HABITAT TECHNOLOGIES

December 20, 2022

Mr. Eric Mawn, EIT

@ AP Consulting Engineers LLC
e-mail EricM@ASPConsultingEngineers.com

RE: Critical Areas Delineation and Rating Report For Proposed Barbu Sewer Connection Parcels 4014400217 and 4014400216. King County

Dear Mr. Mawn,

This document details the culmination of evaluation and assessment activities undertaken to complete a characterization of specifically defined environmentally critical areas (wetlands, drainage corridors/aquatic areas, and critical fish and wildlife habitats) as an element of a sewer line connection for two existing parcels (Parcels 4014400217 and 4014400216)(project site) located to the north of the intersection of 44th Avenue South and South 313th Street in the Federal Way Area of King County (Figure 1). The evaluation, delineation, and characterization of environmentally critical areas is a vital element in the planning for potential future site development actions. The goal of this approach is to ensure that selected actions do not result in adverse environmental impacts to these identified critical areas.

The assessment and delineation of specific environmentally critical areas within and immediately adjacent to the project site followed the methods and procedures defined in the *Corps of Engineers Wetland Delineation Manual* (U. S. Army Corps of Engineers, 1987) with the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (U. S. Army Corps of Engineers, 2010); the Washington State *Wetland Rating System for Western Washington* (Hruby, 2008); the State of Washington Department of Natural Resources (WDNR) Forest Practice Rules (WAC 222-16-030); and King County Chapter 21A-24. This document was designed to accommodate site planning and potential regulatory actions and is suitable for submittal to federal, state, and local authorities for potential wetland, drainage corridor, and critical habitats verification and permitting actions. This assessment did <u>not</u> include an assessment of potential steep slopes, potential septic suitability, potential flood zones, potential adverse erosion zones, or potential geotechnically hazardous critical areas.

wetlands, streams, fisheries, wildlife – mitigation and permitting solutions P.O. Box 1088, Puyallup, Washington 98371
253-845-5119 contact@habitattechnologies.net

PROJECT SITE DESCRIPTION

The project site was irregular in shape, was approximately 4.16-acres in total size, and was located within a residential area consisting of single-family homes intermixed with vacant parcels. The project site was generally sloped from north to south. A drainage corridor was located near the southern boundary that flowed generally to the west. The western portion of the project site included an existing single-family home and associated outbuildings, managed lawn and landscaped areas, and managed pasture. The project site was bound to the north and south by existing single-family homes, to the east by vacant land, and to the west by 44th Avenue South. A regional powerline corridor was located directly to the north of the project site.

Directions to Project Site: From the SR167 – exit onto 15 Street SW. Turn west onto 15th Street SW and continue to West Valley HWY. Turn north onto West Valley HWY and continue to South Peasley Canyon Road. Turn west onto South Peasley Canyon Road and continue to South 321st Street. Turn east onto South 321st Street and continue to 44th Avenue South. Turn north onto 44th Avenue South and continue to 31212 – 44th Avenue South.

BACKGROUND INFORMATION

NATIONAL WETLAND INVENTORY

The *National Wetland Inventory (NWI) Mapping* completed by the U.S. Fish and Wildlife Service was reviewed as a part of this assessment (Figure 2). This mapping resource identified a drainage corridor from east to west within the project site.

STATE OF WASHINGTON PRIORITY HABITATS AND SPECIES

The State of Washington *Priority Habitats and Species (PHS) Mapping* was reviewed as a part of this assessment (Figure 3). This mapping resource did not identify any priority habitats or priority species within the project site.

STATE OF WASHINGTON DEPARTMENT OF FISH AND WILDLIFE

The State of Washington Department of Fish and Wildlife (WDFW) *SalmonScape Mapping* was reviewed as a part of this assessment (Figure 4). This mapping resource generally identified a stream within the project site similar to the NWI mapping above. This mapping resource did not identify any salmonid species within the onsite portion of this stream corridor. This stream was identified as a tributary to Mill Creek to the west.

STATE OF WASHINGTON DEPARTMENT OF NATURAL RESOURCES

The State of Washington Department of Natural Resources (WDNR) *Water Type Mapping* was reviewed as a part of this assessment (Figure 5). This mapping resource generally identified a drainage corridor within the project site as noted in the NWI mapping resources above. This mapping resource identified this stream as a WDNR Type F Water (fish bearing).

KING COUNTY MAPPING

The King County *Inventory Mapping* was reviewed as a part of this assessment (Figure 6). This mapping resource identified a Type 3 Stream crossing from east to west through the project site.

SOIL MAPPING

The *Soil Mapping Inventory* completed by the Natural Resources Conservation Service was reviewed as a part of this assessment (Figure 7). This mapping resource identified the soil throughout the project site as Alderwood gravelly sandy loam (AgC). The Alderwood soil series is defined as moderately well drained, as formed in gravelly glacial till, and to exhibit potential inclusions of "hydric" soils.

ONSITE ANALYSIS

CRITERIA FOR CRITICAL AREAS IDENTIFICATION

The assessment the specific critical areas included potential wetlands, potential surface water drainage corridors (aquatic areas), and potential fish and wildlife habitats which may be located within or immediately adjacent to the project site. This assessment did not include an assessment of potential steep slope, potential septic suitability, potential flood zones, or potential geotechnically hazardous critical areas.

Wetlands: Wetlands are transitional areas between aquatic and upland habitats. In general terms, wetlands are lands where the extent and duration of saturation with water is the primary factor determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface (Cowardin, et al., 1979). Wetlands are generally defined within land use regulations as "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" (US Army Corps of Engineers 1987).

Wetlands exhibit three essential characteristics, all of which must be present for an area to meet the established criteria (US Army Corps of Engineers, 1987 and US Army Corps of Engineers, 2010). These essential characteristics are:

- 1. Hydrophytic Vegetation: The assemblage of macrophytes that occurs in areas where inundation or soil saturation is either permanent or of sufficient frequency and duration to influence plant occurrence. Hydrophytic vegetation is present when the plant community is dominated by species that require or can tolerate prolonged inundation or soil saturation during the growing season.
- **2. Hydric Soil:** A soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper parts. Most hydric soils exhibit characteristic morphologies that result from recent periods of saturation or inundation. These processes result in distinctive characteristics that persist in the soil during both wet and dry periods.
- 3. Wetland Hydrology: Permanent or periodic inundation, or surface soil saturation, at least seasonally. Wetland hydrology indicators are used in combination with indicators of hydric soil and hydrophytic vegetation to define the area. Wetland hydrology indications provide evidence that the site has a continuing wetland hydrology regime. Where hydrology has not been altered vegetation and soils provide strong evidence that wetland hydrology is present.

Aquatic Area/Stream: A stream (aquatic area) is generally defined as a location where surface waters produce a defined channel or bed. A defined channel or bed is typically an area which demonstrates clear evidence of the passage of water and includes, but not limited to, bedrock channels, gravel beds, sand and silt beds, and defined channel swales. A stream need not contain water year-round. A stream typically does not include irrigation ditches, canals, storm or surface water run-off devices, or other artificial watercourses unless the constructed watercourse conveys a stream which naturally occurred prior to the construction of such watercourse.

Fish and Wildlife Conservation Area: A "fish and wildlife conservation area" is defined by King County as an area for a species whose habitat the King County *Comprehensive Plan* requires the County to protect that includes an active breeding site and the area surrounding the breeding site that is necessary to protect the breeding activity (KCC21A.06.1423).

STUDY METHODS

Habitat Technologies completed a series of onsite assessments from March through October 2022. Onsite assessment was completed following the guidance provided within the *Corps of Engineers Wetland Delineation Manual* (United States Army Corps of Engineers, 1987) with the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (United States Army Corps of Engineers, 2010); the Washington State *Wetland Rating System for*

Western Washington (Hruby, 2014), the State of Washington Department of Natural Resources (WDNR) Forest Practice Rules (WAC 222-16-030), and King County Chapter 21A-24. In addition, Habitat Technologies has completed similar assessments for a variety of properties within the general area of the project site over the past several years.

FIELD OBSERVATION

Onsite assessment activities encompassed the entire project site. The project site had undergone prior development actions to include forest harvest, clearing and grading, historic use by livestock, the development and management of pasture areas, fencing, single-family homesite development and associated outbuildings, internal roadway creation, culvert placement, stormwater conveyance system, the development of adjacent parcels, and the development of an adjacent public roadway.

Soils

As documented at representative sample plots within the western and northcentral portions of the project site the soil exhibited a gravelly sandy loam texture and coloration typical of the Alderwood soil series. The surface soil generally to a depth of six (6) to eight (8) inches typically exhibited a dark brown (10YR 3/3) to brown (10YR 4/3) coloration and a gravelly loam texture. The subsoil to a depth of approximately 24 inches exhibited a dark brown (10YR 3/3) to brown (10YR 4/4) coloration, and gravelly sandy loam to very gravelly sandy loam texture. This soil appeared to drain moderately well, did not exhibit prominent redoximorphic features, and was identified as non-hydric in character.

The soil identified within the southern and the majority of the eastern portions of the project site exhibited a surface soil coloration of very dark grayish brown (10YR 3/2) to black (10YR 2/1). The subsoil varied from dark grayish brown (10YR 4/2) to very dark grayish brown (10YR 3/2) and further exhibited moderately prominent redoximorphic features (depleted matrix and redox concentrations). Oxidized root channels were also noted within these areas. The soils within these areas exhibited prominent field indicators typical of hydric soil.

Hydrology

The western and northcentral portions of the project site were identified to drain moderately well to well and did not exhibit field indicators typically associated with wetland hydrology or the concentrated movement of seasonal surface water. Observed hydrology patterns appeared to be the result of seasonal stormwater runoff from the developed areas onsite. These areas within the project site appeared to drain moderately well and did not exhibit field indicators typically associated with wetland hydrology.

A series of hillside seeps (noted as Wetland A below) were identified along the upper slope within generally the eastern portion of the project site. These seeps created saturated soils conditions and areas of seasonal flow. This seasonal flow continued to the toe of slope to the south and formed areas of seasonal ponding.

Along the lower slope in the southern portion of the project site a drainage corridor entered the project site along the eastern boundary. This drainage corridor continued generally to the west near the southern boundary entering an installed culvert under 44th Avenue South. This lower slope area exhibited areas of seasonal ponding during the spring and early summer onsite assessments. This drainage corridor exhibited a seasonal surface flow patterns and was generally confined within a previously created channel along the southwestern boundary prior to 44th Avenue South.

Vegetation

The project site generally exhibited three (3) primary plant communities. The first plant community dominated the prior developed areas in the north-central and western portions of the project site. This area was managed as a single-family homesite with associated outbuildings, managed lawn, managed pasture, and ornamental landscaping.

The second plant community was identified in the remnant upland forest areas generally in the northeastern and southeastern portions of the project site. This plant community was dominated by a mixed upland forest. Observed species included Douglas fir (*Pseudotsuga menziesii*), big leaf maple (*Acer macrophyllum*), red alder (*Alnus rubra*), Western hemlock (*Tsuga heterophylla*), Western red cedar (*Thuja plicata*), Himalayan blackberry (*Rubus armeniacus*), evergreen blackberry (*Rubus laciniatus*), trailing blackberry (*Rubus ursinus*), hazelnut (*Corylus cornuta*), holly (*Ilex aquifolium*), salmonberry (*Rubus spectabilis*), rose (*Rosa* spp.), Indian plum (*Oemleria cerasiformis*), vine maple (*Acer circinatum*), Pacific red elderberry (*Sambucus racemosa*), Oregon grape (*Berberis nervosa*), salal (*Gaultheria shallon*), English ivy (*Hedera helix*), sword fern (*Polystichum munitum*), and bracken fern. This plant community was identified as non-hydrophytic in character (typical of uplands).

The third plant community was associated with Wetland A identified within the project site. Observed species included red alder, black cottonwood (*Populus trichocarpa*), Oregon ash (*Fraxinus latifolia*), Sitka willow (*Salix sitchensis*), Himalayan blackberry, red osier dogwood (*Cornus stolonifera*), black twinberry (*Lonicera involucrata*), salmonberry, Nootka rose (*Rosa nutkana*), common lady fern (*Athyrium filix-femina*), Pacific ninebark (*Physocarpus capitatus*), slough sedge (*Carex obnupta*), skunk cabbage (*Lysichitum americanum*), water parsley (*Oenanthe sarmentosa*), speedwell (*Veronica scutellata*), buttercup, and reed canarygrass (*Phalaris arundinacea*). This plant community was identified as hydrophytic in character (typical of wetlands).

Wildlife

Wildlife species observed directly and indirectly during the onsite assessment, those species observed during prior assessments within the general project area, and those species that would reasonably use the habitats provided within and adjacent to the project site included red tailed hawk (Buteo jamaicensis), common raven (Corvus corax), American crow (Corvus brachynchos), pileated woodpecker (Dryocopus pileatus), Northern flicker (Colaptes auratus), hairy woodpecker (Picoides villosus), American robin (*Turdus migratorius*), dark eyed junco (*Junco hyemalis*), Steller's jay (Cyanocitta stelleri), Northern flicker (Colaptes auratus), dark brown creeper (Certhia familiaris), barred owl (), Western screech owl (Otus kennicotti), mourning dove (Zenaida macroura), black capped chickadee (Parus atricapillus), chestnut backed chickadee (Parus rufescens), purple finch (Carpodacus purpureus), song sparrow (Melospiza melodia), golden crowned sparrow (Zonotrichia atricapilla), white crowned sparrow (Zonotrichia leucophrys), red breasted nuthatch (Sitta canadensis), Anna's hummingbird (Calypte anna), rufous hummingbird (Selasphorus rufus), coyote (Canis latrans), black tailed deer (Odocoileus hemionus), raccoon (Procyon lotor), eastern gray squirrel (Sciurus carolinensis), eastern cottontail (Sylvilagus floridanus), stripped skunk (Mephitis mephitis), opossum (Didelphis virginianus), longtail weasel (Mustela frenata), deer mouse (Peromyscus maniculatus), shrew (Sorex spp.), mole (Scapanus spp.), bats (Myotis spp.), Norway rat (Rattus norvegicus), Pacific treefrog (Hyla regilla), redlegged frog (Rana aurora), and common garter snake (Thamnophis sirtalis).

The project site has not been documented to provide habitats for salmonids fish species was not assessed for fish utilization as a part of this assessment.

Wildlife Movement Corridors: The project site was within an area of residential development and managed parcels. As identified by onsite wildlife trails, small, medium, and large mammals appeared to be moving throughout the project site. The project site is also within the general area of the migratory movement of passerine birds, raptors, and waterfowl.

State Priority Species

Several species identified by the State of Washington as "Priority Species" were observed onsite or potentially may utilize the project site. Priority species require protective measures for their survival due to their population status, sensitivity to habitat alteration, and/or recreational, commercial, or tribal importance.

Game Species: "Game species" are regulated by the State of Washington through recreational hunting bag limits, harvest seasons, and harvest area restrictions. Observed or documented "game species" within and adjacent to the project site included black-tailed deer, common mallard, and mourning dove.

State Candidate: State Candidate species are presently under review by the State of Washington Department of Fish and Wildlife (WDFW) for possible listing as endangered, threatened, or sensitive. A single "State Candidate" species – pileated woodpecker - was identified to use the habitats provided within the forested areas within and adjacent to the project site.

State Sensitive: State Sensitive species are native to Washington and is vulnerable to declining and is likely to become endangered or threatened throughout a significant portion of its range without cooperative management or removal of threats. The project site was not observed and has not been documented to provide direct critical habitats for State Sensitive.

State Threatened: State Threatened species means any wildlife species native to the state of Washington that is likely to become an endangered species within the foreseeable future throughout a significant portion of its range within the state without cooperative management or removal of threats. The project site was not observed and has not been documented to provide direct critical habitats for State Threatened species.

State Endangered: State endangered species means any species native to the state of Washington that is seriously threatened with extinction throughout all or a significant portion of its range within the state. The project site was not observed and has not been documented to provide direct critical habitats for State Endangered species.

Federally Listed Species

No federally listed endangered or threatened species were observed or have been documented to utilize the habitats provided by the project site. A single, federally listed "species of concern" – bald eagle – has been documented to utilize the habitats generally associated with area rivers, lakes, and ponds. The project site was not observed and has not been documented to provide direct habitats for bald eagle, however, this species may occasionally overfly the project site.

