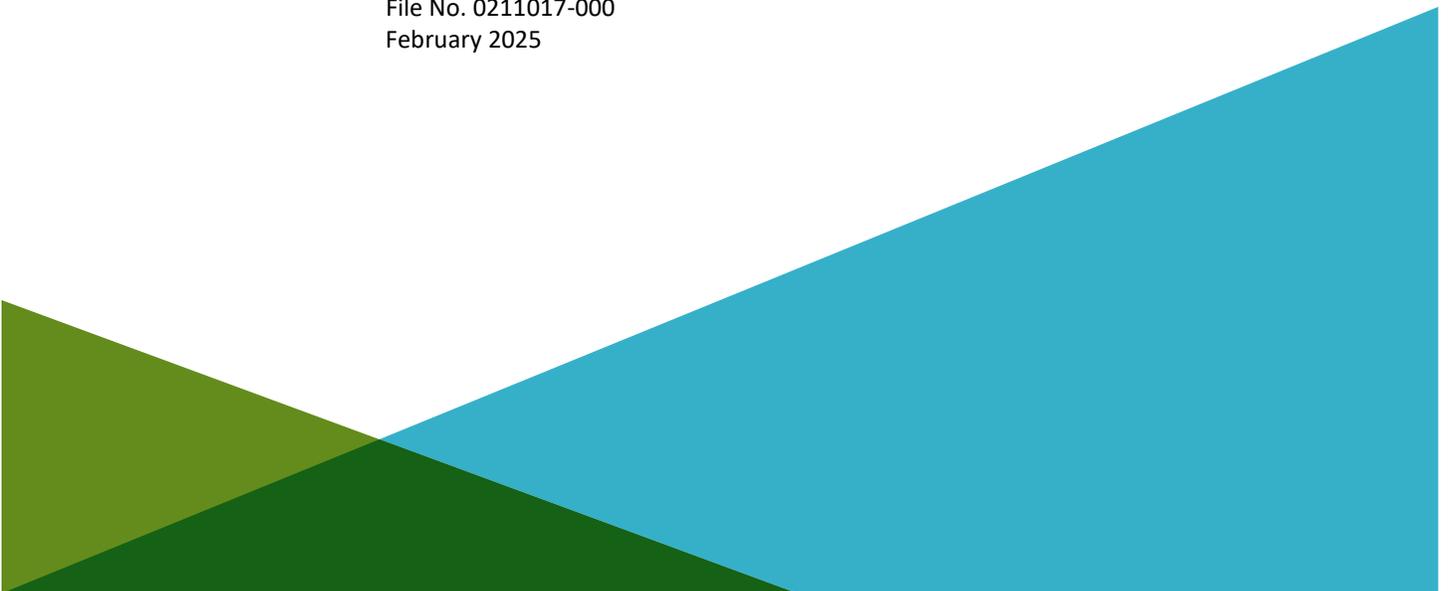


AQUATIC RESOURCES REPORT
SNOHOMISH REGIONAL FIRE & RESCUE
VACANT PARCEL NO. 27070600200300
MONROE, WASHINGTON

by
Haley & Aldrich, Inc.
Spokane, Washington

for
OAC Services, Inc.
Everett, Washington

File No. 0211017-000
February 2025



SIGNATURE PAGE FOR

REPORT ON

SNOHOMISH REGIONAL FIRE & RESCUE
VACANT PARCEL NO. 27070600200300
MONROE, WASHINGTON

PREPARED FOR

OAC SERVICES, INC.
EVERETT, WASHINGTON

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Executive Summary

The purpose of this Aquatic Resources Report (ARR) is to identify and delineate wetlands occurring within the boundaries of Vacant Parcel No. 27070600200300, located at 19959 Oaks Street in Monroe, Washington (Site). This information may be used for compliance with the City of Monroe's Critical Area Ordinance (CAO; Chapter 22.80 Critical Areas), in conformance with Section 404 of the Clean Water Act, State of Washington Water Pollution Control Act, and Shoreline Management Act.

