inches): at surface

Saturation Present? (includes capillary fringe) Yes x No ___ Depth (inches): at surface

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (Unnamed Tributary gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Standing water in depression area that appears to have been excavated

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Freeman Road Logistics City/County: Puyallup/Pierce County Sampling Date: 3/11/2022
Applicant/Owner: Vector Development Company State: WA Sampling Point: Wet B DP11 W
Investigator(s): C. Douglas, M. Curran Section, Township, Range: S17 R4E T20N
Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): concave Slope: 1-5
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 47.12'33 Long: 122.19'03 Datum: NAD83
Soil Map Unit Name: Pilchuck fine sand NWI Classification: PFO, PSS, POW
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No _____ (If no, explain in Remarks)
Are Vegetation x , Soil x , or Hydrology _____ significantly disturbed? Are "Normal Circumstances" Present? Yes x No _____
Are Vegetation _____ , Soil _____ , or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No _____	**Is the Sampled Area within a Wetland?** **Yes X** **No** _____
Hydric Soil Present?	Yes **X**	No _____	
Wetland Hydrology Present?	Yes **X**	No _____	

Remarks: Suspect area identified as SP 12 in Confluence Report. Depression area within grass pasture, ground is cleared of vegetation, grass vegetation surrounds standing water.

VEGETATION

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
5.			
50%= 0 20%= 0 Total Cover: **0**			
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
50%= 0 20%= 0 Total Cover: **0**			
Herb Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
50%= 0 20%= 0 Total Cover: **0**			
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
Total Cover: **0**			
% Bare Ground in Herb Stratum **100** % Cover of Biotic Crust _____			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **0** (A)

Total Number of Dominant Species Across All Strata: **0** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x1 =	**0**
FACW species	**0**	x2 =	**0**
FAC species	**0**	x3 =	**0**
FACU species	**0**	x4 =	**0**
UPL species	**0**	x5 =	**0**
Column Totals:	**0** (A)		**0** (B)

Prevalence Index = B/A = **0.0**

Hydrophytic Vegetation Indicators:

_____ 1 - Rapid Test for Hydrophytic Vegetation
_____ 2 - Dominance Test is >50%
_____ 3 - Prevalence Index is ≤3.0[1]
_____ 4 - Morphological Adaptation[1] (Provide supporting data in Remarks or on a separate sheet)
_____ 5 - Wetland Non-Vascular Plants[1]
_____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X** **No** _____

Remarks: No vegetation in standing water depression within grass pasture

SOIL

Sampling Point: Wet B DP11 W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 5/2	90	10YR 5/4	10	D	M	SiL	
8-18	10YR 5/1	70	7.5YR 4/4	30	D	M	SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks: 1 and 2 chroma with redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum one required; check all that apply)

- x Surface Water (A1)
- ___ High Water Table (A2)
- x Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes x No ___ Depth (inches): 3 inches

Water table Present? Yes ___ No x Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes x No ___ Depth (inches): at surface

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (Unnamed Tributary gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Standing water a few inches deep in depression. No water table, surface water flowed into data plot hole.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Freeman Road Logistics City/County: Puyallup/Pierce County Sampling Date: 3/11/2022
Applicant/Owner: Vector Development Company State: WA Sampling Point: Wet B DP12 Up
Investigator(s): C. Douglas, M. Curran Section, Township, Range: S17 R4E T20N
Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): concave Slope: 1-5
Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 47.12'33 Long: 122.19'03 Datum: NAD83
Soil Map Unit Name: Pilchuck fine sand NWI Classification: PFO, PSS, POW
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks)
Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes x No
Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes **X**	No	
Hydric Soil Present?	Yes	No **X**	**Is the Sampled Area within a Wetland?** **Yes** **No X**
Wetland Hydrology Present?	Yes **X**	No	

Remarks: Suspect area identified as SP 12 in Confluence Report. Depression area within grass pasture, ground is cleared of vegetation, grass vegetation surrounds standing water

VEGETATION

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status?
1.			
2.			
3.			
4.			
5.			
50%= 0 20%= 0 Total Cover: **0**			
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
50%= 0 20%= 0 Total Cover: **0**			
Herb Stratum (Plot size:)			
1. *Agrostis capillaris*	30	Yes	FAC
2. *Festuca rubra*	70	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
50%= 50 20%= 20 Total Cover: **100**			
Woody Vine Stratum (Plot size:)			
1.			
2.			
Total Cover: **0**			
% Bare Ground in Herb Stratum **0** % Cover of Biotic Crust			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)