CRITICAL AREAS DETERMINATION

Critical areas determination was based on the criteria outlined in King County Chapter 21A-24. Based on these criteria, one (1) area generally within the central/southern portion of the project site was identified to meet the criteria for designation as "wetland." In addition, one (1) area within the project site was identified to exhibit characteristics of an "aquatic area/stream" (Figure 8).

WETLANDS

WETLAND	KING COUNTY	WDOE RATING	WDOE HABITAT	BUFFER
	CATEGORY	SCORE	SCORE	(High Intensity)
Α	III	19	5	80 feet

Wetland A: Wetland A was identified as a "slope/depression wetland" generally within the southern portion of the project site and extended offsite to the east. This wetland exhibited mixed forest plant community that included a very dense understory of blackberries and salmonberry that also included a mixture of grasses, herbs, sedges, and rushes. The movement of seasonal surface water through this wetland was from north to south to the toe of slope, then to the west along the southern boundary. A define drainage corridor was noted within the wetland boundary.

Wetland A was identified as meeting the criteria for designation as palustrine, forested, seasonally flooded/saturated (PFOC) (Cowardin 1979) within the project site. Wetland A was classified pursuant to the *Washington State Wetland Rating System for Western Washington* (Hruby, 2014) and identified to exhibit a total functions score of 19 points (5 habitat points) (Appendix B). Wetland A was further identified as a King County Category III Wetland. The standard buffer adjacent to this wetland (based on category, habitat points, and being within the urban growth boundary) is 80 feet as measured perpendicular from the defined wetland boundary (Figure 8).

AQUATIC AREAS/STREAMS

A defined aquatic area - stream corridor - was identified to enter the project site along the eastern boundary within Wetland A in the project site. This drainage corridor continued generally west along the southern boundary and exited Wetland A via an excavated ditch within the southwestern portion of the project site. The onsite surface water drainage corridor (mapped as a tributary to Mill Creek) exhibited a continuous defined channel and seasonal flow patterns onsite. This drainage was not identified and has not been documented to support fish usage within the project site. However, this drainage has been defined as a Type F Water by WDNR. As such, this drainage corridor would appear best defined as meeting the criteria for designation as a King County Type F Stream. The standard buffer for a Type F Stream within the urban growth boundary is 115 feet as measured perpendicular from the ordinary high water mark.

SELECTED SITE ACTION

The Selected Development Action for the project site (Parcels 4014400217 and 4014400216) initially focuses on the installation of a sewer connection to the sewer main located in the residential community directly to the south of the project site. As

proposed, the installation of this sewer line would be completed using directional bore techniques that pass completely under the stream and wetland area within the project site. However, the directional bore would emerge within the standard buffer area adjacent to the stream and wetland area. From its emergence to the outer boundary of the standard buffer and then beyond the new sewer line would be installed using standard ditching techniques. As defined on the *Engineering Plans* (Attachment One) the temporary impacts associated with the placement of the new sewer line within the buffer would be limited to an area of managed pasture and managed lawn. To ensure that sewer line placement does not create an adverse condition, all actions would be completed during the seasonal dry period, all equipment would be properly maintained, and all temporary impacts would be restored through the reestablishment of site contours and the reseeded of exposed soils.

STANDARD OF CARE

This document has been completed by Habitat Technologies for use by **Mr. Eric Mawn.** Prior to extensive site planning, this document should be reviewed and the findings verified by applicable permitting agency(s). Habitat Technologies has provided professional services that are in accordance with the degree of care and skill generally accepted in the nature of the work accomplished. No other warranties are expressed or implied. Habitat Technologies is not responsible for design costs incurred before this document is approved by the appropriate resource and permitting agencies.

Bryan W/Peck

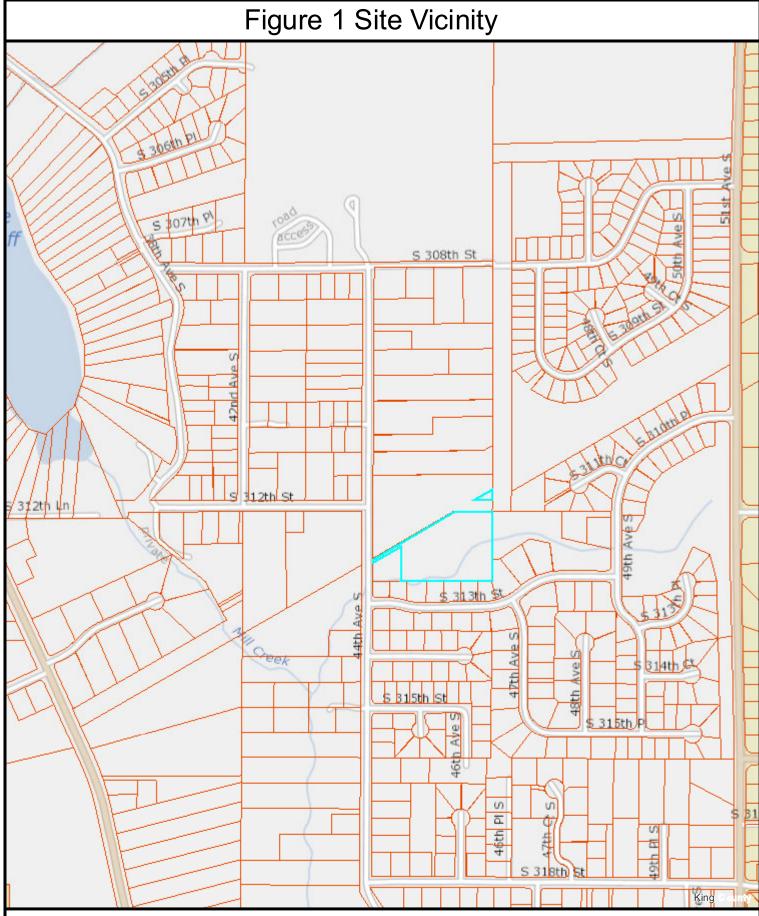
Senior Wetland Biologist

Bryan W. Peck

Thomas D. Deming
Thomas D. Deming, SPWS

Habitat Technologies

FIGURES



The information included on this map has been compiled by King County staff from a variety of sources and is subject to change without notice. King County makes no representations or warranties, express or implied, as to accuracy, completeness, timeliness, or rights to the use of such information. This document is not intended for use as a survey product. King County shall not be liable for any general, special, indirect, incidental, or consequential damages induding, but not limited to, lost revenues or lost profix resulting from the use or misuse of the information contained on this map. Any sale of this map or information on this map is prohibited except by written permission of King County.

Date: 11/30/2022 Notes:





U.S. Fish and Wildlife Service National Wetlands Inventory

Figure 2 NWI Mapping



November 30, 2022

Wetlands

Estuarine and Marine Deepwater

Estuarine and Marine Wetland

Freshwater Emergent Wetland

Freshwater Forested/Shrub Wetland

Freshwater Pond

Lake

011---

Riverine

Other

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

Figure 3



Priority Habitats and Species on the Web



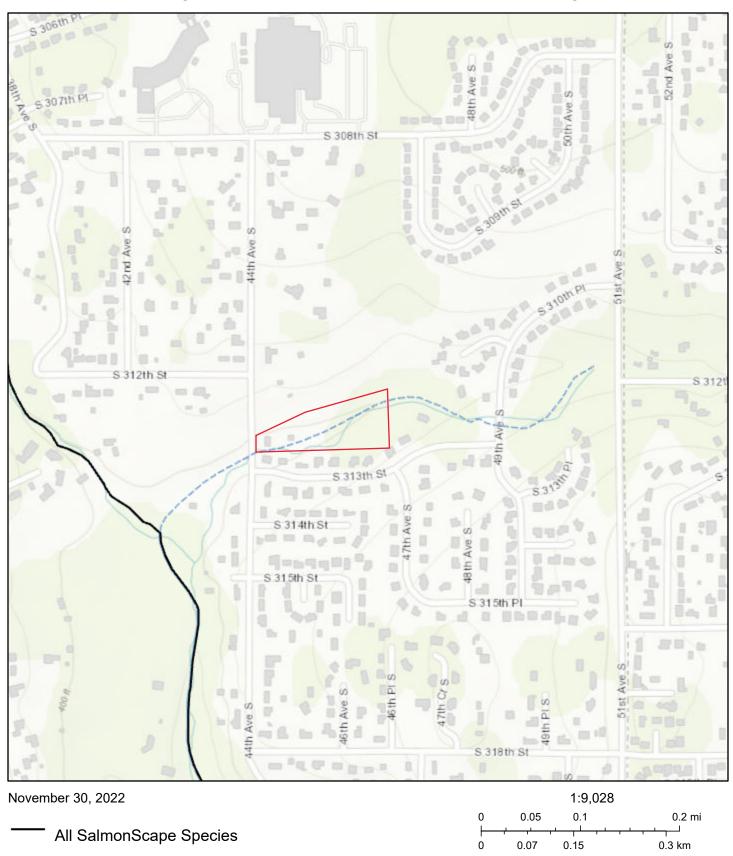
Report Date: 11/30/2022

The Priority Habitats and Species (PHS) datasets do not contain information for your project area. This does not mean that species and habitats do not occur in your project area. PHS data, points, lines and polygons are mapped only when occurrences of these species or habitats have been observed in the field. Unfortunately, we have not been able to comprehensively survey all sections in the state and therefore, it is important to note that priority species and habitats may occur in areas not currently known to the Department.

DISCLAIMER. This report includes information that the Washington Department of Fish and Wildlife (WDFW) maintains in a central computer database. It is not an attempt to provide you with an official agency response as to the impacts of your project on fish and wildlife. This information only documents the location of fish and wildlife resources to the best of our knowledge. It is not a complete inventory and it is important to note that fish and wildlife resources may occur in areas not currently known to WDFW biologists, or in areas for which comprehensive surveys have not been conducted. Site specific surveys are frequently necessary to rule out the presence of priority resources. Locations of fish and wildlife resources are subject to variation caused by disturbance, changes in season and weather, and other factors, WDFW does not recommend using reports more than six months old.

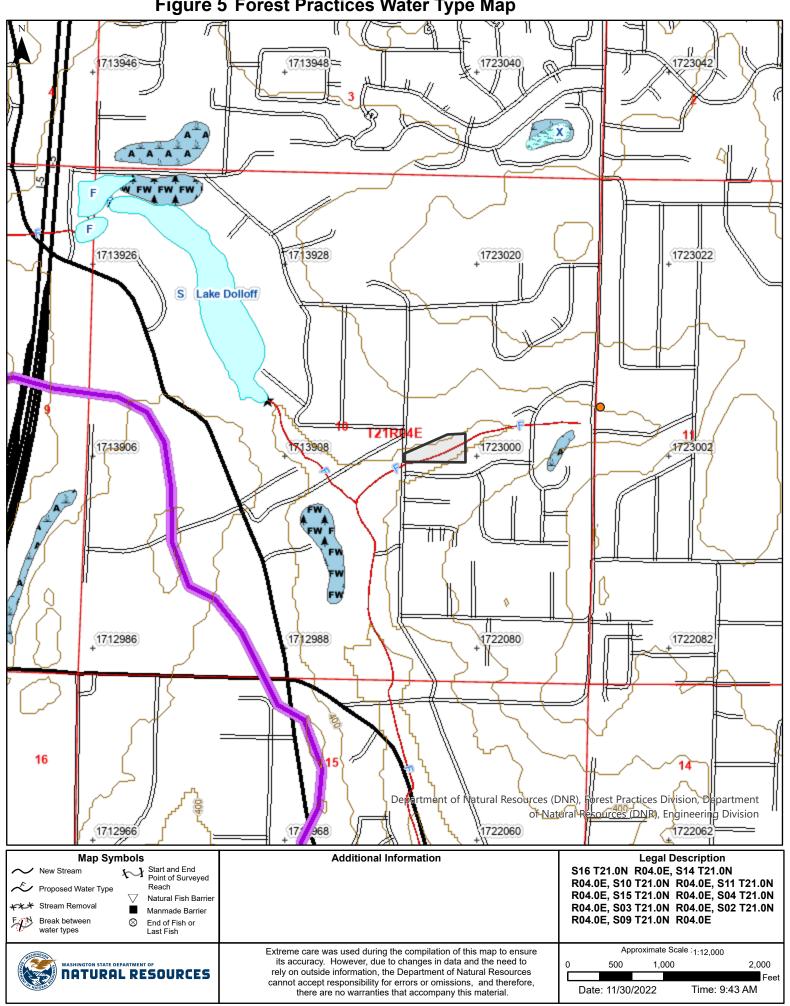
about:blank 1/1

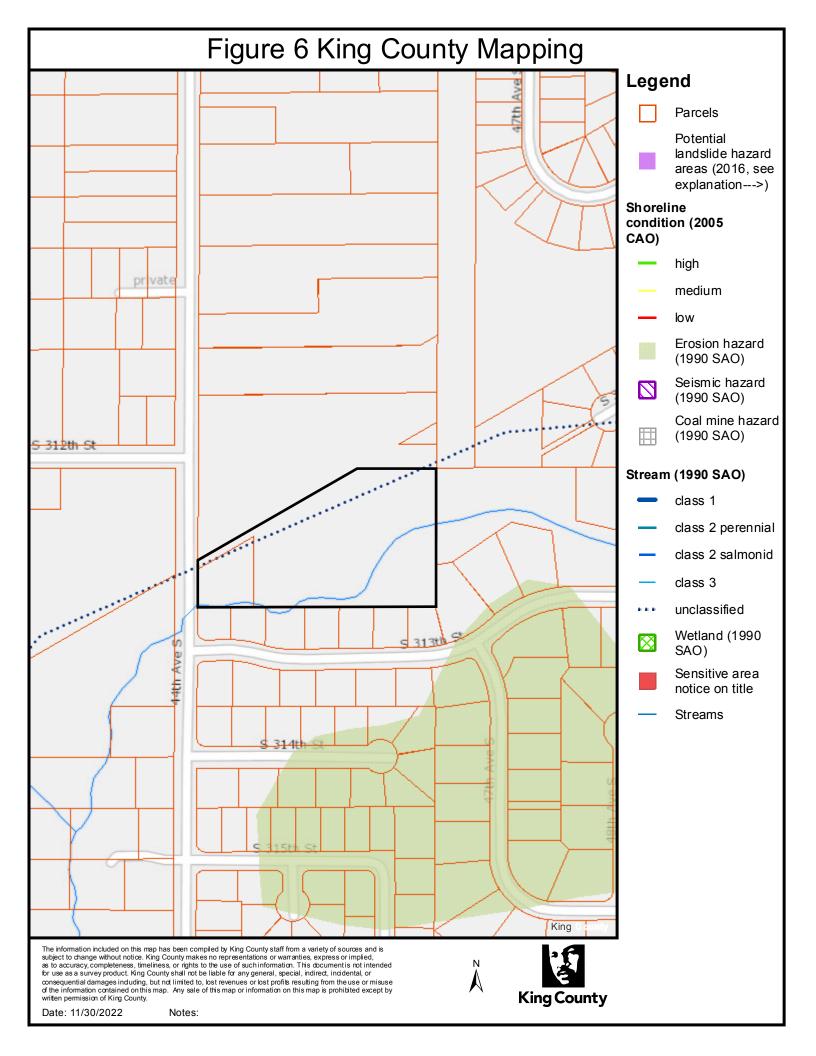
Figure 4 WDFW Salmonscape Mapping



County of King, Bureau of Land Management, Esri Canada, Esri, HERE, Garmin, GeoTechnologies, Inc., Intermap, USGS, METI/NASA, EPA, USDA, USGS/NHD, Dale Gombert (WDFW), WDFW

Figure 5 Forest Practices Water Type Map





47° 19' 21" N

47° 19' 21" N



47° 19' 16" N

47° 19' 16" N

Map S	icale: 1:1,190	if printed on A lan	dscape (11" x 8.5") sheet.	
0	15	30	60	Meters 90
0	50	100	200	Feet 300
Мар р	rojection: Web	Mercator Come	r coordinates: WGS84	



122° 16'45" W

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons



Soil Map Unit Points

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

→ Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

OL.1D

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot
Other

Special Line Features

Water Features

Δ

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24.000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: King County Area, Washington Survey Area Data: Version 18, Sep 8, 2022

Soil map units are labeled (as space allows) for map scales 1:50.000 or larger.