The subject property was evaluated for its content of potential jurisdictional wetlands and waterbodies, based on criteria set forth in the *2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains Valleys and Coast (Version 2.0)* (Engineer Research and Development Center, 2010) and the City of Monroe CAO Chapter 22.88.070 requirements for Critical Areas Studies. Prior to the Site visit, Haley & Aldrich, Inc. (Haley& Aldrich) reviewed existing project area literature including historical aerial photography, topographic maps, critical areas maps, and hydrology data. A subsequent field evaluation was performed to identify hydric soils, hydrology, and hydrophytic vegetation. Vegetation communities were evaluated and documented to delineate wetland and upland boundaries. The Site visit was performed on 15 May 2024.

Based on the information presented in this ARR and the data collected, Haley & Aldrich concurs that a 0.084-acre wetland (wetland W1) is present within the 2.16-acre study area. In addition, a 402 foot (ft) long stormwater ditch runs along the northeastern edge of the property boundary. The wetland within the investigation area is classified as palustrine emergent (PEM) and is located within the Eastern Puget Riverine Lowlands (2b) level IV ecoregion.

The U.S. Army Corps of Engineers (USACE) and the U.S. Environmental Protection Agency (EPA) are the final authority over the jurisdictional status of both wetlands and waters of the U.S., per Section 404 of the Clean Water Act. The State of Washington Department of Ecology (Ecology) has final jurisdiction over wetlands and water of the state. The findings discussed in this report are solely the opinion of Haley & Aldrich and have not been verified by the aforementioned regulatory government agencies.

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1. Introduction

Snohomish Regional Fire & Rescue (SRFR) is proposing to build a fire station and parking area on Vacant Parcel No. 27070600200300 located at 19959 Oaks Street in Monroe, Washington (Site). The existing Site is used as a temporary storage site for equipment and trucks. The proposed station will include an approximately 10,000 square foot building with parking in the upland portion of the property. This fire station is intended to improve response times and better serve the greater Monroe community. The purpose of this Aquatic Resources Report (ARR) is to identify and delineate any aquatic resources that are present on the Site.

2. Project Location/General Setting

The Site is located within the northwest one-fourth of Section 6, Township 27 north, Range 7, east of the Willamette Meridian, in Monroe, Washington. The Site encompasses 2.16 acres and is located in the valley floor, approximately 0.55 miles northwest of the mainstem of the Skykomish River. The Site is currently undeveloped and overgrown with Himalayan blackberry (*Rubus armeniacus*) and reed canary grass (*Phalaris arundinacea*). It is currently used as a parking area for vehicles and trailers. See Figure 1 for the Vicinity Map and Figure 2 for the Study Area Map.

3. Scope of Services

Haley & Aldrich, Inc. (Haley & Aldrich) was retained by OAC Services, Inc. (OAC) to conduct wetland delineation and rating assessment services within the 2.16-acre Site boundary. The scope of services associated with Aquatic Assessment report included:

- **Literature Review/Field Preparation:** Haley & Aldrich reviewed appropriate reference materials pertinent to the Site, including the United States Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps; United States Geological Survey (USGS) topographic maps; United States Department of Agriculture (USDA) National Resources Conservation Service (NRCS) Web Soil Survey for Snohomish County, Washington; critical areas maps, recent aerial photographs; and other readily available background information to assist in preparation of the wetland delineation/rating assessment.
- **Field Delineation:** Haley & Aldrich mobilized to the Site to conduct wetland delineation/rating assessment services on 15 May 2024. Wetland boundaries were determined after considering three wetland parameters: (1) vegetation; (2) soils; and (3) hydrology, in accordance with the U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual (1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (WMVC; USACE, 2010). Soil pits were hand excavated throughout the Site, as needed and appropriate, to record soil conditions relative to hydric indicators. Haley & Aldrich assessed the vegetative cover near each soil pit and estimated the relative abundance of hydrophytic species.
- **Wetland Boundaries:** Haley & Aldrich delineated and flagged wetland boundaries in the field for surveying and subsequent mapping by others. Each wetland boundary determination point and data plots were flagged in the field and located by global positioning system (GPS) equipment with sub meter accuracy.
- **Report Preparation:** Haley & Aldrich prepared this ARR to describe the wetland delineation and rating classification results of the wetland identified, in accordance with regulatory requirements and guidance. The report includes documentation of the wetland areas, supporting illustrations, photographs, wetland ratings forms, and reference citations. Map excerpts and appropriate appendices are also presented to support Haley & Aldrich's findings and conclusions.