Total Number of Dominant Species Across All Strata: **2** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x1 =	**0**
FACW species	**0**	x2 =	**0**
FAC species	**100**	x3 =	**300**
FACU species	**0**	x4 =	**0**
UPL species	**0**	x5 =	**0**
Column Totals:	**100** (A)		**300** (B)

Prevalence Index = B/A = **3.0**

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- **X** 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptation[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X** **No**

Remarks: 100% FAC vegetation, mowed grass pasture

SOIL

Sampling Point: Wet B DP12 Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 4/3	99	10YR 5/4	1	D	M	SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ Sandy gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks: 3 chroma with redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- **x** Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No **x** Depth (inches): ___

Water table Present? Yes ___ No **x** Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes **x** No ___ Depth (inches): 14 inches

Wetland Hydrology Present? **Yes** **X** **No** ___

Describe Recorded Data (Unnamed Tributary gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Saturation at 14 inches

Wetland name or number A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A Date of site visit: 3/11/22

Rated by C. Douglas Trained by Ecology? ☒ Yes ☐ No Date of training 2007

HGM Class used for rating Depressional Wetland has multiple HGM classes? ☐ Y ☒ N

NOTE: **Form is not complete without the figures requested** *(figures can be combined)*.

Source of base aerial photo/map _____

OVERALL WETLAND CATEGORY III (based on functions ☒ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

_____**Category I** – Total score = 23 - 27

_____**Category II** – Total score = 20 - 22

__X__**Category III** – Total score = 16 - 19

_____**Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H **M** L	H **M** L	H **M** L	
Landscape Potential	H **M** L	**H** M L	H M **L**	
Value	H **M** L	H **M** L	H M **L**	**TOTAL**
Score Based on Ratings	6	7	4	**17**

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	**I** **II**
Wetland of High Conservation Value	**I**
Bog	**I**
Mature Forest	**I**
Old Growth Forest	**I**
Coastal Lagoon	**I** **II**
Interdunal	**I** **II** **III** **IV**
None of the above	X

Wetland name or number A

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream *(can be added to another figure)*	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to figure above)*	S 4.1	
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland name or number A

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

◉ NO – go to 2 ○ **YES** – the wetland class is **Tidal Fringe** – go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

○ **NO – Saltwater Tidal Fringe (Estuarine)** ○ **YES – Freshwater Tidal Fringe**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

◉ NO – go to 3 ○ **YES** – The wetland class is **Flats**

*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?

☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;

☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

◉ NO – go to 4 ○ **YES –** The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?

☐ The wetland is on a slope (*slope can be very gradual*),

☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,

☐ The water leaves the wetland **without being impounded**.

◉ NO – go to 5 ○ **YES –** The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,

☐ The overbank flooding occurs at least once every 2 years.

Wetland name or number A

◉ NO – go to 6 ○ **YES** – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

○ NO – go to 7 ◉ **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

◉ NO – go to 8 ○ **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

   NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number A

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	3
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)*. Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > $^1/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^1/_{10}$ of area points = 0	3
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0	2
Total for D 1 Add the points in the boxes above	**8**

Rating of Site Potential If score is: ☐ **12-16 = H** ☒ **6-11 = M** ☐ **0-5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? Source_____ Yes = 1 No = 0	0
Total for D 2 Add the points in the boxes above	**2**

Rating of Landscape Potential If score is: ☐ **3 or 4 = H** ☒ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? Yes = 1 No = 0	1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)? Yes = 2 No = 0	0
Total for D 3 Add the points in the boxes above	**1**

Rating of Value If score is: ☐ **2-4 = H** ☒ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number A

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?

D 4.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression with no surface water leaving it (no outlet) points = 4 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet points = 2 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch points = 1 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 0	4
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 The wetland is a "headwater" wetland points = 3 Wetland is flat but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft (6 in) points = 0	7
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of the unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 The area of the basin is more than 100 times the area of the unit points = 0 Entire wetland is in the Flats class points = 5	0
Total for D 4 Add the points in the boxes above	**11**

Rating of Site Potential If score is: ☐ **12-16 = H** ☒ **6-11 = M** ☐ **0-5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic functions of the site?