Date(s) aerial images were photographed: Jul 6, 2020—Jul 20, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AgC	Alderwood gravelly sandy loam, 8 to 15 percent slopes	4.3	100.0%
Totals for Area of Interest		4.3	100.0%

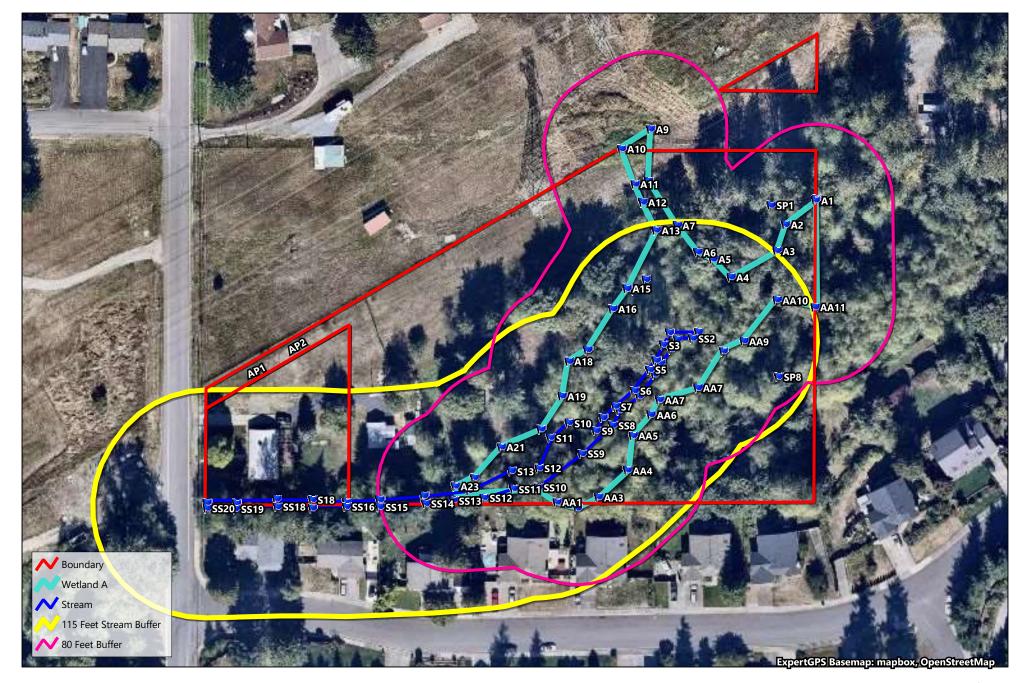




Figure 8 Site Graphic



REFERENCE AND BACKGROUND LIST

Adamus, P.R., E.J. Clairain Jr., R.D. Smith, and R.E. Young. 1987. Wetland Evaluation Technique (WET); Volume II: Methodology, Operational Draft Technical Report Y-87, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.

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United States Army Corps of Engineers. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0), Environmental Laboratory ERDC/EL TR-08-13.

US Climate Data, 2015 http://www.usclimatedata.com/climate/tacoma/washington/united-states/uswa0441/0441/2014/1

USDA Natural Resource Conservation Service Plants Database, 2015 (for hydrophytic plan classification): http://plants.usda.gov/

United States Department of Agriculture, Natural Resources Conservation Service. Web Soil Survey. 2016 http://vewsoilsurvey.nrcs.usda.gov/app/newfeatures.2.3.htm.

US Fish and Wildlife Service National Wetland Inventory Mapper, 2016 (for NWI wetland mapping): http://www.fws.gov/wetlands/Data/Mapper.html.

Washington State Department of Ecology. 1997. Washington State Wetlands Identification and Delineation Manual. Publication Number 96-94.

Washington State Department of Fish and Wildlife Priority Habitats and Species Maps 2016 http://wdfw.wa.gov/mapping/phs/

Washington State Department of Fish and Wildlife SalmonScape Mapping System, 2016 (for fish presence): http://apps.wdfw.wa.gov/salmonscape/map.html

Washington State Department of Natural Resources FPARS Mapping System, 2016 (for stream typing): http://fortess.wa.gov/dnr/app1/fpars/viewer.htm

APPENDIX A – Field Data Worksheets

Project/Site: Parcel 4014400217 and 4014400216		City/Count	y: <u>King</u>					
Applicant/Owner:				State: WA.	Sampling Point: SP1			
Investigator(s): Habitat Technologies			Section, To	ownship, Range: <u>S10 T21 F</u>	R4E			
Landform (hillslope, terrace, etc.):		Local relie	ef (concave,	, convex, none):	Slope (%):			
Subregion (LRR): A	_ Lat:			Long:	Datum:			
Soil Map Unit Name: <u>Alderwood gravelly sandy loam</u>								
Are climatic / hydrologic conditions on the site typical for this					•			
Are Vegetation, Soil, or Hydrology sign	-			ormal Circumstances" pres	ent? Yes⊠ No□			
Are Vegetation, Soil, or Hydrology natu				ed, explain any answers in				
SUMMARY OF FINDINGS – Attach site map s			•		,			
			<u> </u>	, ,	<u> </u>			
Hydrophytic Vegetation Present? Yes ☐ No ☐ Hydric Soil Present? Yes ☐ No ☐ N			ne Sampled		_			
Wetland Hydrology Present? Yes ☐ No ☒		with	in a Wetlar	nd? Yes ☐ No) 🛮			
Remarks: Upland								
VEGETATION . Her rejentific names of plant	_							
VEGETATION – Use scientific names of plant	Absolute	Dominant	Indicator	Dominance Test works	hooti			
Tree Stratum (Plot size: 15ft radius)	% Cover			Number of Dominant Sp				
1. Thuja plicata	60	yes	FAC	That Are OBL, FACW, o				
2				Total Number of Domina	ınt			
3				Species Across All Strata				
4				Percent of Dominant Spe	ecies			
Sapling/Shrub Stratum (Plot size: 15ft radius)	60	= Total C	Cover		r FAC: <u>50</u> (A/B)			
1. Acer circinatum	80	ves	FAC	Prevalence Index work	sheet:			
Oemleria cerasisformis		-		Total % Cover of:	Multiply by:			
3				OBL species	x 1 =			
4				FACW species	x 2 =			
5				FAC species	x 3 =			
(5)	90	= Total C	over		x 4 =			
Herb Stratum (Plot size: 15ft radius)	10		FACU		x 5 =			
Trillium ovatum Polystrichum munitum	10			Column Totals:	(A) (B)			
3		•		Prevalence Index	= B/A =			
4				Hydrophytic Vegetation				
5.				☐ Rapid Test for Hydro	phytic Vegetation			
6				☐ Dominance Test is >	50%			
7				☐ Prevalence Index is:	≤3.0 ¹			
8					ations ¹ (Provide supporting or on a separate sheet)			
9				□ Wetland Non-Vascul	• /			
10				_	ar Flants nytic Vegetation¹ (Explain)			
11				-	and wetland hydrology must			
Woody Vine Stratum (Plot size: 15ft radius)	20	= Total C	Cover	be present, unless distur				
1				Hydrophytic				
2				Vegetation				
% Bare Ground in Herb Stratum		= Total C	Cover	Present? Yes	□ No ⊠			
Remarks: Upland-Wetland mix, does not meet >50 domina	nce parame	eters.						
, , , , , , , , , , , , , , , , , , , ,	1	-						