4. Methods

4.1 LITERATURE REVIEW

Haley & Aldrich researched existing information on wetlands, streams, ditches, and other man-made aquatic features documented within the project boundary prior to conducting the Site visit. The readily available literature reviewed includes:

- USFWS NWI maps (USFWS, 2023);
- USGS Topographic Map;
- USDA/NRCS Websoil Survey for Snohomish County, WA (USDA NRCS, 2020);
- Critical Areas Maps (City of Monroe, 2024a);
- Readily available online, current, and historical aerial photographs - Aerial Imagery-National Aerial Imagery Program (NAIP; USDA, 2021);
- Washington Department of Natural Resources (WDNR) Hydrography Dataset (DNR, 2023); and
- Precipitation Data, Daily and Monthly and Thirty-Year Averages Precipitation (USDA NRCS, 2023).

4.2 WETLAND DELINEATION

The wetland delineation was conducted in accordance with the guidance set forth in the 1987 USACE Wetland Delineation Manual (Environmental Laboratory, 1987) and the 2010 Regional Supplement to the USACE Wetland Delineation Manual: WMVC (USACE, 2010). These manuals follow the three-parameter approach for conducting wetland determinations. This approach documents: (1) the presence of hydrophytic vegetation; (2) hydric soils; and (3) wetland hydrology, all of which are described in further detail below. Except for wetlands with special characteristics, the presence of all three criteria is required for a given area to be classified as a wetland. The USACE and Ecology recognize the use of these methodologies for delineating wetlands in specific vegetation zones.

The Ordinary High-Water Mark (OHWM) of all open-water, non-wetland aquatic resources were also delineated using the appropriate OHWM characteristics, as defined in 33 CFR § 328.3(e) and 33 CFR § 329.11(a)(1) and Ecology guidance (Ecology, 2016). The USACE and Ecology recognize the use of these methodologies for delineating OHWM of open waters such as streams or rivers.

4.2.1 Field Methods

Prior to visiting the Site, a health and safety briefing was completed; field gear and travel plans were prepared; and a communications protocol for the field crew was established. Haley & Aldrich's wetland scientists conducted the field assessment and delineation services on site 15 May 2024.

Based on Site observations, relative to topography, hydrology, and vegetation, wetland boundaries were estimated for subsequent testing to compare upland and wetland characteristics within the depressional and adjacent areas. Soil pits were hand dug to approximately 16 inches below ground surface (bgs) or until refusal or saturation was encountered. Soil pits were advanced within and outside a given wetland boundary to assess soil conditions in wetland and upland areas. Soils in each pit were

evaluated for texture, matrix color, presence, or absence of redoximorphic features or gleying (soil color) and depth of saturation. This information was used to determine the presence/absence of hydric soils and to assist developing wetland boundaries. Details regarding soils evaluation methodology are described in Section 4.2.4.

Wetland hydrology indicators included drainage patterns, presence of surface water and depth of groundwater within soil pits. The vegetation community was assessed within an approximate 30-ft radius of the soil pits. Vegetation, soil, and hydrology information collected during the field study are presented on the standard wetland delineation data forms, which are included in the USACE Wetland Determination Data Sheet, Appendix A.

Wetland boundaries were delineated and flagged in the field for subsequent mapping. A photographic record of Site conditions during our field study is provided in the Site Photographs, Appendix B.

4.2.2 Vegetation

The USACE manual defines hydrophytic vegetation as the community within areas where inundation or soil saturation is either permanent or of sufficient frequency and duration to exert a controlling influence on the plant species present (USACE, 2010). Hydrophytic plant species have the ability to grow, compete, and establish in areas where anaerobic conditions exist due to the presence of surface water and/or groundwater. The USACE and USFWS (Reed, 1988) developed plant indicator categories that describe the probability of vegetation species to occur in wetlands. This list was updated and is now the USACE National Wetlands Plant Inventory (NWPI; USACE, 2020). Each plant species observed, within a given on-Site sample plot, was categorized according to the Arid West indicator status under the NWPI. Table 1 provides summarized definitions of the indicator status categories.