D 5.1. Does the wetland receive stormwater discharges? Yes = 1 No = 0	1
D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff? Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)? Yes = 1 No = 0	1
Total for D 5 Add the points in the boxes above	**3**

Rating of Landscape Potential If score is: ☒ **3 = H** ☐ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 6.0. Are the hydrologic functions provided by the site valuable to society?

D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.* The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds): • Flooding occurs in a sub-basin that is immediately down-gradient of unit. points = 2 • Surface flooding problems are in a sub-basin farther down-gradient. points = 1 Flooding from groundwater is an issue in the sub-basin. points = 1 The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. *Explain why* _____ points = 0 There are no problems with flooding downstream of the wetland. points = 0	1
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	0
Total for D 6 Add the points in the boxes above	**1**

Rating of Value If score is: ☐ **2-4 = H** ☒ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number A

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

____	Aquatic bed	4 structures or more: points = 4
__X__	Emergent	3 structures: points = 2
__X__	Scrub-shrub (areas where shrubs have > 30% cover)	2 structures: points = 1
__X__	Forested (areas where trees have > 30% cover)	1 structure: points = 0

If the unit has a Forested class, check if:

____The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

2

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

__X__	Permanently flooded or inundated	4 or more types present: points = 3
__X__	Seasonally flooded or inundated	3 types present: points = 2
____	Occasionally flooded or inundated	2 types present: points = 1
__X__	Saturated only	1 type present: points = 0
____	Permanently flowing stream or river in, or adjacent to, the wetland	
____	Seasonally flowing stream in, or adjacent to, the wetland	
____	**Lake Fringe wetland**	**2 points**
____	**Freshwater tidal wetland**	**2 points**

2

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

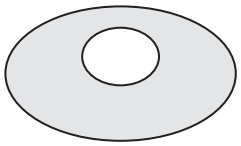
If you counted: > 19 species	points = 2
5 - 19 species	points = 1
< 5 species	points = 0

1

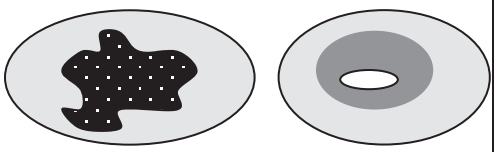
H 1.4. Interspersion of habitats

Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*

None = 0 points

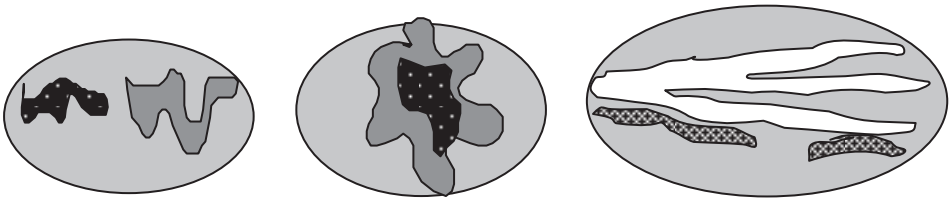


Low = 1 point



Moderate = 2 points

All three diagrams in this row are **HIGH** = 3points



2

Wetland name or number A

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* __X__Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). __X__Standing snags (dbh > 4 in) within the wetland ____Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) __X__Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* __X__At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ____Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	4
Total for H 1 Add the points in the boxes above	**11**

Rating of Site Potential If score is: ☐ **15-18 = H** ☒ **7-14 = M** ☐ **0-6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat 5 **+** [(% moderate and low intensity land uses)/2] 0 **=** 5 % If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20-33% of 1 km Polygon points = 2 10-19% of 1 km Polygon points = 1 < 10% of 1 km Polygon points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat 10 **+** [(% moderate and low intensity land uses)/2] 10 **=** 20 % Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10-50% and in 1-3 patches points = 2 Undisturbed habitat 10-50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	1
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (- 2) ≤ 50% of 1 km Polygon is high intensity points = 0	-2
Total for H 2 Add the points in the boxes above	**-1**

Rating of Landscape Potential If score is: ☐ **4-6 = H** ☐ **1-3 = M** ☒ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: points = 2 — It has 3 or more priority habitats within 100 m (see next page) — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) — It is mapped as a location for an individual WDFW priority species — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1 Site does not meet any of the criteria above points = 0	**0**

Rating of Value If score is: ☐ **2 = H** ☐ **1 = M** ☒ **0 = L** *Record the rating on the first page*