Depth (inches)	Matrix Color (moist)	x	Colo	Redox Features or (moist) % Type ¹ L	_oc²	Texture			Remark	S
			0010	<u> </u>		ı			rtomant	<u>5</u>
0-3		100				<u>L</u>				
<u>3-18</u>	10YR 3/3	100				Gsl				
						-				
	-									
			- —			-				
				duced Matrix, CS=Covered or Coated S	Sand Gra	ains.	² Locat	ion: PL=f	Pore Linir	ng, M=Matrix.
Hydric Soi	I Indicators: (App	olicable to	all LRR	Rs, unless otherwise noted.)		Indi	icators	for Prob	lematic H	lydric Soils³:
☐ Histoso	l (A1)			Sandy Redox (S5)			2 cm M	luck (A10)	
	pipedon (A2)			Stripped Matrix (S6)				arent Mate	•	,
_	listic (A3)			Loamy Mucky Mineral (F1) (except MI	LRA 1)		-	hallow Da		
	en Sulfide (A4)	(0.44)		Loamy Gleyed Matrix (F2)		ш	Other (Explain in	Remark	s)
	ed Below Dark Surf Park Surface (A12)	ace (A11)		Depleted Matrix (F3) Redox Dark Surface (F6)		3Ind	licatoro	of hydron	bytic voc	etation and
	Mucky Mineral (S1)	١		Depleted Dark Surface (F7)						e present,
	Gleyed Matrix (S4)			Redox Depressions (F8)				disturbed	-	•
	Layer (if present			. 1040. 2001.000.000					o. p. o	
Type:				_						
	nches):					Hydric	Soil Pr	resent?	Yes □	No ⊠
Pomarks: N	NO prominent field	indicators (of bydric	o coile						
HYDROLO	OGY									
HYDROLO		rs:								
Wetland H	ydrology Indicato		lired: ch	eck all that apply)		s	Seconda	ary Indica	tors (2 or	more required)
Wetland Hy	ydrology Indicato licators (minimum o		iired; ch	_	ept MLR					more required) (B9) (MLRA 1. 2.
Wetland Hy Primary Ind	ydrology Indicato licators (minimum o e Water (A1)		iired; ch	☐ Water-Stained Leaves (B9) (exce	ept MLR] Wate	er-Stained	Leaves	more required) (B9) (MLRA 1, 2,
Wetland Hy Primary Ind Surface High W	ydrology Indicato licators (minimum o Water (A1) later Table (A2)		iired; ch	☐ Water-Stained Leaves (B9) (exce 1, 2, 4A, and 4B)	ept MLR	A [] Wate	er-Stained	Leaves	(B9) (MLRA 1, 2,
Wetland Hy Primary Ind ☐ Surface ☐ High W ☐ Saturati	ydrology Indicato licators (minimum of Water (A1) later Table (A2) ion (A3)		uired; ch	☐ Water-Stained Leaves (B9) (exce 1, 2, 4A, and 4B) ☐ Salt Crust (B11)	ept MLR.	A [Wate 4 Draii	er-Stained IA, and 4 nage Patt	d Leaves B) erns (B10	(B9) (MLRA 1, 2,
Wetland Hy Primary Ind □ Surface □ High W □ Saturati □ Water M	ydrology Indicato licators (minimum of Water (A1) later Table (A2) ion (A3)		nired; ch	☐ Water-Stained Leaves (B9) (exce 1, 2, 4A, and 4B)	ept MLR	A [□ Wate 4 □ Draii □ Dry∹	er-Stained 1A, and 4 nage Patt Season W	I Leaves B) erns (B10 Vater Tab	(B9) (MLRA 1, 2,
Wetland Hy Primary Ind □ Surface □ High W □ Saturati □ Water M □ Sedime	ydrology Indicato licators (minimum of wWater (A1) fater Table (A2) ion (A3) Marks (B1) ent Deposits (B2)		iired; ch	☐ Water-Stained Leaves (B9) (exce 1, 2, 4A, and 4B) ☐ Salt Crust (B11) ☐ Aquatic Invertebrates (B13)		A [Wate Drain Dry-	er-Stained 1A, and 4 nage Patt Season Waration Vis	d Leaves B) erns (B10 /ater Tab ible on A	(B9) (MLRA 1, 2, 0) le (C2) erial Imagery (C9
Wetland Hy Primary Ind Surface High W Saturati Water M Sedime	ydrology Indicato licators (minimum o Water (A1) later Table (A2) ion (A3) Marks (B1)		iired; ch	Water-Stained Leaves (B9) (excellent 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1)		A [Wate Drain Dry- Satu Geo	er-Stained 1A, and 4 nage Patt Season W	d Leaves B) erns (B10 /ater Tab ible on A Position (I	(B9) (MLRA 1, 2, 0) le (C2) erial Imagery (C9
Wetland Hy Primary Ind Surface High W Saturati Water M Sedime Drift De	ydrology Indicato licators (minimum of Water (A1) fater Table (A2) fion (A3) Marks (B1) ent Deposits (B2)		iired; ch	Water-Stained Leaves (B9) (excellent 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Livi	ing Roots	A [Wate Drain Dry- Satu Geo Shal	er-Stained A, and 4 nage Patt Season W Iration Vis morphic F	d Leaves B) erns (B10 /ater Tab ible on A Position (Dard (D3)	(B9) (MLRA 1, 2, 0) le (C2) erial Imagery (C9
Wetland Hy Primary Ind Surface High W Saturati Water M Sedime Drift De Algal M Iron De	ydrology Indicato licators (minimum of Water (A1) later Table (A2) ion (A3) Marks (B1) ent Deposits (B2) eposits (B3) lat or Crust (B4)		iired; ch	Water-Stained Leaves (B9) (excellent 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Livid Presence of Reduced Iron (C4)	ing Roots	A	Wate Drain Dry- Satu Geo Shal	er-Stained 1A, and 4 nage Patt Season W Iration Vis morphic F Ilow Aquit	d Leaves B) erns (B10 Vater Tab ible on A Position (I ard (D3) Fest (D5)	(B9) (MLRA 1, 2, 0) le (C2) erial Imagery (C9
Wetland Hy Primary Ind Surface High W Saturati Water N Sedime Drift De Algal M Iron De Surface	ydrology Indicato licators (minimum of water (A1) ater Table (A2) ion (A3) Marks (B1) ent Deposits (B2) eposits (B3) lat or Crust (B4) posits (B5)	of one requ		Water-Stained Leaves (B9) (excellent 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Livid Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled S	ing Roots	A	Wate Drain Dry- Satu Geor Shal FAC Rais	er-Stained 1A, and 4 nage Patt Season W Iration Vis morphic F Ilow Aquit	d Leaves B) erns (B10 Vater Tab ible on A Position (Dard (D3) Fest (D5) bounds (D0)	(B9) (MLRA 1, 2, 0) le (C2) erial Imagery (C9, 02)
Wetland Hy Primary Ind Surface High W Saturati Water M Sedime Drift De Algal M Iron De Surface	ydrology Indicators (minimum of Water (A1) atter Table (A2) ion (A3) Marks (B1) ent Deposits (B2) eposits (B3) at or Crust (B4) posits (B5) e Soil Cracks (B6)	of one requ	(B7)	Water-Stained Leaves (B9) (excellent 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Livid Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Southed or Stressed Plants (D1) (ing Roots	A	Wate Drain Dry- Satu Geor Shal FAC Rais	er-Stained 14, and 4 nage Patt Season Waration Vis morphic Follow Aquit -Neutral Taled Ant More	d Leaves B) erns (B10 Vater Tab ible on A Position (Dard (D3) Fest (D5) bounds (D0)	(B9) (MLRA 1, 2, 0) le (C2) erial Imagery (C9, 02)
Wetland Hy Primary Ind Surface High W Saturati Water M Sedime Drift De Algal M Iron De Surface	ydrology Indicator licators (minimum of Water (A1) later Table (A2) lion (A3) Marks (B1) lent Deposits (B2) lent Organis (B3) lat or Crust (B4) lent Organis (B5) le Soil Cracks (B6) lion Visible on Aeria ly Vegetated Conc	of one requ	(B7)	Water-Stained Leaves (B9) (excellent 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Livid Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Southed or Stressed Plants (D1) (ing Roots	A	Wate Drain Dry- Satu Geor Shal FAC Rais	er-Stained 14, and 4 nage Patt Season Waration Vis morphic Follow Aquit -Neutral Taled Ant More	d Leaves B) erns (B10 Vater Tab ible on A Position (Dard (D3) Fest (D5) bounds (D0)	(B9) (MLRA 1, 2, 0) le (C2) erial Imagery (C9, 02)
Wetland Hy Primary Ind Surface High W Saturati Water M Sedime Drift De Algal M Iron De Surface Inundat Sparsel	ydrology Indicator licators (minimum of Water (A1) later Table (A2) lion (A3) Marks (B1) lent Deposits (B2) lent Organis (B3) lat or Crust (B4) lent Organis (B5) le Soil Cracks (B6) lion Visible on Aeria ly Vegetated Conc	of one requ al Imagery ave Surface	(B7)	Water-Stained Leaves (B9) (excellent 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Livid Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Southed or Stressed Plants (D1) (ing Roots	A	Wate Drain Dry- Satu Geor Shal FAC Rais	er-Stained 14, and 4 nage Patt Season Waration Vis morphic Follow Aquit -Neutral Taled Ant More	d Leaves B) erns (B10 Vater Tab ible on A Position (Dard (D3) Fest (D5) bounds (D0)	(B9) (MLRA 1, 2, 0) le (C2) erial Imagery (C9, 02)
Wetland Hy Primary Ind Surface High W Saturati Water M Sedime Drift De Algal M Iron De Surface Inundat Sparsel	ydrology Indicators (minimum of Water (A1) atter Table (A2) ion (A3) Marks (B1) ent Deposits (B2) eposits (B3) at or Crust (B4) posits (B5) e Soil Cracks (B6) cion Visible on Aerially Vegetated Concaervations:	al Imagery ave Surface	(B7) e (B8)	Water-Stained Leaves (B9) (excertification 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Livid Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Solution Stunted or Stressed Plants (D1) (C4) Other (Explain in Remarks)	ing Roots	A	Wate Drain Dry- Satu Geor Shal FAC Rais	er-Stained 14, and 4 nage Patt Season Waration Vis morphic Follow Aquit -Neutral Taled Ant More	d Leaves B) erns (B10 Vater Tab ible on A Position (Dard (D3) Fest (D5) bounds (D0)	(B9) (MLRA 1, 2, 0) le (C2) erial Imagery (C9, 02)
Wetland Hy Primary Ind Surface High W Saturati Water N Sedime Drift De Algal M Iron De Surface Inundat Sparsel Surface Water Water	ydrology Indicator licators (minimum of Water (A1) later Table (A2) lion (A3) Marks (B1) lent Deposits (B2) lent Deposits (B3) lat or Crust (B4) lent Oracks (B6) lent Oracks (B	al Imagery ave Surface Yes Yes	(B7) e (B8) No ⊠	Water-Stained Leaves (B9) (excellent 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Livid Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled S Stunted or Stressed Plants (D1) (C4) Other (Explain in Remarks) Depth (inches): Depth (inches):	ing Roots	A	Wate 4 Drain Dry- Satu Geo Shal FAC Rais Fros	er-Stained 1A, and 4 nage Patt Season W Iration Vis morphic F Ilow Aquit -Neutral 1 Led Ant Mo It-Heave H	d Leaves B) erns (B10 /ater Tab ible on A Position (I ard (D3) Fest (D5) bunds (D0 Hummock	(B9) (MLRA 1, 2, 0) le (C2) erial Imagery (C9 02) 6) (LRR A) s (D7)
Wetland Hy Primary Ind Surface High W Saturati Water N Sedime Drift De Algal M Iron De Inundat Sparsel Field Obse Surface Water Table Saturation I (includes ca	ydrology Indicators (minimum of Water (A1) ater Table (A2) ion (A3) Marks (B1) ent Deposits (B2) eposits (B3) at or Crust (B4) posits (B5) e Soil Cracks (B6) cion Visible on Aerially Vegetated Concaervations: ater Present? e Present? Present? apillary fringe)	al Imagery ave Surface Yes Yes Yes Yes Yes	(B7) e (B8) No ⊠ No ⊠ No ⊠	Water-Stained Leaves (B9) (excellent 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Livid Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Society Stunted or Stressed Plants (D1) (C4) Other (Explain in Remarks) Depth (inches): Depth (inches): Depth (inches):	ing Roots oils (C6) (LRR A) Wetla	s (C3)	Wate Drain Satu Geo Shal FAC Rais Fros	er-Stained 1A, and 4 nage Patt Season W Iration Vis morphic F Ilow Aquit -Neutral 1 Led Ant Mo It-Heave H	d Leaves B) erns (B10 /ater Tab ible on A Position (I ard (D3) Fest (D5) bunds (D0 Hummock	(B9) (MLRA 1, 2, 0) le (C2) erial Imagery (C9 02) 6) (LRR A) s (D7)
Wetland Hy Primary Ind Surface High W Saturati Water N Sedime Drift De Algal M Iron De Inundat Sparsel Field Obse Surface Water Table Saturation I (includes ca	ydrology Indicators (minimum of Water (A1) ater Table (A2) ion (A3) Marks (B1) ent Deposits (B2) eposits (B3) at or Crust (B4) posits (B5) e Soil Cracks (B6) cion Visible on Aerially Vegetated Concaervations: ater Present? e Present? Present? apillary fringe)	al Imagery ave Surface Yes Yes Yes Yes Yes	(B7) e (B8) No ⊠ No ⊠ No ⊠	Water-Stained Leaves (B9) (excellent 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Livid Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled S Stunted or Stressed Plants (D1) (C4) Other (Explain in Remarks) Depth (inches): Depth (inches):	ing Roots oils (C6) (LRR A) Wetla	s (C3)	Wate Drain Satu Geo Shal FAC Rais Fros	er-Stained 1A, and 4 nage Patt Season W Iration Vis morphic F Ilow Aquit -Neutral 1 Led Ant Mo It-Heave H	d Leaves B) erns (B10 /ater Tab ible on A Position (I ard (D3) Fest (D5) bunds (D0 Hummock	(B9) (MLRA 1, 2, 0) le (C2) erial Imagery (C9 02) 6) (LRR A) s (D7)
Wetland Hy Primary Ind Surface High W Saturati Water N Sedime Drift De Algal M Iron De Inundat Sparsel Field Obse Surface Water Table Saturation I (includes ca	ydrology Indicato licators (minimum of Water (A1) ater Table (A2) ion (A3) Marks (B1) ent Deposits (B2) eposits (B3) at or Crust (B4) posits (B5) e Soil Cracks (B6) eion Visible on Aeria ly Vegetated Conca ervations: ater Present? e Present? present? apillary fringe) ecorded Data (stre	al Imagery ave Surface Yes Yes Yes sam gauge,	(B7) e (B8) No ⊠ No ⊠ No ⊠ monito	Water-Stained Leaves (B9) (excert, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Livity Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Stanted or Stressed Plants (D1) (Other (Explain in Remarks) Depth (inches): Depth (inches): Depth (inches): Depth (inches): Tring well, aerial photos, previous inspections	ing Roots oils (C6) (LRR A) Wetla	s (C3)	Wate Drain Satu Geo Shal FAC Rais Fros	er-Stained 1A, and 4 nage Patt Season W Iration Vis morphic F Ilow Aquit -Neutral 1 Led Ant Mo It-Heave H	d Leaves B) erns (B10 /ater Tab ible on A Position (I ard (D3) Fest (D5) bunds (D0 Hummock	(B9) (MLRA 1, 2, 0) le (C2) erial Imagery (C9 02) 6) (LRR A) s (D7)
Wetland Hy Primary Ind Surface High W Saturati Water N Sedime Drift De Algal M Iron De Inundat Sparsel Field Obse Surface Water Table Saturation I (includes ca	ydrology Indicators (minimum of Water (A1) ater Table (A2) ion (A3) Marks (B1) ent Deposits (B2) eposits (B3) at or Crust (B4) posits (B5) e Soil Cracks (B6) cion Visible on Aerially Vegetated Concaervations: ater Present? e Present? Present? apillary fringe)	al Imagery ave Surface Yes Yes Yes sam gauge,	(B7) e (B8) No ⊠ No ⊠ No ⊠ monito	Water-Stained Leaves (B9) (excert, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Livity Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Stanted or Stressed Plants (D1) (Other (Explain in Remarks) Depth (inches): Depth (inches): Depth (inches): Depth (inches): Tring well, aerial photos, previous inspections	ing Roots oils (C6) (LRR A) Wetla	s (C3)	Wate Drain Satu Geo Shal FAC Rais Fros	er-Stained 1A, and 4 nage Patt Season W Iration Vis morphic F Ilow Aquit -Neutral 1 Led Ant Mo It-Heave H	d Leaves B) erns (B10 /ater Tab ible on A Position (I ard (D3) Fest (D5) bunds (D0 Hummock	(B9) (MLRA 1, 2, 0) le (C2) erial Imagery (C9 02) 6) (LRR A) s (D7)
Wetland Hy Primary Ind Surface High W Saturati Water N Sedime Drift De Algal M Iron De Inundat Sparsel Field Obse Surface Water Table Saturation I (includes ca	ydrology Indicato licators (minimum of Water (A1) ater Table (A2) ion (A3) Marks (B1) ent Deposits (B2) eposits (B3) at or Crust (B4) posits (B5) e Soil Cracks (B6) eion Visible on Aeria ly Vegetated Conca ervations: ater Present? e Present? present? apillary fringe) ecorded Data (stre	al Imagery ave Surface Yes Yes Yes sam gauge,	(B7) e (B8) No ⊠ No ⊠ No ⊠ monito	Water-Stained Leaves (B9) (excert, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Livity Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Stanted or Stressed Plants (D1) (Other (Explain in Remarks) Depth (inches): Depth (inches): Depth (inches): Depth (inches): Tring well, aerial photos, previous inspections	ing Roots oils (C6) (LRR A) Wetla	s (C3)	Wate Drain Satu Geo Shal FAC Rais Fros	er-Stained 1A, and 4 nage Patt Season W Iration Vis morphic F Ilow Aquit -Neutral 1 Led Ant Mo It-Heave H	d Leaves B) erns (B10 /ater Tab ible on A Position (I ard (D3) Fest (D5) bunds (D0 Hummock	(B9) (MLRA 1, 2, 0) le (C2) erial Imagery (C9 02) 6) (LRR A) s (D7)

Project/Site: Parcel 4014400217 and 4014400216		City/Coun	ity: <u>King</u>		Sampling Date: 23 MAR 2022		
Applicant/Owner:				State: WA.	Sampling Point: SP2		
Investigator(s): Habitat Technologies							
Landform (hillslope, terrace, etc.):		_Local rel	lief (concave,	, convex, none):	Slope (%):		
Subregion (LRR): A	_ Lat:			Long:	Datum:		
Soil Map Unit Name: <u>Alderwood gravelly sandy loam</u>							
Are climatic / hydrologic conditions on the site typical for this					·		
Are Vegetation, Soil, or Hydrology sigr	-			ormal Circumstances" prese	ent? Yes⊠ No □		
Are Vegetation, Soil, or Hydrology natu				ed, explain any answers in			
SUMMARY OF FINDINGS – Attach site map			,	•	•		
Hydrophytic Vegetation Present? Yes ⊠ No □							
Hydric Soil Present? Yes ⊠ No □			the Sampled thin a Wetlar		. 🗆		
Wetland Hydrology Present? Yes ⊠ No □		Wit	min a wetiar	nd? Yes ⊠ No			
Remarks: Wetland							
VEGETATION – Use scientific names of plant	ts.						
Tree Stratum (Plot size: 15ft radius)			nt Indicator	Dominance Test works			
Populus trichocarpa	50			Number of Dominant Spe That Are OBL, FACW, or			
2. Alnus rubra		-	FAC	Total Number of Domina			
3				Species Across All Strata			
4		-		Percent of Dominant Spe	icias		
Sapling/Shrub Stratum (Plot size: 15ft radius)	70	= Total	Cover		FAC: <u>83</u> (A/B)		
1. Acer circinatum	30	yes	FAC	Prevalence Index works	sheet:		
Lonicera involucrata	70	yes	FAC		Multiply by:		
3				OBL species			
4				FACW species			
5				FACULARISIS			
Herb Stratum (Plot size: 15ft radius)	100	= lotal	Cover	FACU species UPL species			
1. Carex obnupta	<u>15</u>	yes	OBL	· · · · · · · · · · · · · · · · · · ·	(A) (B)		
2. Polystrichum munitum				Coldinii Fotalo.	(1) (2)		
3					= B/A =		
4				Hydrophytic Vegetation			
5				Rapid Test for Hydro	· · ·		
6				☐ Dominance Test is >			
7				☐ Prevalence Index is ≤	ations ¹ (Provide supporting		
8					or on a separate sheet)		
9				☐ Wetland Non-Vascula	ar Plants ¹		
10				☐ Problematic Hydroph	ytic Vegetation¹ (Explain)		
11	35				and wetland hydrology must		
Woody Vine Stratum (Plot size: 15ft radius)				be present, unless disturb	ped or problematic.		
1				Hydrophytic			
2		Total		Vegetation Present? Yes	⊠ No □		
% Bare Ground in Herb Stratum		= 10tal	Cover	i resent: res	M HO []		
Remarks: Wetland				l .			