Indicator Status	Indicator Symbol	Description
Obligate Wetland Plants	OBL	Plants that occur in wetlands, under natural conditions, greater than 99 percent of the time
Facultative Wetland Plants	FACW	Plants that occur in wetlands, under natural conditions, between 67 to 99 percent of the time
Facultative Plants	FAC	Plants that occur in wetlands, under natural conditions, between 34 to 66 percent of the time
Facultative Upland Plants	FACU	Plants that occur in wetlands, under natural conditions, between 1 to 33 percent of the time
Obligate Upland Plants	UPL	Plants that occur in wetlands, under natural conditions, less than 1 percent of the time
No Indicator	NI	Indicator status has not been identified for the species
No Occurrence	NO	No known occurrence of the plant in the region

The prevalence of wetland vegetation is characterized by the dominant species comprising the plant community within a wetland. A dominant species is considered any plant species that represents 20 percent or greater total aerial coverage for each vegetative stratum (tree, shrub, herbaceous, or aquatic bed). If more than 50 percent of the dominant plant species in an area were categorized as OBL, FACW

or FAC, the plant community is classified as hydrophytic and, therefore, meets that wetland indicator parameter. Additional observations of hydrophytic plant characteristics include: morphological adaptations (water roots or shallow root systems); physiological adaptations (inflated stems or polymorphic leaves); and reproductive adaptations (delayed flowering or floating seeds).

On-Site wetland vegetation communities, identified by field scientists, were classified according to the Cowardin Classification System (Cowardin, et al., 1979). Vegetation nomenclature described in this report follows the format outlined in the book, *Flora of the Pacific Northwest* (Hitchcock, et al., 1973).

4.2.3 Hydrology

Hydrologic patterns that may create wetlands can be influenced by precipitation, stratigraphy, topography, soil permeability, plant cover, and human disturbance. Wetland hydrology encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season.

Primary and secondary hydrologic indicators used by field biologists to assist in the identification of potential wetlands include the following (USACE, 2008):

- Surface water or inundation
- High water table or saturated soil within 12 inches of the ground surface for 14 or more consecutive days at a minimum frequency of five years out of 10
- Water marks
- Sediment and drift deposits
- Algal mat or crust
- Iron deposits
- Surface soil cracks
- Salt crust
- Inundation visible on aerial photography
- Sparsely vegetated concave surface
- Aquatic invertebrates
- Water-stained leaves
- Hydrogen sulfide odor
- Oxidized rhizospheres along living roots
- Presence of reduced iron
- Stunted or stressed plants

Secondary indicators include (USACE, 2008):

- Drainage patterns
- Dry-season water table
- Saturation visible on aerial photography
- Geomorphic position
- Shallow aquitard
- FAC-neutral test
- Raised ant mounds
- Frost-heave hummocks

The growing season for a region is dependent on climate, precipitation, and topography. Hydrology must be present for at least 14 consecutive days and within 12 inches of the ground surface during the growing season to be considered a wetland. Indicators of the onset of the growing season include: (1) a soil temperature at 41 degrees Fahrenheit (°F) measured at 12 inches bgs; and/or (2) aboveground growth and development of vascular plants (USACE, 2008).

The growing season initiates on a given Site when two or more different non-evergreen vascular plants exhibit one or more of the following indicators of biological activity:

- Emergence of herbaceous plants;
- New growth on vegetative crowns;
- Coleoptiles/cotyledon emergence from seed;
- Bud burst on woody plants;
- Emergence or elongation of woody plant leaves; and
- Emergence or opening of flowers.

The growing season terminates on a given Site when woody deciduous species lose their leaves, and/or the last herbaceous plants cease flowering and their leaves become dry or brown. Additional information may be obtained from the Climate Analysis for Wetlands Tables (WETS) available from the USDA NRCS National Water and Climate Center. The objective of the WETS tables is to define the normal range for monthly precipitation and growing season to assess climatic characteristics for a geographic area over a representative interval. The growing season dates in the WETS tables provide an estimate of air temperature averages above 28°F.