Wetland name or number A

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here: http://wdfw.wa.gov/conservation/phs/list/)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE:*** *This question is independent of the land use between the wetland unit and the priority habitat.*

— **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

— **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

— **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

— **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

— **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

— **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

— **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

— **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

— **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

— **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

— **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

— **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

X **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number A

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt ◯Yes –Go to **SC 1.1** ◉No= **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ◯Yes = **Category I** ◯No - Go to **SC 1.2**	◯**Cat. I**
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ◯Yes = **Category I** ◯No = **Category II**	◯**Cat. I** ◯**Cat. II**
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ◯Yes – Go to **SC 2.2** ◯No – Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ◯Yes = **Category I** ◉No = **Not a WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ◯Yes – **Contact WNHP/WDNR and go to SC 2.4** ◯No = **Not a WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ◯Yes = **Category I** ◯No = **Not a WHCV**	◯**Cat. I**
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ◯Yes – Go to **SC 3.3** ◯No – Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ◯Yes – Go to **SC 3.3** ◯No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ◯Yes = **Is a Category I bog** ◯No – Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ◯Yes = **Is a Category I bog** ◉No = **Is not a bog**	◯**Cat. I**

Wetland name or number A

SC 4.0. Forested Wetlands Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.*** — **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. — **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). ◯ Yes = **Category I** ◉ No = **Not a forested wetland for this section**	◯ **Cat. I**
SC 5.0. Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* ◯ Yes – Go to **SC 5.1** ◉ No = **Not a wetland in a coastal lagoon** SC 5.1. Does the wetland meet all of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2) ◯ Yes = **Category I** ◉ No = **Category II**	◯ **Cat. I** ◯ **Cat. II**
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.*** In practical terms that means the following geographic areas: — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 ◯ Yes – Go to **SC 6.1** ◉ No = **not an interdunal wetland for rating** SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? ◯ Yes = **Category I** ◯ No – Go to **SC 6.2** SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? ◯ Yes = **Category II** ◯ No – Go to **SC 6.3** SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? ◯ Yes = **Category III** ◯ No = **Category IV**	◯ **Cat I** ◯ **Cat. II** ◯ **Cat. III** ◯ **Cat. IV**
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	NA

Wetland name or number B

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland B Date of site visit: 3/11/22

Rated by C. Douglas Trained by Ecology? ☒ Yes ☐ No Date of training 2007

HGM Class used for rating Depressional Wetland has multiple HGM classes? ☐ Y ☒ N

NOTE: **Form is not complete without the figures requested** *(figures can be combined)*.

Source of base aerial photo/map _____

OVERALL WETLAND CATEGORY IV (based on functions ☒ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

_____**Category I** – Total score = 23 - 27

_____**Category II** – Total score = 20 - 22

_____**Category III** – Total score = 16 - 19

X **Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H (M) L	H M (L)	H M (L)	
Landscape Potential	H (M) L	H (M) L	H M (L)	
Value	H (M) L	H M (L)	H M (L)	**TOTAL**
Score Based on Ratings	7	4	3	**14**

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	**I** **II**
Wetland of High Conservation Value	**I**
Bog	**I**
Mature Forest	**I**
Old Growth Forest	**I**
Coastal Lagoon	**I** **II**
Interdunal	**I** **II** **III** **IV**
None of the above	X

Wetland name or number B

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream *(can be added to another figure)*	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to figure above)*	S 4.1	
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland name or number B

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

◉ NO – go to 2 ○ **YES** – the wetland class is **Tidal Fringe** – go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

○ **NO – Saltwater Tidal Fringe (Estuarine)** ○ **YES – Freshwater Tidal Fringe**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

◉ NO – go to 3 ○ **YES** – The wetland class is **Flats**

*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?

☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;

☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

◉ NO – go to 4 ○ **YES –** The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?

☐ The wetland is on a slope (*slope can be very gradual*),

☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,

☐ The water leaves the wetland **without being impounded**.

◉ NO – go to 5 ○ **YES –** The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,

☐ The overbank flooding occurs at least once every 2 years.