Depth (inches)	Matrix Color (moist)	%	Colo	r (moist)	lox Features % Type	e ¹ Loc ²	Textu	reRemarks
0-20	10YR 3/1							
0-20	10113/1	100					SII	
			_					
							_	
							_	
			_					
	oncentration, D=D					oated Sand		² Location: PL=Pore Lining, M=Matrix.
-	Indicators: (App	licable to						ndicators for Problematic Hydric Soils ³ :
☐ Histosol	, ,			Sandy Redox				2 cm Muck (A10)
	oipedon (A2)			Stripped Matri	x (56) Mineral (F1) (exc	ent MI RA 1		Red Parent Material (TF2) Very Shallow Dark Surface (TF12)
	en Sulfide (A4)			_oamy Gleyed		opt mena i	')	Other (Explain in Remarks)
	d Below Dark Surfa	ace (A11)		Depleted Matr			_	
	ark Surface (A12)	, ,	☐ F	Redox Dark S	urface (F6)		3	ndicators of hydrophytic vegetation and
-	lucky Mineral (S1)			Depleted Dark				wetland hydrology must be present,
	Sleyed Matrix (S4)		F	Redox Depres	sions (F8)		<u> </u>	unless disturbed or problematic.
	Layer (if present)							
	ahaa).							
Depth (in	ches):						Hydr	ric Soil Present? Yes 🛛 No 🗌
Remarks: Pr	rominent field indic	ators of hy	ydric soil	s				
HYDROLO)GY							
	drology Indicator	'S:						
Primary Indi	drology Indicator		ired: che	eck all that an	nlv)			Secondary Indicators (2 or more required)
	cators (minimum o		iired; che) (except MI	ΙΡΔ	Secondary Indicators (2 or more required) Water-Stained Leaves (B9) (MI PA 1 2
Surface	cators (minimum o		iired; che	☐ Water-St	ained Leaves (B9) (except MI	LRA	☐ Water-Stained Leaves (B9) (MLRA 1, 2,
☐ Surface ☐ High Wa	cators (minimum o Water (A1) ater Table (A2)		iired; che	☐ Water-St	ained Leaves (B9 4A, and 4B)) (except MI	LRA	☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
☐ Surface ☐ High Wa	cators (minimum o Water (A1) ater Table (A2) on (A3)		iired; che	☐ Water-Sta	ained Leaves (B9 4A, and 4B) t (B11)	, , ,	LRA	 Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) □ Drainage Patterns (B10)
☐ Surface ☐ High Wa ☐ Saturatio	cators (minimum o Water (A1) ater Table (A2) on (A3) larks (B1)		iired; che	☐ Water-Standard Nation 1, 2, 4 ☐ Salt Crus ☐ Aquatic II	ained Leaves (B9 4A, and 4B) t (B11) nvertebrates (B13	3)	LRA	 □ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) □ Drainage Patterns (B10) □ Dry-Season Water Table (C2)
Surface High Wa Saturatio Water M Sedimer	cators (minimum o Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2)		iired; che	☐ Water-Stands ☐ 1, 2, 4 ☐ Salt Crust ☐ Aquatic Int ☐ Hydroger	ained Leaves (B9 4A, and 4B) t (B11) nvertebrates (B13 n Sulfide Odor (C	3)		 Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) □ Drainage Patterns (B10) □ Dry-Season Water Table (C2) □ Saturation Visible on Aerial Imagery (C9)
Surface High Wa Saturatio Water M Sedimer Drift Dep	cators (minimum o Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3)		ired; che	Water-St. 1, 2, 4 Salt Crus Aquatic II Hydroger Oxidized	ained Leaves (B9 4A, and 4B) t (B11) nvertebrates (B13 n Sulfide Odor (C' Rhizospheres alc	3) 1) ong Living Ro		 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)
Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma	cators (minimum o Water (A1) ater Table (A2) on (A3) larks (B1) on Deposits (B2) posits (B3) at or Crust (B4)		iired; che	Water-St. 1, 2, 4 Salt Crus Aquatic II Hydroger Oxidized Presence	ained Leaves (B9 4A, and 4B) t (B11) nvertebrates (B13 n Sulfide Odor (C	3) 1) png Living Ro (C4)	oots (C3)	 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)
Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma	cators (minimum o Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3)		iired; che	Water-St. 1, 2, 4 Salt Crus Aquatic II Hydroger Oxidized Presence Recent Ir	ained Leaves (B9 4A, and 4B) t (B11) nvertebrates (B13 n Sulfide Odor (C' Rhizospheres alce of Reduced Iron	3) 1) ong Living Ro (C4) Tilled Soils (C	oots (C3)	 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)
Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface	cators (minimum o Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5)	f one requ		Water-St. 1, 2, 4 Salt Crus Aquatic II Hydroger Oxidized Presence Recent Ir	ained Leaves (B9 4A, and 4B) t (B11) nvertebrates (B13 n Sulfide Odor (C' Rhizospheres alc of Reduced Iron on Reduction in T	B) 1) ong Living Ro (C4) Filled Soils (C s (D1) (LRR)	oots (C3)	 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)
Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface	cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) cosits (B3) at or Crust (B4) cosits (B5) Soil Cracks (B6)	f one requ	(B7)	Water-St. 1, 2, 4 Salt Crus Aquatic II Hydroger Oxidized Presence Recent Ir	ained Leaves (B9 4A, and 4B) t (B11) nvertebrates (B13 n Sulfide Odor (C' Rhizospheres alce of Reduced Iron on Reduction in Tor Stressed Plants	B) 1) ong Living Ro (C4) Filled Soils (C s (D1) (LRR)	oots (C3)	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)
Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface	cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) ont Deposits (B2) cosits (B3) at or Crust (B4) cosits (B5) Soil Cracks (B6) on Visible on Aeria of Vegetated Conca	f one requ	(B7)	Water-St. 1, 2, 4 Salt Crus Aquatic II Hydroger Oxidized Presence Recent Ir	ained Leaves (B9 4A, and 4B) t (B11) nvertebrates (B13 n Sulfide Odor (C' Rhizospheres alce of Reduced Iron on Reduction in Tor Stressed Plants	B) 1) ong Living Ro (C4) Filled Soils (C s (D1) (LRR)	oots (C3)	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)
Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface Inundatio	cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) on Deposits (B2) cosits (B3) at or Crust (B4) cosits (B5) Soil Cracks (B6) on Visible on Aeria v Vegetated Concarvations:	f one requ	(B7)	Water-St. 1, 2, 4 Salt Crus Aquatic II Hydroger Oxidized Presence Recent Ir	ained Leaves (B9 4A, and 4B) t (B11) nvertebrates (B13 n Sulfide Odor (C' Rhizospheres alc e of Reduced Iron on Reduction in Tor Stressed Plants xplain in Remarks	B) 1) ong Living Ro (C4) Filled Soils (C s (D1) (LRR)	oots (C3)	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)
Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface Inundatio Sparsely	cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aeria of Vegetated Conca	I Imagery	(B7) e (B8)	Water-St. 1, 2, 4 Salt Crus Aquatic II Hydroger Oxidized Presence Recent Ir Stunted o	ained Leaves (B9 4A, and 4B) t (B11) nvertebrates (B13 n Sulfide Odor (C' Rhizospheres alce of Reduced Iron on Reduction in Tor or Stressed Plants (plain in Remarks	B) 1) ong Living Ro (C4) Filled Soils (C s (D1) (LRR)	oots (C3)	 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)
Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface Inundatio Sparsely Field Obser Surface Wat	cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) ont Deposits (B2) oosits (B3) at or Crust (B4) oosits (B5) Soil Cracks (B6) on Visible on Aeria of Vegetated Conca	one requal Imagery ave Surface Yes □ Yes ⊠	(B7) e (B8) No ⊠	Water-St. 1, 2, 4 Salt Crus Aquatic II Hydroger Oxidized Presence Recent Ir Stunted C Other (Ex	ained Leaves (B9 4A, and 4B) t (B11) nvertebrates (B13 n Sulfide Odor (C' Rhizospheres alce of Reduced Iron on Reduction in Tor Stressed Plants explain in Remarks ess): ess):	B) 1) ong Living Ro (C4) Filled Soils (C s (D1) (LRR /	oots (C3) C6) A)	 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)
Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface Inundatio Sparsely Field Obser Surface Wat Water Table Saturation P (includes ca	cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) on Deposits (B2) oosits (B3) at or Crust (B4) oosits (B5) Soil Cracks (B6) on Visible on Aeria of Vegetated Conca rvations: ter Present? Present? Present?	al Imagery ave Surface Yes ☐ Yes ⊠ Yes ⊠	(B7) e (B8) No ⊠ No □ No □	Water-St. 1, 2, 4 Salt Crus Aquatic II Hydroger Oxidized Presence Recent Ir Stunted C Other (Ex	ained Leaves (B9 4A, and 4B) t (B11) nvertebrates (B13 n Sulfide Odor (C' Rhizospheres alce of Reduced Iron on Reduction in Tor or Stressed Plants (xplain in Remarks) es):	B) 1) ong Living Ro (C4) Filled Soils (C s (D1) (LRR /	oots (C3) C6) A)	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)
Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface Inundatio Sparsely Field Obser Surface Wat Water Table Saturation P (includes ca	cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aeria of Vegetated Concar rvations: ter Present?	al Imagery ave Surface Yes ☐ Yes ⊠ Yes ⊠	(B7) e (B8) No ⊠ No □ No □	Water-St. 1, 2, 4 Salt Crus Aquatic II Hydroger Oxidized Presence Recent Ir Stunted C Other (Ex	ained Leaves (B9 4A, and 4B) t (B11) nvertebrates (B13 n Sulfide Odor (C' Rhizospheres alce of Reduced Iron on Reduction in Tor or Stressed Plants (xplain in Remarks) es):	B) 1) ong Living Ro (C4) Filled Soils (C s (D1) (LRR /	oots (C3) C6) A)	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)
Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface Inundatio Sparsely Field Obser Surface Wat Water Table Saturation P (includes ca	cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) ont Deposits (B2) osits (B3) at or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aeria of Vegetated Conca crations: ter Present? e Present? pillary fringe) ecorded Data (streat	al Imagery ave Surface Yes ☐ Yes ⊠ Yes ⊠ am gauge,	(B7) e (B8) No No No No No monitor	Water-St. 1, 2, 4 Salt Crus Aquatic II Hydroger Oxidized Presence Recent Ir Stunted of Other (Ex	ained Leaves (B9 4A, and 4B) It (B11) Invertebrates (B13 In Sulfide Odor (C ² Rhizospheres alco It of Reduced Iron It on Reduction in Tor It of Stressed Plants It of Reduced Iron It of Stressed Plants It of Reduced Iron It of Stressed Plants It of Reduced Iron It of Redu	ong Living Ro (C4) Filled Soils (Cs (D1) (LRR /	oots (C3) C6) A)	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)
Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface Inundatio Sparsely Field Obser Surface Wat Water Table Saturation P (includes ca	cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) on Deposits (B2) oosits (B3) at or Crust (B4) oosits (B5) Soil Cracks (B6) on Visible on Aeria of Vegetated Conca rvations: ter Present? Present? Present?	al Imagery ave Surface Yes ☐ Yes ⊠ Yes ⊠ am gauge,	(B7) e (B8) No No No No No monitor	Water-St. 1, 2, 4 Salt Crus Aquatic II Hydroger Oxidized Presence Recent Ir Stunted of Other (Ex	ained Leaves (B9 4A, and 4B) It (B11) Invertebrates (B13 In Sulfide Odor (C ² Rhizospheres alco It of Reduced Iron It on Reduction in Tor It of Stressed Plants It of Reduced Iron It of Stressed Plants It of Reduced Iron It of Stressed Plants It of Reduced Iron It of Redu	ong Living Ro (C4) Filled Soils (Cs (D1) (LRR /	oots (C3) C6) A)	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)
Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface Inundatio Sparsely Field Obser Surface Wat Water Table Saturation P (includes ca	cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) ont Deposits (B2) osits (B3) at or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aeria of Vegetated Conca crations: ter Present? e Present? pillary fringe) ecorded Data (streat	al Imagery ave Surface Yes ☐ Yes ⊠ Yes ⊠ am gauge,	(B7) e (B8) No No No No No monitor	Water-St. 1, 2, 4 Salt Crus Aquatic II Hydroger Oxidized Presence Recent Ir Stunted of Other (Ex	ained Leaves (B9 4A, and 4B) It (B11) Invertebrates (B13 In Sulfide Odor (C ² Rhizospheres alco It of Reduced Iron It on Reduction in Tor It of Stressed Plants It of Reduced Iron It of Stressed Plants It of Reduced Iron It of Stressed Plants It of Reduced Iron It of Redu	ong Living Ro (C4) Filled Soils (Cs (D1) (LRR /	oots (C3) C6) A)	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)
Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface Inundatio Sparsely Field Obser Surface Wat Water Table Saturation P (includes ca	cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) ont Deposits (B2) osits (B3) at or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aeria of Vegetated Conca crations: ter Present? e Present? pillary fringe) ecorded Data (streat	al Imagery ave Surface Yes ☐ Yes ⊠ Yes ⊠ am gauge,	(B7) e (B8) No No No No No monitor	Water-St. 1, 2, 4 Salt Crus Aquatic II Hydroger Oxidized Presence Recent Ir Stunted of Other (Ex	ained Leaves (B9 4A, and 4B) It (B11) Invertebrates (B13 In Sulfide Odor (C ² Rhizospheres alco It of Reduced Iron It on Reduction in Tor It of Stressed Plants It of Reduced Iron It of Stressed Plants It of Reduced Iron It of Stressed Plants It of Reduced Iron It of Redu	ong Living Ro (C4) Filled Soils (Cs (D1) (LRR /	oots (C3) C6) A)	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)

Project/Site: Parcel 4014400217 and 4014400216		City/Count	y: King		Sampling Date: 23 MAR 2022		
Applicant/Owner:				State: WA.	Sampling Point: SP4		
Investigator(s): Habitat Technologies							
Landform (hillslope, terrace, etc.):		Local reli	ef (concave,	, convex, none):	Slope (%):		
Subregion (LRR): A							
Soil Map Unit Name: <u>Alderwood gravelly sandy loam</u>							
Are climatic / hydrologic conditions on the site typical for this							
Are Vegetation, Soil, or Hydrology sign	-			ormal Circumstances" pres	ent? Yes⊠ No□		
Are Vegetation, Soil, or Hydrology natu				ed, explain any answers in			
SUMMARY OF FINDINGS - Attach site map			,		,		
Hydrophytic Vegetation Present? Yes ⊠ No □							
Hydric Soil Present? Yes ⊠ No □			ne Sampled		_		
Wetland Hydrology Present? Yes ⊠ No □		with	nin a Wetlar	nd? Yes⊠ N	ɔ ∐		
Remarks: Wetland		I					
VECETATION. Has spigntific names of plants	ha.						
VEGETATION – Use scientific names of plant		Dominant	t Indicator	Dominance Test works	shoot:		
Tree Stratum (Plot size: 15ft radius)	% Cover			Number of Dominant Sp			
1. Alnus rubra	60	yes	FAC	That Are OBL, FACW, o			
2				Total Number of Domina	ınt		
3				Species Across All Strat	a: <u>5</u> (B)		
4				Percent of Dominant Sp			
Sapling/Shrub Stratum (Plot size: 15ft radius)	60	= Total C	Cover	That Are OBL, FACW, o	r FAC: <u>80</u> (A/B)		
1. Oemleria cerasiformis	30	yes	FACU	Prevalence Index work	sheet:		
2. Rubus spectabilis				Total % Cover of:	Multiply by:		
3				OBL species	x 1 =		
4					x 2 =		
5					x 3 =		
Herb Stratum (Plot size: 15ft radius)	40	= Total C	Cover		x 4 =		
Ranuculus repens	30	ves	FAC	· ·	x 5 = (A) (B)		
2				Column Totals.	(A) (B)		
3				Prevalence Index	= B/A =		
4				Hydrophytic Vegetation	n Indicators:		
5				Rapid Test for Hydro	· ·		
6				Dominance Test is >			
7				☐ Prevalence Index is			
8					tations ¹ (Provide supporting or on a separate sheet)		
9				☐ Wetland Non-Vascu	lar Plants ¹		
10				☐ Problematic Hydroph	nytic Vegetation1 (Explain)		
11	30				and wetland hydrology must		
Woody Vine Stratum (Plot size: 15ft radius)	30	= Total C	Jovei	be present, unless distu	bed or problematic.		
1. Rubus armeniacus	90	yes	FAC	Hydrophytic			
2				Vegetation			
9/ Para Ground in Horb Stratum	90	= Total C	Cover	Present? Yes	i⊠ No □		
% Bare Ground in Herb Stratum Remarks: Wetland							

Profile Description: (Desc	ribe to the depth	i needed to document the indicator or c	confirm the	absence of indicators.)
Depth Mat	rix	Redox Features		
(inches) Color (moist)	%C	Color (moist) % Type ¹ L	oc² Te	xture Remarks
0-18 10YR 3/1	100		Sil	
				