4.2.4 Soils

Hydric soils are formed under conditions of saturation, flooding, or ponding for a period long enough during the growing season that anaerobic conditions develop in the upper soil strata (zero to 20 inches commonly; USACE, 2008). These anaerobic conditions exhibit certain soil characteristics that can be identified in the field to investigate (confirm or deny) the hydric soil wetland parameter. Prolonged anaerobic soil conditions eventually lead to a chemically reduced state, where soil components (iron, manganese, sulfur, and carbon compounds) develop soil colors and other physical characteristics indicative of hydric status. These chemically-reduced soil components persist when the soil is either wet or dry. Specific hydric soil characteristics Haley & Aldrich's wetland scientist used to identify hydric soils include:

- Reduced iron resulting in a soil color that is known as gley (bluish-gray or greenish-gray);
- Loss of iron resulting in a soil color that is known as redox depletion (gray or reddish-gray);
- Loss of iron resulting in concentrated soil patches known as redoximorphic concretions (orange or red);
- Sulfidic odor; and
- High organic matter content (peat or muck) in the upper 32 inches of the soil profile.

Haley & Aldrich's study methods for hydric soil analysis included digging soil pits wherever drainage patterns, ponded areas, or indicators of water presence were observed. Soil pits were hand dug to depths between 10 and 24 inches bgs, as described previously in Section 4.2.1, along a transect perpendicular to the predicted wetland boundary in a gradient from dry to wet. Soils obtained from each soil pit were observed for color profile, odor, and redoximorphic condition. Hydric soil conditions must be met within 12 inches of the ground surface to consider the soil types hydric.

Soil colors were determined using Munsell® Soil Color Charts (Munsell Color, 2009) and their appropriate hue: spectral colors (e.g., 10YR); value: degree of lightness (e.g., 2/); and chroma: strength or purity of the color (e.g., /1). Soil profiles must have a dominant chroma of 2 or less or the layer with dominant chroma of more than 2 must be less than 6 inches thick to meet any hydric soil indicators. Hydric soil indicators commonly found in wetlands are identified in the technical document, *Field Indicators of Hydric Soils in the United States, a Field Guide for Identifying and Delineating Hydric Soils* (USDA NRCS, 2018). These indicators help identify soils formed under saturated, flooded, or ponded conditions long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile.

4.3 WETLAND CHARACTERISTICS

The wetlands delineated in this study were characterized according to the Cowardin classification, which categorizes wetlands and deep-water habitats according to five separate systems: Marine, Estuarine, Riverine, Lacustrine, and Palustrine (Cowardin, et al., 1979). These systems are then stratified into subsystems based on plant community types and are further stratified into classes and subclasses from substrate material. Each class and subclass are then annotated with specific modifiers for water regimes, water chemistry, soil, and other special modifiers. The USFWS uses this classification system in their NWI maps.

Site wetlands were also identified according to their hydrogeomorphic (HGM) classification to determine their location and function within the watershed. HGM classifications include the following:

- Depressional;
- Riverine;
- Lake-fringe;
- Slope;
- Flats; and
- Freshwater tidal.

4.4 ORDINARY HIGH-WATER MARK DELINEATION

To estimate the presence of stream (lotic) features within the study area, Haley & Aldrich applied the methods utilized by the USACE in their *Regulatory Guidance Letter, Ordinary High Water Mark Identification* (USACE, 2005) and various indicators outlined with the USACE's *A Guide to the Identification of the OHWM in the Arid West Region of the Western United States* documentation (USACE, 2008). Haley & Aldrich's scientists used the Arid West OHWM definition for this study, as described below:

“The term “OHWM” means that line on the shore established by the fluctuations of weather and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.”