Wetland name or number B

◉ NO – go to 6 ○ **YES** – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

○ NO – go to 7 ◉ **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

◉ NO – go to 8 ○ **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

   NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number B

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	3
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)*. Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > $^1/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^1/_{10}$ of area points = 0	0
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0	4
Total for D 1 Add the points in the boxes above	**7**

Rating of Site Potential If score is: ☐ **12-16 = H** ☒ **6-11 = M** ☐ **0-5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0	0
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? Source_____ Yes = 1 No = 0	0
Total for D 2 Add the points in the boxes above	**1**

Rating of Landscape Potential If score is: ☐ **3 or 4 = H** ☒ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? Yes = 1 No = 0	1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)? Yes = 2 No = 0	0
Total for D 3 Add the points in the boxes above	**1**

Rating of Value If score is: ☐ **2-4 = H** ☒ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number B

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?

D 4.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression with no surface water leaving it (no outlet) points = 4 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet points = 2 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch points = 1 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 0	4
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 The wetland is a "headwater" wetland points = 3 Wetland is flat but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft (6 in) points = 0	0
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of the unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 The area of the basin is more than 100 times the area of the unit points = 0 Entire wetland is in the Flats class points = 5	0
Total for D 4 Add the points in the boxes above	**4**

Rating of Site Potential If score is: ☐ **12-16 = H** ☐ **6-11 = M** ☒ **0-5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic functions of the site?

D 5.1. Does the wetland receive stormwater discharges? Yes = 1 No = 0	0
D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff? Yes = 1 No = 0	0
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)? Yes = 1 No = 0	1
Total for D 5 Add the points in the boxes above	**1**

Rating of Landscape Potential If score is: ☐ **3 = H** ☒ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 6.0. Are the hydrologic functions provided by the site valuable to society?

D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.* The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds): • Flooding occurs in a sub-basin that is immediately down-gradient of unit. points = 2 • Surface flooding problems are in a sub-basin farther down-gradient. points = 1 Flooding from groundwater is an issue in the sub-basin. points = 1 The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. *Explain why* _____ points = 0 There are no problems with flooding downstream of the wetland. points = 0	0
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	0
Total for D 6 Add the points in the boxes above	**0**

Rating of Value If score is: ☐ **2-4 = H** ☐ **1 = M** ☒ **0 = L** *Record the rating on the first page*

Wetland name or number B

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

____Aquatic bed	4 structures or more: points = 4
____Emergent	3 structures: points = 2
____Scrub-shrub (areas where shrubs have > 30% cover)	2 structures: points = 1
____Forested (areas where trees have > 30% cover)	1 structure: points = 0

If the unit has a Forested class, check if:

____The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

0

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

____Permanently flooded or inundated	4 or more types present: points = 3
____Seasonally flooded or inundated	3 types present: points = 2
____Occasionally flooded or inundated	2 types present: points = 1
____Saturated only	1 type present: points = 0
____Permanently flowing stream or river in, or adjacent to, the wetland	
____Seasonally flowing stream in, or adjacent to, the wetland	
____**Lake Fringe wetland**	**2 points**
____**Freshwater tidal wetland**	**2 points**

1

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

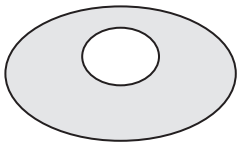
If you counted: > 19 species	points = 2
5 - 19 species	points = 1
< 5 species	points = 0

0

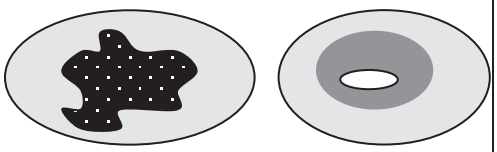
H 1.4. Interspersion of habitats

Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*

None = 0 points

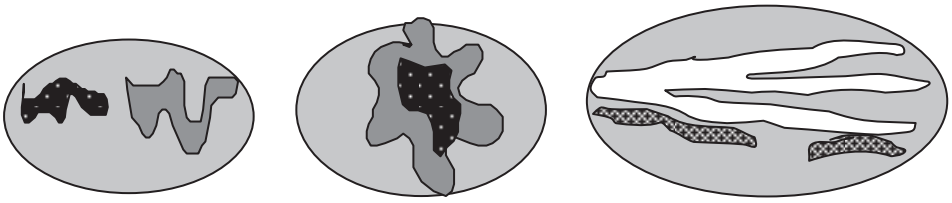


Low = 1 point



Moderate = 2 points

All three diagrams in this row are **HIGH** = 3points



0

Wetland name or number B

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ____Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). ____Standing snags (dbh > 4 in) within the wetland ____Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ____Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* ____At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ____Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	0
Total for H 1 Add the points in the boxes above	**1**