1Type: C-Canaantration D-	-Doplotion BM-E	Paduand Matrix, CS_Covered or Control S	and Crains	21 contion: DI —Poro Lining M—Matrix
		Reduced Matrix, CS=Covered or Coated S RRs, unless otherwise noted.)	anu Grains.	. ² Location: PL=Pore Lining, M=Matrix. Indicators for Problematic Hydric Soils ³ :
	-			
☐ Histosol (A1) ☐ Histic Epipedon (A2)	_	☐ Sandy Redox (S5) ☐ Stripped Matrix (S6)		2 cm Muck (A10) Red Parent Material (TF2)
☐ Black Histic (A3)		☐ Loamy Mucky Mineral (F1) (except ML	RΔ 1)	☐ Very Shallow Dark Surface (TF12)
☐ Hydrogen Sulfide (A4)		Loamy Gleyed Matrix (F2)	ika i)	Other (Explain in Remarks)
☐ Depleted Below Dark Su	ırface (Α11) Γ	Depleted Matrix (F3)		
☐ Depleted Below Ball Co	, ,	Redox Dark Surface (F6)		³ Indicators of hydrophytic vegetation and
☐ Sandy Mucky Mineral (S	•	Depleted Dark Surface (F7)		wetland hydrology must be present,
☐ Sandy Gleyed Matrix (S4		Redox Depressions (F8)		unless disturbed or problematic.
Restrictive Layer (if preser	nt):			·
Type:				
Depth (inches):			н	ydric Soil Present? Yes ⊠ No □
Remarks: Prominent field inc	diagtors of budria	anila	1	yano con 1000mi 100 🖸 110 🗀
Remarks. Fromment held in	dicators of riguric	SOIIS		
HYDROLOGY				
HYDROLOGY				
Wetland Hydrology Indicat				
		check all that apply)		Secondary Indicators (2 or more required)
Wetland Hydrology Indicat		check all that apply) Water-Stained Leaves (B9) (exce	pt MLRA	☐ Water-Stained Leaves (B9) (MLRA 1, 2,
Wetland Hydrology Indicate Primary Indicators (minimum			pt MLRA	
Wetland Hydrology Indicate Primary Indicators (minimum ☐ Surface Water (A1)		☐ Water-Stained Leaves (B9) (exce	pt MLRA	☐ Water-Stained Leaves (B9) (MLRA 1, 2,
Wetland Hydrology Indicate Primary Indicators (minimum ☐ Surface Water (A1) ☐ High Water Table (A2)		☐ Water-Stained Leaves (B9) (exception 1, 2, 4A, and 4B)	pt MLRA	
Wetland Hydrology Indicate Primary Indicators (minimum ☐ Surface Water (A1) ☐ High Water Table (A2) ☐ Saturation (A3)		☐ Water-Stained Leaves (B9) (except1, 2, 4A, and 4B)☐ Salt Crust (B11)	pt MLRA	 Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) □ Drainage Patterns (B10)
Wetland Hydrology Indicate Primary Indicators (minimum ☐ Surface Water (A1) ☐ High Water Table (A2) ☐ Saturation (A3) ☐ Water Marks (B1)		 □ Water-Stained Leaves (B9) (exception 1, 2, 4A, and 4B) □ Salt Crust (B11) □ Aquatic Invertebrates (B13) 		 □ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) □ Drainage Patterns (B10) □ Dry-Season Water Table (C2) □ Saturation Visible on Aerial Imagery (C9)
Wetland Hydrology Indicate Primary Indicators (minimum ☐ Surface Water (A1) ☐ High Water Table (A2) ☐ Saturation (A3) ☐ Water Marks (B1) ☐ Sediment Deposits (B2)		 □ Water-Stained Leaves (B9) (excellent 1, 2, 4A, and 4B) □ Salt Crust (B11) □ Aquatic Invertebrates (B13) □ Hydrogen Sulfide Odor (C1) 		 Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) □ Drainage Patterns (B10) □ Dry-Season Water Table (C2) □ Saturation Visible on Aerial Imagery (C9)
Wetland Hydrology Indicate Primary Indicators (minimum ☐ Surface Water (A1) ☐ High Water Table (A2) ☐ Saturation (A3) ☐ Water Marks (B1) ☐ Sediment Deposits (B2) ☐ Drift Deposits (B3)		 Water-Stained Leaves (B9) (except 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living 	ng Roots (C	 Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) □ Drainage Patterns (B10) □ Dry-Season Water Table (C2) □ Saturation Visible on Aerial Imagery (C9) ③ Geomorphic Position (D2)
Wetland Hydrology Indicate Primary Indicators (minimum ☐ Surface Water (A1) ☐ High Water Table (A2) ☐ Saturation (A3) ☐ Water Marks (B1) ☐ Sediment Deposits (B2) ☐ Drift Deposits (B3) ☐ Algal Mat or Crust (B4)	n of one required;	 Water-Stained Leaves (B9) (except 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Presence of Reduced Iron (C4) 	ng Roots (C	 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)
Wetland Hydrology Indicate Primary Indicators (minimum ☐ 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)	n of one required;	 Water-Stained Leaves (B9) (exception 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Science 	ng Roots (C	 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)
Wetland Hydrology Indicate Primary Indicators (minimum ☐ 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)	n of one required;	Water-Stained Leaves (B9) (except 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Livin Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Scipt Stunted or Stressed Plants (D1) (L	ng Roots (C	 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)
Wetland Hydrology Indicate Primary Indicators (minimum 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 Ae	n of one required;	Water-Stained Leaves (B9) (except 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Livin Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Scipt Stunted or Stressed Plants (D1) (L	ng Roots (C	 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)
Wetland Hydrology Indicate Primary Indicators (minimum ☐ 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 Ae ☐ Sparsely Vegetated Con Field Observations:	n of one required;) rial Imagery (B7) cave Surface (B8	Water-Stained Leaves (B9) (except 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Livin Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Scalar Stunted or Stressed Plants (D1) (L	ng Roots (C	 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)
Wetland Hydrology Indicate Primary Indicators (minimum ☐ 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 Ae ☐ Sparsely Vegetated Content of Surface Water Present?	n of one required; rial Imagery (B7) cave Surface (B8		ng Roots (C	 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)
Wetland Hydrology Indicate Primary Indicators (minimum 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 Ae Sparsely Vegetated Con Field Observations: Surface Water Present? Water Table Present?	n of one required; rial Imagery (B7) cave Surface (B8 Yes		ng Roots (C oils (C6) _RR A)	 Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) □ Drainage Patterns (B10) □ Dry-Season Water Table (C2) □ Saturation Visible on Aerial Imagery (C9) 3) □ Geomorphic Position (D2) □ Shallow Aquitard (D3) □ FAC-Neutral Test (D5) □ Raised Ant Mounds (D6) (LRR A) □ Frost-Heave Hummocks (D7)
Wetland Hydrology Indicate Primary Indicators (minimum 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 Ae Sparsely Vegetated Con Field Observations: Surface Water Present? Water Table Present? Saturation Present?	n of one required; rial Imagery (B7) cave Surface (B8		ng Roots (C oils (C6) _RR A)	 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)
Wetland Hydrology Indicate Primary Indicators (minimum 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 Ae Sparsely Vegetated Con Field Observations: Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe)	of one required; rial Imagery (B7) cave Surface (B8 Yes		ng Roots (C pils (C6) LRR A) Wetland	Water-Stained Leaves (B9) (MLRA 1, 2,
Wetland Hydrology Indicate Primary Indicators (minimum 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 Ae Sparsely Vegetated Con Field Observations: Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe)	of one required; rial Imagery (B7) cave Surface (B8 Yes	Water-Stained Leaves (B9) (except 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Livin Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Scalar (Explain in Remarks) Other (Explain in Remarks) Depth (inches): Depth (inches):	ng Roots (C pils (C6) LRR A) Wetland	Water-Stained Leaves (B9) (MLRA 1, 2,
Wetland Hydrology Indicate Primary Indicators (minimum ☐ 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 Ae ☐ Sparsely Vegetated Con Field Observations: Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (str	n of one required; rial Imagery (B7) cave Surface (B8 Yes	Water-Stained Leaves (B9) (except 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Livin Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Scalar Stunted or Stressed Plants (D1) (I Other (Explain in Remarks) Depth (inches): Depth (inches): Depth (inches): Surface	ng Roots (C pils (C6) LRR A) Wetland	Water-Stained Leaves (B9) (MLRA 1, 2,
Wetland Hydrology Indicate Primary Indicators (minimum ☐ 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 Ae ☐ Sparsely Vegetated Con Field Observations: Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (str	n of one required; rial Imagery (B7) cave Surface (B8 Yes	Water-Stained Leaves (B9) (except 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Livin Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Scalar (Explain in Remarks) Other (Explain in Remarks) Depth (inches): Depth (inches):	ng Roots (C pils (C6) LRR A) Wetland	Water-Stained Leaves (B9) (MLRA 1, 2,
Wetland Hydrology Indicate Primary Indicators (minimum ☐ 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 Ae ☐ Sparsely Vegetated Con Field Observations: Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (str	n of one required; rial Imagery (B7) cave Surface (B8 Yes	Water-Stained Leaves (B9) (except 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Livin Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Scalar Stunted or Stressed Plants (D1) (I Other (Explain in Remarks) Depth (inches): Depth (inches): Depth (inches): Surface	ng Roots (C pils (C6) LRR A) Wetland	Water-Stained Leaves (B9) (MLRA 1, 2,
Wetland Hydrology Indicate Primary Indicators (minimum ☐ 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 Ae ☐ Sparsely Vegetated Con Field Observations: Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (str	n of one required; rial Imagery (B7) cave Surface (B8 Yes	Water-Stained Leaves (B9) (except 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Livin Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Scalar Stunted or Stressed Plants (D1) (I Other (Explain in Remarks) Depth (inches): Depth (inches): Depth (inches): Surface	ng Roots (C pils (C6) LRR A) Wetland	Water-Stained Leaves (B9) (MLRA 1, 2,

Project/Site: Parcel 4014400217 and 4014400216		City/Cour	nty: King		Sampling Date: 23 MAR 2022		
Applicant/Owner:				State: WA.	Sampling Point: SP8		
Investigator(s): Habitat Technologies			_ Section, To	ownship, Range: <u>S10 T21</u>	R4E		
Landform (hillslope, terrace, etc.):		_Local re	lief (concave,	, convex, none):	Slope (%):		
Subregion (LRR): A	_ Lat:			_ Long:	Datum:		
Soil Map Unit Name: Alderwood gravelly sandy loam				NWI classifica	tion: Moderately well		
Are climatic / hydrologic conditions on the site typical for this	time of yea	ar? Yes [⊠ No 🔲 (l	f no, explain in Remarks.)			
Are Vegetation, Soil, or Hydrology sign	nificantly dis	turbed?	Are "No	ormal Circumstances" pres	sent? Yes ⊠ No □		
Are Vegetation, Soil, or Hydrology natu	rally probler	matic?	(If need	ed, explain any answers ir	Remarks.)		
SUMMARY OF FINDINGS - Attach site map	showing	sampli	ng point le	ocations, transects,	important features, etc.		
Hydrophytic Vegetation Present? Yes ⊠ No □							
Hydric Soil Present? Yes ☐ No ☒			the Sampled thin a Wetlar		• M		
Wetland Hydrology Present? Yes ☐ No ☒		WIL	iiiii a vvetiai	iu: Tes 🗆 N	<u> </u>		
Remarks: Upland							
VEGETATION – Use scientific names of plant	ts.						
Tage Chaptures (Diet circs 45th resting)			nt Indicator	Dominance Test works	sheet:		
<u>Tree Stratum</u> (Plot size: <u>15ft radius</u>) 1. <u>Alnus rubra</u>	% Cover		FAC	Number of Dominant Sp That Are OBL, FACW, or			
2							
3				Total Number of Domina Species Across All Strat			
4				Percent of Dominant Sp			
Sapling/Shrub Stratum (Plot size: 15ft radius)	60	= Total	Cover		or FAC: <u>66</u> (A/B)		
1. Acer circinatum	30	yes	FAC	Prevalence Index work			
2					Multiply by:		
3					x 1 =		
4					x 2 =		
5	30				x 3 = x 4 =		
Herb Stratum (Plot size: 15ft radius)	30	= 10(a)	Covei		x 5 =		
Polystrichum munitum	30	yes	FACU	*	(A) (B)		
2. Conium maculatum		-	FAC				
3. <u>Dicentra formosa</u>					= B/A =		
4				Hydrophytic Vegetatio Rapid Test for Hydro			
5				Dominance Test is >			
6				☐ Prevalence Index is			
8.					tations ¹ (Provide supporting		
9.					or on a separate sheet)		
10				☐ Wetland Non-Vascu			
11				_ , ,	hytic Vegetation ¹ (Explain) and wetland hydrology must		
Woody Vine Stratum (Plot size: 15ft radius)	100	= Total	Cover	be present, unless distu			
1. Rubus armeniacus	10	yes	FAC	Hydrophytic			
2				Vegetation			
% Bare Ground in Herb Stratum	10	= Total	Cover	Present? Yes	s⊠ No □		
Remarks: Wetland plants				1			

Sampling Point: SP8

Profile Desc	cription: (Describe	e to the c	lepth ne	eeded to docui	ment the inc	dicator	or confirm	n the ab	sence	of indicators.)
Depth	Matrix (accion)	0/		Redo	x Features	F 1	12	T		Demonde
(inches)	Color (moist)	<u>%</u>	Cold	or (moist)	<u> </u>	Type'	Loc ²	<u>I extu</u>	re	Remarks
0-20	10YR 3/2	100						SI		
								-		
	-									
	-									
					- ——— —					
¹Type: C=C	oncentration, D=De	nletion F	- RM=Red	luced Matrix CS	S=Covered o	or Coate	ed Sand Gr	ains	2l 00	cation: PL=Pore Lining, M=Matrix.
	Indicators: (Appli						od Odilid Ol			ors for Problematic Hydric Soils ³ :
Histosol				Sandy Redox (S		•		Г	7 2 cm	n Muck (A10)
	ipedon (A2)			Stripped Matrix				Ī		Parent Material (TF2)
☐ Black His				Loamy Mucky N	lineral (F1) (except	MLRA 1)] Very	Shallow Dark Surface (TF12)
☐ Hydroge	n Sulfide (A4)			Loamy Gleyed I] Othe	er (Explain in Remarks)
	Below Dark Surfac	ce (A11)		Depleted Matrix						
	rk Surface (A12)			Redox Dark Su				3		ors of hydrophytic vegetation and
	ucky Mineral (S1)			Depleted Dark S	, ,					nd hydrology must be present,
	leyed Matrix (S4) Layer (if present):			Redox Depress	ions (F8)				unies	s disturbed or problematic.
	Layer (ii present).									
	ches):							Llarata	0.:1	Brassett Vas 🗆 Na 🖾
. ,	<u>, </u>							пуш	10 3011	Present? Yes ☐ No ☒
Remarks: NO	O prominent field in	dicators (or nyaric	SOIIS						
HYDROLO	GY									
Wetland Hy	drology Indicators	s :								
Primary India	cators (minimum of	one requ	ired; ch	eck all that appl	y)				Seco	ndary Indicators (2 or more required)
☐ Surface	Water (A1)			☐ Water-Stai	ned Leaves	(B9) (e	xcept MLR	RA	\square W	ater-Stained Leaves (B9) (MLRA 1, 2,
☐ High Wa	ter Table (A2)			1, 2, 4	A, and 4B)					4A, and 4B)
☐ Saturation	on (A3)			☐ Salt Crust	(B11)				□ D	rainage Patterns (B10)
☐ Water M	arks (B1)			☐ Aquatic Inv	ertebrates (l	B13)			□ D	ry-Season Water Table (C2)
☐ Sedimen	t Deposits (B2)			☐ Hydrogen	Sulfide Odor	(C1)			☐ S	aturation Visible on Aerial Imagery (C9)
☐ Drift Dep	osits (B3)			☐ Oxidized R	hizospheres	along	Living Roo	ts (C3)	□G	eomorphic Position (D2)
☐ Algal Ma	t or Crust (B4)			☐ Presence	of Reduced I	ron (C4	-)		□ s	hallow Aquitard (D3)
☐ Iron Dep	osits (B5)			☐ Recent Iro	n Reduction	in Tilled	d Soils (C6)	□ F ₁	AC-Neutral Test (D5)
☐ Surface	Soil Cracks (B6)			☐ Stunted or	Stressed Pla	ants (D	1) (LRR A)		☐ R	aised Ant Mounds (D6) (LRR A)
☐ Inundation	on Visible on Aerial	Imagery	(B7)	☐ Other (Exp	lain in Rema	arks)			☐ Fi	rost-Heave Hummocks (D7)
☐ Sparsely	Vegetated Concav	e Surface	e (B8)							
Field Obser	vations:									
Surface Wat	er Present?	Yes 🗌	No 🛚	Depth (inches	s):					
Water Table	Present?	Yes 🗌	No 🛛	Depth (inches	s): <u>2</u>					
Saturation P	resent?	Yes 🗌	No 🛛	Depth (inches	s):		Wetla	and Hy	drolog	y Present? Yes □ No ⊠
(includes cap		m aouao	monitor	ing wall parial	nhoton prov	iouo inc	nootions)	if ovoile	hlo:	
Describe Ke	corded Data (strear	n gauge,	HOHIOH	ing well, aerial	priotos, prev	ious ins	pections),	ıı avalla	wie.	
Dame sulvey D	No manage and C	ا دالد ما اما		المساعم المساعم						
kernarks: Dr	y, No prominent fie	ia indicat	ors of W	euand nydrolog	у					