During the field investigation, we walked the Site to identify physical characteristics present on the shoreline of a given watercourse. Conditions may vary depending on the type of water body and conditions of the area. There are no required physical indicators that must be present to make an OHWM determination. However, the following physical characteristics were considered when making the OHWM determination:

- Natural line impressed on the bank
- Shelving or topographic breaks
- Changes in the character of soil
- Destruction of terrestrial vegetation
- Presence of litter or debris (drift lines)
- Wracking
- Vegetation matted down, bent, or absent
- Sediment sorting
- Leaf litter disturbed or washed away
- Scour
- Deposition
- Multiple observed flow events
- Bed and banks
- Water staining
- Change in plant community

Other methods for determining the OHWM that do not include physical observation:

- Lake and stream gauge data
- Elevation data
- Spillway height
- Flood predictions
- Historic records of water flow
- Statistical evidence

5. Results

5.1 LITERATURE REVIEW

5.1.1 Soils

The Snohomish County, Washington NRCS Web Soils Soil Survey (USDA NRCS, 2020) identified two soil types within the Site boundary, as shown in the Desktop Review, Figure 3. A general description of the soil types, as defined by the NRCS Web Soil Survey, are provided below. Both soils identified on the property are listed on the National Hydric Soils List as being “hydric” soils.

- **7-Bellingham Silty Clay Loam:** 0 to 3 percent slopes; Landform: Drainageways, depressions; Parent material: Alluvium over lacustrine deposits; Drainage Class: poorly drained; Profile: silty clay loam over silty clay; Hydric.
- **55-Puget Silty Clay Loam:** 0 to 2 percent slopes; Landform: Flood plains; Parent Material: Alluvium; Drainage Class: Poorly drained; Profile: Silty clay loam; Hydric

Haley & Aldrich’s field observations during the Site survey generally confirmed that these soil conditions occurred in the area of the subject Site. See the NRCS Custom Soil Resource Report in Appendix C.

5.1.2 NWI Map

The USFWS NWI online mapping database (USFWS NWI Wetland Mapper) identified a Palustrine Freshwater Emergent (PEM) wetland along the eastern edge of the property boundary, and a Type F (Fish-bearing) stream running north-south through the property, as shown in the Desktop Review, Figure 3.

5.1.3 Topographic Maps/Historical Aerial Photographs

Haley & Aldrich reviewed various Monroe, Washington Quadrangle USGS topographical maps, dating to 1921 and historical aerial photographs, dating to 1985. The scales at which these maps were drawn or photos taken did not provide sufficient quality to determine changes over time. However, from what was observed from both resources, the Site vicinity appears to have remained undeveloped until the mid-1980s when development began on adjacent properties. The Site does not appear to have significantly changed since the mid-1980’s.

5.1.4 Critical Areas Maps

Review of the City of Monroe Streams and Wetlands Maps indicated an unclassified stream (ditch) adjoins the eastern Site boundary. A critical area buffer associated with the unclassified stream is depicted within the project Site. Unclassified wetlands are mapped adjacent to the northeast of the project Site. The Shoreline Environment Designations map did not identify any shoreline designations at the Site (City of Monroe, 2024a).

5.1.5 Climate

The closest weather station that records temperature data to the study area is the Monroe Station, which shows the normal temperature range reaching the low 60s (Fahrenheit) in the summer months

and high 30s in the winter. For the year 2024, January-March has had average temperatures, with a colder-than-average spring from the end of March through early May (USDA NRCS, 2023). See Appendix D for normal and 2024 observed temperatures.

The 30-year normal for precipitation at the Monroe Station is approximately 50 inches annually (USDA NRCS, 2023). The USACE Antecedent Precipitation Tool (APT) provides precipitation information for a specific point using nearby weather station data, weighted depending on horizontal and vertical distance from the specified point. The tool compares recent precipitation conditions to the 30-year normal range (30th-70th percentile) to determine whether field data or observations were made during normal climatic conditions. The tool can assess the presence or absence of drought conditions, or the approximate dates of wet or dry seasons for a given location.

An output from the APT tool was generated for the study area location. In March, April, and May of 2024, the study area was under normal climatic (precipitation) conditions. See Appendix D for precipitation data and deviations from normal.

5.1.6 Flood Plains

The study area lies within the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map (FIRM) Panel No. 535534. The entire project is within an area of minimal flood hazard and outside of the regulated floodplain. See Appendix E for FEMA FIRM.