Rating of Site Potential If score is: ☐ **15-18 = H** ☐ **7-14 = M** ☒ **0-6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat 0 **+** [(% moderate and low intensity land uses)/2] 0 **=** 0 % If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20-33% of 1 km Polygon points = 2 10-19% of 1 km Polygon points = 1 < 10% of 1 km Polygon points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat 10 **+** [(% moderate and low intensity land uses)/2] 10 **=** 20 % Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10-50% and in 1-3 patches points = 2 Undisturbed habitat 10-50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	1
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (- 2) ≤ 50% of 1 km Polygon is high intensity points = 0	-2
Total for H 2 Add the points in the boxes above	**-1**

Rating of Landscape Potential If score is: ☐ **4-6 = H** ☐ **1-3 = M** ☒ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: points = 2 — It has 3 or more priority habitats within 100 m (see next page) — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) — It is mapped as a location for an individual WDFW priority species — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1 Site does not meet any of the criteria above points = 0	**0**

Rating of Value If score is: ☐ **2 = H** ☐ **1 = M** ☒ **0 = L** *Record the rating on the first page*

Wetland name or number B

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here: http://wdfw.wa.gov/conservation/phs/list/)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE:*** *This question is independent of the land use between the wetland unit and the priority habitat.*

— **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

— **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

— **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

— **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

— **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

— **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

— **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

— **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

— **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

— **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

— **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

— **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

— **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number B

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt ◯Yes –Go to **SC 1.1** ◉No= **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ◯Yes = **Category I** ◯No - Go to **SC 1.2**	◯**Cat. I**
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ◯Yes = **Category I** ◯No = **Category II**	◯**Cat. I** ◯**Cat. II**
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ◯Yes – Go to **SC 2.2** ◯No – Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ◯Yes = **Category I** ◉No = **Not a WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ◯Yes – **Contact WNHP/WDNR and go to SC 2.4** ◯No = **Not a WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ◯Yes = **Category I** ◯No = **Not a WHCV**	◯**Cat. I**
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ◯Yes – Go to **SC 3.3** ◯No – Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ◯Yes – Go to **SC 3.3** ◯No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ◯Yes = **Is a Category I bog** ◯No – Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ◯Yes = **Is a Category I bog** ◉No = **Is not a bog**	◯**Cat. I**

Wetland name or number B

SC 4.0. Forested Wetlands Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.*** — **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. — **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). ◯ Yes = **Category I** ◉ No = **Not a forested wetland for this section**	◯ **Cat. I**
SC 5.0. Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* ◯ Yes – Go to **SC 5.1** ◉ No = **Not a wetland in a coastal lagoon** SC 5.1. Does the wetland meet all of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2) ◯ Yes = **Category I** ◯ No = **Category II**	◯ **Cat. I** ◯ **Cat. II**
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.*** In practical terms that means the following geographic areas: — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 ◯ Yes – Go to **SC 6.1** ◉ No = **not an interdunal wetland for rating** SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? ◯ Yes = **Category I** ◯ No – Go to **SC 6.2** SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? ◯ Yes = **Category II** ◯ No – Go to **SC 6.3** SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? ◯ Yes = **Category III** ◯ No = **Category IV**	◯ **Cat I** ◯ **Cat. II** ◯ **Cat. III** ◯ **Cat. IV**
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	NA

Appendix D
Owner Letter

March 30, 2022

Re: Sessler Parcel 0420174075
NE Corner Ponding

Tyler,

Thank you for calling to discuss the water ponding you found on the property we sold to you in November. I'm happy to provide you with a history of this parcel as it relates to storm water and farming activities.

My wife and I have owned this property for over 20 years at the time of selling it in November 2021. During that time, there were two old barns on the property as it was used as an animal farm. At no point in our ownership period was there standing water on the property.

We had torn down the shed structures since a rise in homeless and transient activity started to plague the Freeman Road area. In addition to this work, we had begun to relocate soil from the northeast corner of the property (adjacent to the WSDOT shared property line) to the location of the sheds, with the intent of raising the elevation in the footprint of the sheds. While excavating soil from the northeast, we noticed groundwater seeping up, which led us to stop using material from that location.

We left the source for the soil relocation bare and flat, which resulted in slightly lower elevation than surrounding areas. At no point during our 20+ year ownership was there ponding on-site or even puddles forming during heavy rain events. We knew we had to keep the property relatively dry due to recurring farming activities throughout our ownership.

Sincerely,

Jon Sessler