APPENDIX B – Wetland Rating Worksheets

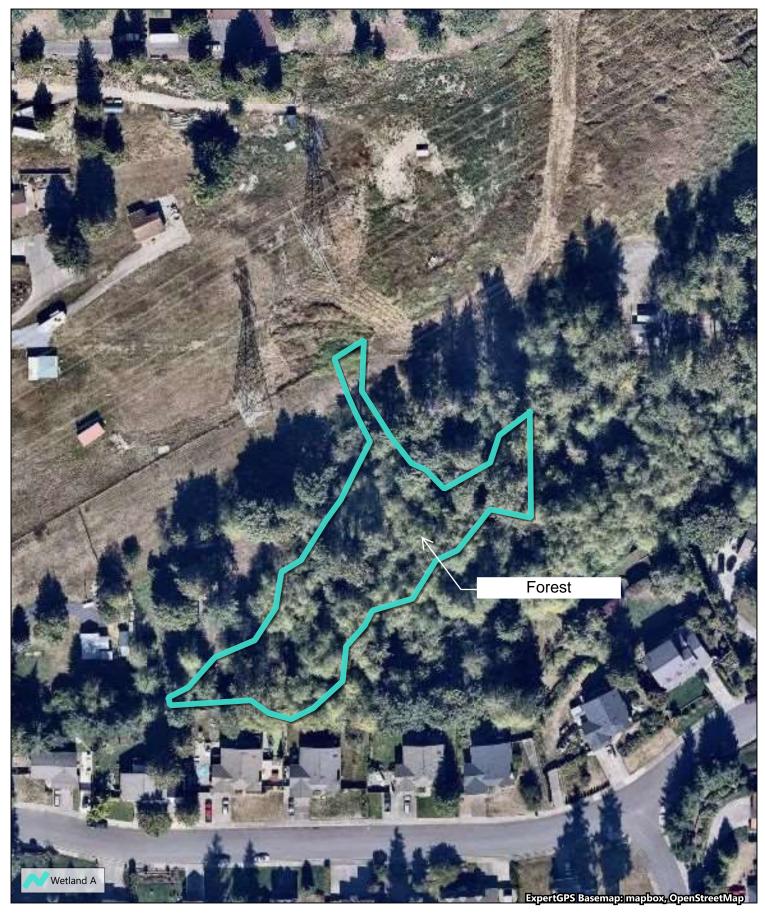
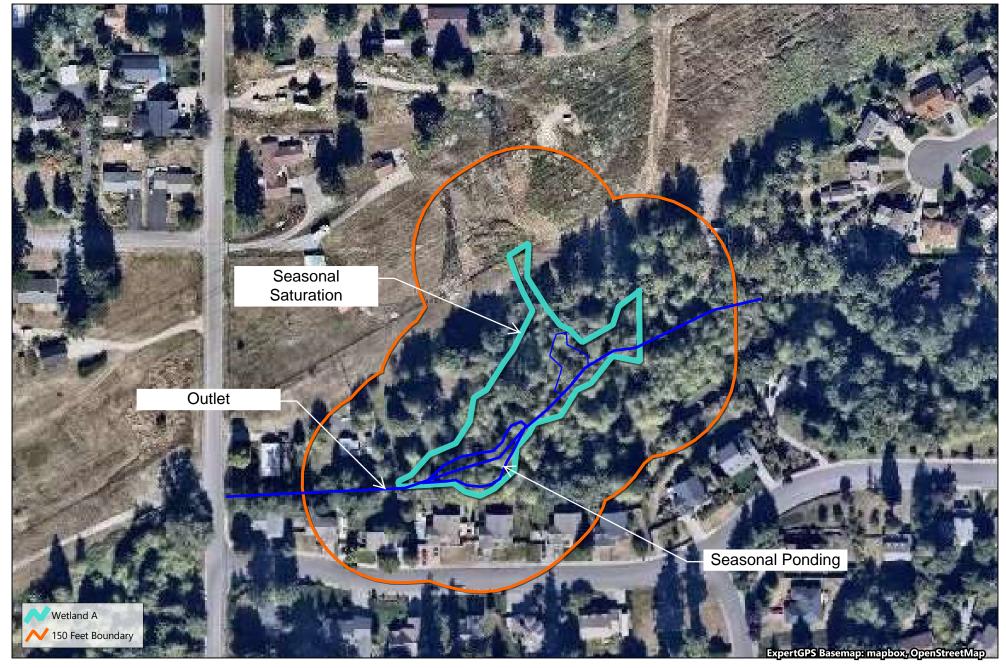




Figure A1









100 ft



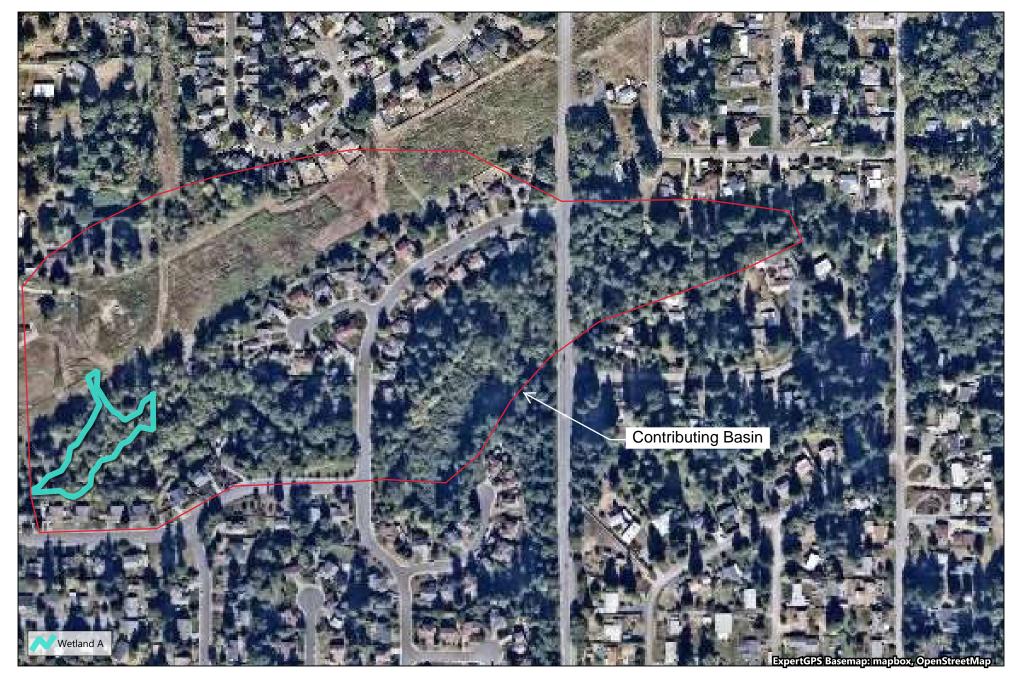




Figure A3

200 ft



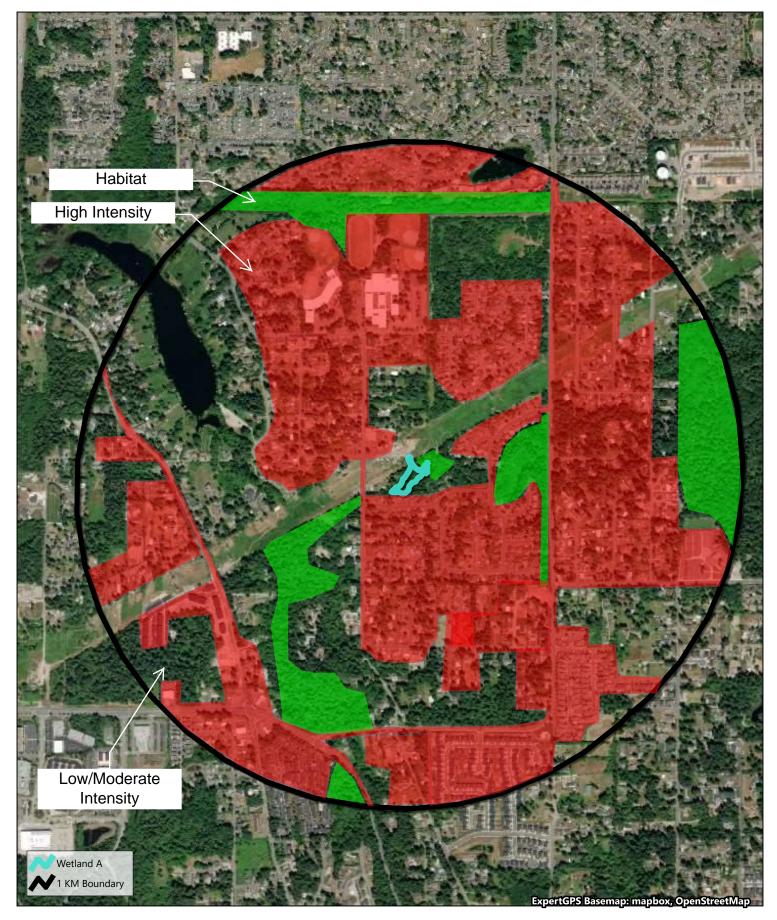
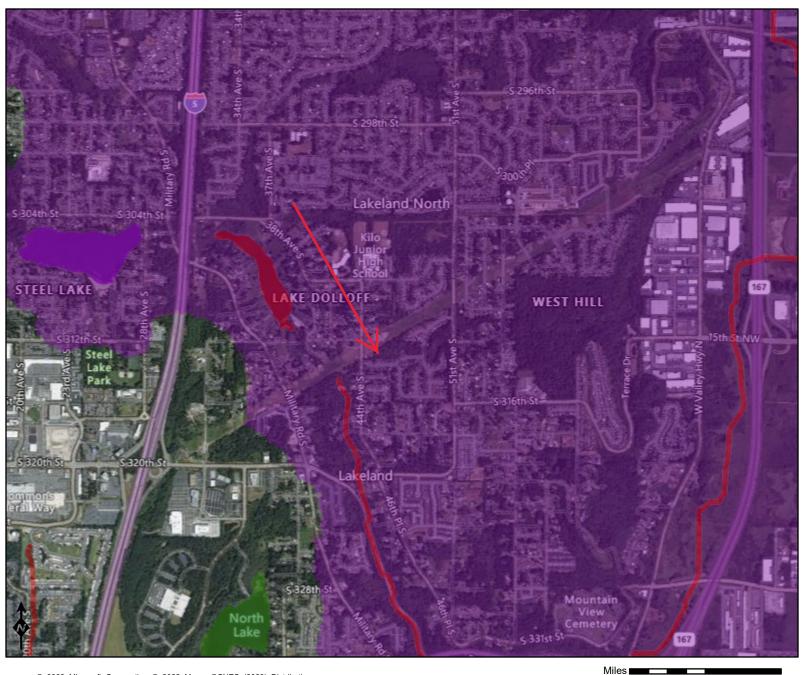








Figure W1



Assessed Water/Sediment

Water

Category 5 - 303d

Category 4C

Category 4B

Category 4A Category 2 Category 1

Sediment

Category 5 - 303d

Category 4C

Category 4B

Category 4A Category 2

Category 1

WQ Improvement Projects

Approved
In Development

Subbasins (12 digit HUCs) HUC boundary

DEPARTMENT OF

ECOLOGY

State of Washington

RATING SUMMARY – Western Washington

Name of wetland (or ID #):	tland A	Date of site visit: 22 MAR 2022
Rated by Habitat Technolog	<u>gies</u> Trained by Ecology? <u>x</u>	YesNo Date of training 2014
HGM Class used for rating De	pressional Wetland has mu	ltiple HGM classes? <u>x</u> YN
•	lete without the figures requested hoto/map Expert GPS	d (figures can be combined).
OVERALL WETLAND CATEG	ORY3 (based on function	s <u>x</u> or special characteristics)
1 Catarami of water dibas	and an EUNICTIONIC	

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	Н	М	L	Н	М	L	Н	M	L	
Landscape Potential	Н	М	L	Н	М	L	Н	М	L	
Value	H	М	L	Н	M	L	Н	М	L	TOTAL
Score Based on Ratings		7			7			5		19

Score for each function based on three ratings (order of ratings is not *important)* 9 = H,H,H8 = H,H,M7 = H,H,L7 = H,M,M6 = H,M,L6 = M,M,M5 = H,L,L 5 = M,M,L4 = M, L, L3 = 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

Maps and figures required to answer questions correctly for Western Washington

<u>Depressional Wetlands</u>

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	A1
Hydroperiods	D 1.4, H 1.2	A2
Location of outlet (can be added to map of hydroperiods)	D 1.1, D 4.1	A2
Boundary of area within 150 ft of the wetland (can be added to another figure)	D 2.2, D 5.2	A2
Map of the contributing basin	D 4.3, D 5.3	A3
1 km Polygon: Area that extends 1 km from entire wetland edge - including	H 2.1, H 2.2, H 2.3	A4
polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	W1
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	W1

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	N/A
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	H 2.1, H 2.2, H 2.3	
polygons for accessible habitat and undisturbed habitat		
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	\forall

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	\wedge
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	N/A
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	Λ
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	N/A
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)	\$ 3.3	V

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 th	ne water levels	in the entire i	init iisiially d	rontrolled by t	ides excent d	luring flands?	?

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

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.	2
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	
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. <u>Characteristics and distribution of persistent plants</u> (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5	
Wetland has persistent, ungrazed, plants > 95% of area points = 3	5
Wetland has persistent, ungrazed, plants > $\frac{1}{10}$ of area points = 1	
Wetland has persistent, ungrazed plants $^{1}/_{10}$ of area points = 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	2
Area seasonally ponded is > ¼ total area of wetland points = 2	_
Area seasonally ponded is < ¼ total area of wetland points = 0	
Total for D 1 Add the points in the boxes above	9
Rating of Site Potential If score is:12-16 = HX6-11 = M0-5 = L	age
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?	0
Source Yes = 1 No = 0	
Total for D 2 Add the points in the boxes above	2
Rating of Landscape Potential If score is:3 or 4 = HX _1 or 2 = M0 = L Record the rating on the f	rst 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	1
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	2
Total for D 3 Add the points in the boxes above	4
Rating of Value If score is: x 2-4 = H 1 = M 0 = L Record the rating on the first page	

DEPRESSIONAL AND FLATS WETLANDS Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradati	on
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) Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outletpoints = 2 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 0	2
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	3
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	3
Total for D 4 Add the points in the boxes above	8
Rating of Site Potential If score is: 12-16 = H X 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: X 3 = H 1 or 2 = M 0 = L Record the rating on the j	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. • Surface flooding problems are in a sub-basin farther down-gradient. Flooding from groundwater is an issue in the sub-basin. The points are an attacked at the points are the sup-basin.	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	
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 hoxes above	1

Rating of Value If score is: ____**2-4 = H** __**X**__**1 = M** ____**0 = L**

Record the rating on the first page

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 3 structures: points = 2 ___Emergent 1 ___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: X 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 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 X Seasonally flooded or inundated 3 types present: points = 2 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 X Seasonally flowing stream in, or adjacent to, the wetland Lake Fringe wetland 2 points Freshwater tidal wetland 2 points H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft². Different patches of the same species can be combined to meet the size threshold and you do not have to name 2 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 points = 0 < 5 species 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. 0 None = 0 points Moderate = 2 points Low = 1 point All three diagrams in this row are **HIGH** = 3points

H 2.0. Does the landscape have the potential to support the habitat functions of the site?				
H 2.1. Accessible habi	tat (include only habitat that directly abuts wetland unit).			
Calculate:	% undisturbed habitat 1 + [(% moderate and low intensite	ty land uses)/2] <u>5</u> = <u>6</u> %		
If total accessib	ole habitat is:			
$> \frac{1}{3}$ (33.3%) of 1 km Polygon		points = 3	0	
20-33% of 1 km Polygon		points = 2	O	
10-19% of 1 km Polygon		points = 1		
< 10% of 1 km	Polygon	points = 0		
H 2.2. Undisturbed ha	abitat in 1 km Polygon around the wetland.			
Calculate:	% undisturbed habitat 12 + [(% moderate and low intensite	ty land uses)/2] <u>17</u> = <u>29</u> %		
Undisturbed ha	abitat > 50% of Polygon	points = 3		
Undisturbed habitat 10-50% and in 1-3 patches		points = 2	1	
Undisturbed habitat 10-50% and > 3 patches points = 1		•		
Undisturbed ha	abitat < 10% of 1 km Polygon	points = 0		
H 2.3. Land use intensity in 1 km Polygon: If		_		
> 50% of 1 km Polygon is high intensity land use points = (-2)		(-2)		
≤ 50% of 1 km	Polygon is high intensity	points = 0		
Total for H 2	Ad	ld the points in the boxes above	0	

Rating of Landscape Potential If score is: ___4-6 = H ___1-3 = M _ χ < 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		

Rating of Value If score is: 2 = H X = 1 = M 0 = L

Record the rating on the first page

WDFW Priority Habitats

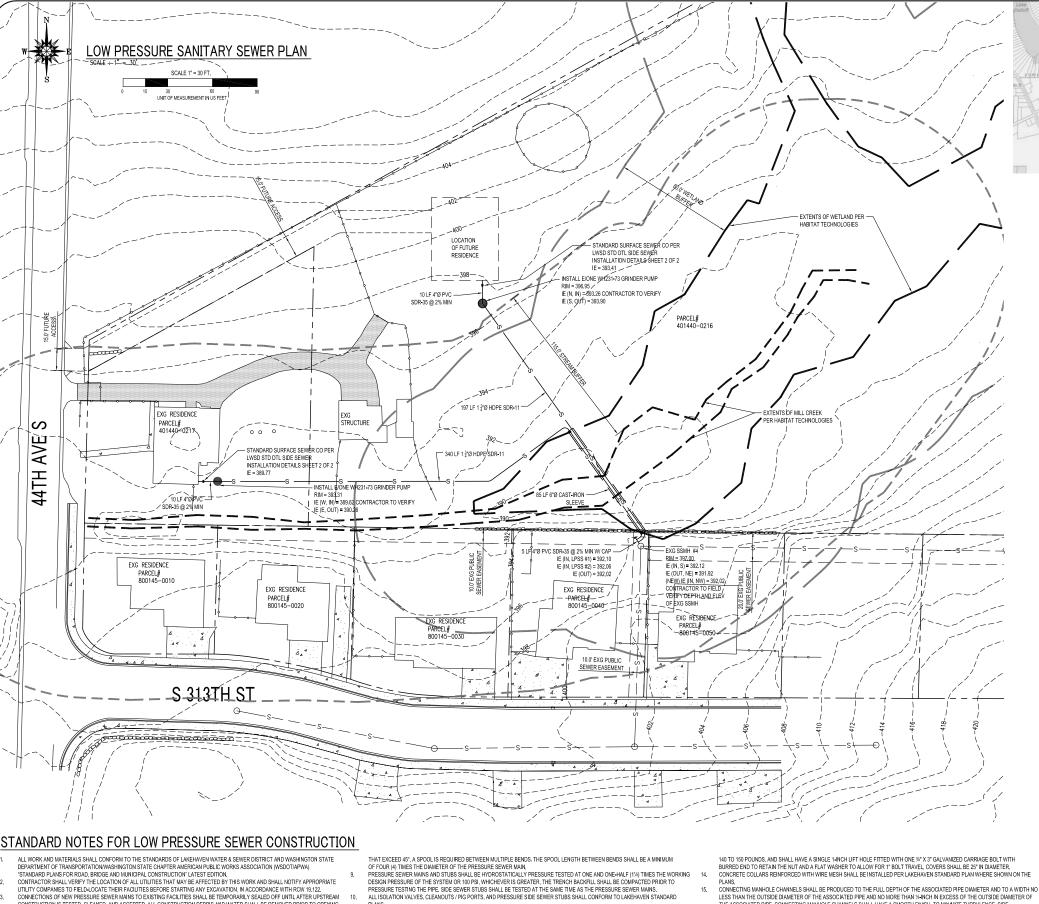
<u>Priority habitats listed by WDFW</u> (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf 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*).
- **X 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.

ATTACHMENT ONE – Engineering Plans



- DEPARTMENT OF TRANSPORTATION/WASHINGTON STATE CHAPTER AMERICAN PUBLIC WORKS ASSOCIATION (WSDD0T/AP/VIA)

 "STANDARD PUBLIS FOR ROAD, BEIDGE AND JAILUTILITIES THAT MAY BE AFFECTED BY THIS WORK AND SHALL NOTIFY APPROPRIATE
 UTILITY COMPANIES TO FIELD-LOCATE THEIR FACILITIES SPECKE STARTING ANY EXCAVATION, IN ACCORDANCE WITH ROW 19.122.
 CONNECTIONS OF NEW PRESSURES SEWER MAINS TO EXISTING FACILITIES SHALL BE TEMPORARLY SEALED OF FUTHIL ATTER UPSTREAM
 CONSTRUCTION IS TESTED, CLEANED, AND ACCEPTED, ALL CONSTRUCTION DEBRIS AND WATER SHALL BE REMOVED PRIOR TO OPENING THE SEAL WITHOUT FLUSHING THE DEBRIS DOWNSTREAM.
- THE SEAL WITHOUT FLUSHING THE DEBNIS DOWNSTREAM.

 PRESSURE SEVER PPE MATERIAL SHALL BE AS SHOWN ON THE PLANS, WHICH WILL BE THE FOLLOWING:

 HIGH DENSITY POLYETHYLENE (HDPE) ASTIM D-3350. THERMAL BUTT-FUSED JOINTS, MINIMUM OR 11.

 CRUSHED SURFACING TOP COURSE (AKA. 5)6" CRUSHED BOXGS SHALL BE USED FOR PIPE BEDDING FOR RIGID AND FLEXIBLE PRESSURE SEWER PIPE. THE MATERIAL SHALL BE PLACED INDER THE PIPE TO A COMPACTED DEPTH OF 4" (FOR Z?" AND SMALLER PIPE), AND TO A COMPACTED DEPTH OF 6" (FOR PIPE GREATER THAN 2?"), THE MATERIAL SHALL BE PLACED 6" OVER THE TOP OF FLEXIBLE PIPE AND TO THE SPRINGLINE OF RIGID PIPE. TO A SSURE UNIFORM SUPPORT. THE MATERIAL SHALL BE CAREFULLY WORKED UNDER THE PIPE AND TO THE SPRINGLINE OF RIGID PIPE. TO A SSURE UNIFORM SUPPORT. THE MATERIAL SHALL BE CAREFULLY WORKED UNDER THE PIPE MAINLY LIFE WITH A TOTO! A DAMBLE OF DEPOLED THE PROMETRY BEFORE AND TO THE SPRINGLINE OF GREDIES THE PIPE MAINLY LIFE WITH A TOTO! AND A TO BE ORD SENDED. HAUNCHES WITH A TOOL CAPABLE OF PREVENTING THE FORMATION OF VOID SPACES AROUND THE PIPE.
- ALL TRENCH BACKFILL SHALL BE COMPACTED TO 95% OF RELATIVE DENSITY, OR GREATER IF SO SHOWN ON THE PLANS OR OTHERWISE REQUIRED BY THE ROAD AGENCY HAVING JURISDICTION, FROM THE BOTTOM OF THE EXCAVATION TO THE SURFACE, DEVELOPER SHALL BE RESPONSIBLE FOR ALL COSTS INCURRED FOR COMPACTION TESTING.

 UNLESS OTHERWISE SHOWN ON THE PLANS, PRESSURE SEWER MAINS SHALL BE INSTALLED WITH COVER OVER THE PIPE BETWEEN FIVE
- FEET (5) AND SIX FEET (6).
 PRESSURE SEWER MAINS SHALL NOT HAVE ANY SINGLE BEND THAT EXCEEDS FORTY-FIVE DEGREES (45°), FOR PIPELINE DEFLECTIONS
- PRESSURE SEWER MAINS AND THE SIDE SEWER STUBS SHALL BE WRAPPED WITH TRACER WIRES. AND TRACER WIRE LOCATION
- SHALL CONFORM TO LAKEHAVEN STANDARD PLANS
- STALL CONFORM TO AMERINATE 3 THAT TO WINDOWS POWERS ON TO WINDOWS PROPERTY STATES AND THE BOARD PLAN B-23A, TYPE 1 OR TYPE 2 WITH ECCENTRIC CONES, AND INCLUDE 1 INCH GALVANIZED DROP SAFETY STEPS OR POLYPROPYLENE SAFETY STEPS (LANE INTERNATIONAL CORP. PART NO

o) AND AT LEAST ONE (1), AND NO MORE THAN FIVE (5), FOUR INCH (4") HIGH ADJUSTMENT RINGS BELOW THE FRAME AND COVER ALL MANHOLE EXTERIOR SURFACES SHALL RECEIVE A PROTECTIVE COATING OF BITUMINOUS COAL TAR TO A MINIMUM THICKNESS OF 50 MILS, APPLIED AT THE FACTORY. WHERE NOTED ON THE PLANS, MANHOLE INTERIOR SURFACES SHALL RECEIVE A CORROSION PROTECTIVE EPOXY COATING OF:

- DOUGHELD SE-1009 (BY SPECIALTY PRODUCTS, INC. (LAKEWOOD, WA); 50 MLS MINIMUM THICKNESS); OR
 RAVEN® 405 (BY RLS SOLUTIONS) INC. (DKLAHOMA); 100 MLS MINIMUM THICKNESS).

 ALL COATINGS SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

 CONNECTING MANHOLE FRAMES AND COVERS SHALL BE CAST IRON, WITH THE WORD "LAKEHAVEN" CAST IN THE TOP, SHALL WEIGH
- PLANS.

 CONNECTING MANHOLE CHANNELS SHALL BE PRODUCED TO THE FULL DEPTH OF THE ASSOCIATED PIPE DIAMETER AND TO A WIDTH NO
 LESS THAN THE OUTSIDE DIAMETER OF THE ASSOCIATED PIPE AND NO MORE THAN 74-NOTH IN EXCESS OF THE OUTSIDE DIAMETER OF
 THE ASSOCIATED PIPE. CONNECTING MANHOLE CHANNELS SHALL HAVE A SMOOTH FINISH. TO MINIMIZE TURBULENCE, SIDE
 CHANNELS FROM INLET PIPELINES SHALL BE CURVED TOWARD THE OUTLET PIPELINET OF PROVIDE A SMOOTH LANIMAR FLOW TRANSITION CHANNELS FROM INLET PIPELINES SHALL BE CURVED TOWARD THE OUTLET PIPELINE TO PROVIDE A SMOOTH LAMMAR FLOW TRANSITION.
 FROM ALL INLET PIPELINES TO THE OUTLET PIPELINE. CHANNEL MATERIAL SHALL BE A SHRINK-RESISTANT GROUT MIX, USING 6 SACKS
 PER CUBIC YARD PORTLAND CEMENT AND 76' GRADED AGGREGATE.
 ONNECTING MANHOLE SHELVES SHALL HAVE A BROOM FINISH, AND BE SLOPED ½-INCH TO 1-INCH PER FOOT TOWARD THE CHANNEL.
 PIPE ENDS OF ALL INLET AND OUTLET PIPELINES SHALL NOT EXTEND MORE THAN 2 INCHES INSIDE THE CONNECTING MANHOLE, AND ALL
 PENETRATIONS SHALL BE SMOOTHLY GROUTED AROUND THE PIPE WITH SHRINK-RESISTANT GROUT.
 NO JOINTS FOR FLEXIBLE PIPE INLETS AND OUTLETS SHALL BE WITHIN 10 FEET OF THE CONNECTING MANHOLE, AND PIPELINES SHALL BE
 CONNECTED TO THE CONNECTING MANHOLE MAY THE YOUR MASS ENDET CONNECTING MANHOLE, AND PIPELINES SHALL BE
- CONNECTED TO THE CONNECTING MANHOLE WITH PVC MANHOLE COLLARS, FLEXIBLE BOOT COLLARS ARE PROHIBITED
- THE TERMINI OF PRESSURE SIDE SEWER STUBS SHALL BE CAPPED AND MARKED BY A WHITE 2X4 POST LABELED "SANITARY SIDE

STD NOTES FOR LPS CONSTR - 080111.DOCX (APRIL 28, 2005, UPDATE 12/30/16)

LAKEHAVEN WATER AND SEWER DISTRICT

Water Plan

The District's review is not confirmation of any dimension or rile Districts review is not commination or any dimension or quantities shown in the plans and will not relieve the Developer or Engineer from reponsibility for plan errors. No changes shall be made to the plans except with the consent of the District,

opment Englneering Manage

plan approval of construction has commenced

VICINITY MAP

31212 44TH AVENUE SOUTH AUBURN, WA 98001

OWNER

SURVEYOR

PROJECT INFORMATION

UTILITY CONFLICT NOTE THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING

SEWER SERVICE NOTE

SEPARATE SEWER SERVICE CONNECTION PERMIT REQUIRED FOR EACH SEPARATE BUILDING, TO

CONSTRUCT / COMPLETE BUILDING SEWER AND TO CONNECT TO THE SEWER MAIN

THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFTIME 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 EXISTING UTILITIES AT LOCATIONS AND THEN FOUNDLING ALL EXISTING OTLITIES AT LOCATIONS OF NEW UTILITY CROSSINGS TO PHYSICALLY VERIFY WHETHER OR NOT CONFLICTS EXIST. LOCATIONS OF SAID UTILITIES AS SHOWN ON THESE PLANS ARE NOT GUARANTEED AND ARE SUBJECT TO VARIATION, IF CONFLICTS SHOULD OCCUR. THE CONTRACTOR SHALL CONSULT AP CONSULTING ENGINEERS PLLC TO RESOLVE ALL PROBLEMS PRIOR TO

UTILITY SEPARATION NOTE

CONTRACTOR SHALL MAINTAIN A 3' HORIZONTAL SEPARATION AND A 6" VERTICAL SEPARATION BETWEEN ANY LOW-PRESSURE SEWER LINES AND ANY DRY UTILITIES

ACCEPTABLE CONSTRUCTION METHODS AND/OR ROW RESTORATION REQUIREMENTS FOR WORK PERFORMED IN ROW ARE DEFINED BY THE CITY OF AUBURN AND MAY NOT BE SHOWN ON THE PLANS APPROVED FOR CONSTRUCTION. CONSULT WITH LAKEHAVEN'S PROJECT INSPECTOR AND ANY APPLICABLE ROW PERMIT FOR ACCEPTABLE CONSTRUCTION METHODS (OPEN TRENCH

LEGEND		
DESCRIPTION	NEW	EXISTING
STORM SEWER	o	D
SANITARY SEWER	——s—	
WATER	w	w
CONTOURS		—— 50 ——
SILT FENCE	——F——	
POWER (OHP/UGP)	— OHP/UGP —	— OHP/UGP —
ASPHALT PAVING		
PERVIOUS CONC.	00000000	600
CONC. PAVING	911160	

CITY OF AUBURN NOTE

ACCEPTABLE CONSTRUCTION METHODS (OPEN TRENCH, BORE & CASE, DIRECTIONAL DRILL, ETC.) AND EXTENT OF ASPHALT OVERLAY &/OR OTHER RESTORATION REQUIREMENTS FOR WORK IN ROW.



ABBREVIATIONS:

С	-	COMPACT	MJ	-	MECHANICAL JOINT
CB	-	CATCH BASIN	OH	-	OVERHEAD
CL	-	CLASS	PL	-	PROPERTY LINE
CO	-	CLEAN OUT	R	-	RADIUS
D	-	STORM DRAIN	REF	-	REFERENCE DRAWING
DDCV	-	DOUBLE DETECTOR CHECK VALVE	R/W	-	RIGHT-OF-WAY
DI	-	DUCTILE IRON	S	-	SANITARY SEWER
DS	-	DOWNSPOUT	SQ FT	-	SQUARE FEET
DTL		DETAIL	STD		STANDARD
D/W		DRIVEWAY	S/W		SIDEWALK
EL	-	ELEVATION	T	-	TELEPHONE
ESMT	-	EASEMENT	TC	-	TOP OF CURB
EXG	-	EXISTING	TP	-	TEST PIT
FC	-	FACE OF CURB	TV	-	TELEVISION
FD	-	FOUNDATION DRAIN	U.N.O	-	UNLESS NOTED OTHERWI
FDC	-	FIRE DEPTARTMENT CONNECTION	YL	-	YARD LIGHT
FF	-	FINISHED FLOOR	S	-	SOUTH
FHY	-	FIRE HYDRANT	W	-	WEST
FL		FLANGE JOINT	E		EAST
H/C	-	HANDICAP	N	-	NORTH
HPC		HORIZONTAL POINT OF CURVATURE	NW		NORTHWEST
HPT	-	HORIZONTAL POINT OF TANGENCY	SW	-	SOUTHWEST
IE		INVERT ELEVATION	NE		NORTHEAST
LF		LINEAR FEET	SE		SOUTHEAST
LWSD		LAKEHAVEN WATER AND SEWER DISTRICT	Ø		DIAMETER



FAM AEP 2021020

SS₁

CONSULTINC ENGINEERS PL

APPROVED FOR CONSTRUCTION SUBJECT TO CHANGES NOTED

The District's approval of this construction plan will expire: on (1) year from the date of plan approval if construction has not commenced by such date, or two (2) years from the date of

PARCELS SERVED:

SEWER BARBU

ř PLAN

LOW PRESSURE SANITARY SEWER P

WATER VALVE

LANDSCAPING

CHECKED JOB NO. SHEET NO.

CONNECTION

PHOTOS



Photo 1: View of Wetland A and stream in area of proposed boring.



Photo 2: View of Wetland A.



Photo 3. General view of Wetland A in southeastern portion of project site.



Photo 4. View of stream through Wetland A.