5.2 FIELD INVESTIGATIONS

5.2.1 Wetland Delineation/ Assessment

The study area encompasses approximately 2.16 acres adjacent to the northeast of the intersection of Oaks Street and Woods Creek Road in Monroe, Washington. The study area for the project includes any areas where soil disturbance could occur as a result of this Project. All quantities and areas in this report are referencing the aquatic resources within the study area boundary. See Figure 2 for a map of the Study Area.

The aquatic resources were delineated by Lindsay Chutas and Samantha Fisher from Haley & Aldrich on 15 May 2024. Aside from wetland W1 and the stormwater ditch, no additional aquatic resources were identified during the field investigation. Wetland data points were selected based on topography, hydrophytic vegetation, saturated soils, and drainage patterns. Each data point was assigned a unique number, and a data form from the WMVC Supplement was completed in both upland and wetland representative areas to delineate the wetland boundaries. Additional soil pits were dug periodically around wetland boundaries to confirm that the recorded data points are representative of the soil types and hydrologic conditions of each wetland.

The OHWM was delineated using physical characteristics as described in *A Guide to OHWM Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region (WMVC) of the United States* (USACE, 2014) and Ecology (Ecology, 2016) guidance.

Wetland boundaries and data points were mapped in the field and further refined by Haley & Aldrich staff using GIS software, imagery, LiDAR, and field observations. The wetland boundary was flagged with pink pin-flags and labeled with the date of observation.

5.2.2 Soils and Hydrology

The Haley & Aldrich scientists established 2 soil pits (WSP-1 and USP-1) within the project Site. Soil pits were located based on site observations such as topography gradient or low points within the terrain, general vegetative cover, or color change. Table II provides a summary of soil and hydrology data conditions encountered during the delineation/assessment.

Soil Pit ID	Approximate Depth (inches bgs)	Hue, Value, Chroma	Redox Features	Soil Description	Sulfide Odor	Depth to Water/Saturation (inches bgs)	Hydric Soils Present? (Yes/No)
WSP-1	0 – 4	10YR 3/3	No	Loamy/Clayey	No	15	Yes
	4 – 7	10YR 4/1	Yes				
	7-16	N4/	No				
USP-1	0 – 7	10YR 3/2	-No	Loamy/Clayey	No	--	No
	7-17	10YR 3/3	Yes				

Notes:

* = hydric soil indicators present; however, the soil characteristics did not meet the specific requirements needed to trigger a "hydric soil" condition.

Bold text indicates tests plots that occurred within a wetland.

Soils observed from the sample plot within Wetland W1 (WSP-1) consist of clay ranging from 10YR 3/3 with high organic content in the upper part of the soil, to a gley color in the lower part of the soil profile. Mucky loam was observed from zero to 4 inches depth. 4 to 7 inches depth contained redox concentrations within a 10YR 4/1 matrix, and below 7 inches was 100 percent N4/ gley. Hydric soil indicators observed include Loamy Mucky Mineral (F1), Loamy Gleyed Matrix (F2), Depleted Matrix (F3), and Redox Depressions (F8). USP-1 did not have soil indicative of hydric conditions and, therefore, were not considered wetland/hydric soils.

The wetland determination sample plot data forms are provided in Appendix A, and a photographic record of the soil pit conditions is provided in Appendix B.

5.2.3 General Vegetation

The study area consists of upland and riparian corridors and is currently utilized as a parking area for vehicles. The upland areas consist of invasive upland species and grasslands consistent with the eastern Puget Lowlands of Snohomish County, including common tansy (*tanacetum vulgare*), Himalayan blackberry (*Rubus armeniacus*), crabgrass (*poa spp.*), and small flowered cranesbill (*geranium californicum*). The riparian corridor was dominated by reed canary grass, soft rush (*juncus effusus*), western lady fern (*athrium cyclosorum*), and Geyer's willow (*salix geyeriana*).

Hydrophytic vegetation was characterized based on general dominant species observed within the approximately 5 to 30-foot-diameter sample plot surrounding each soil pit. Hydrophytic vegetation was observed across the cultivated areas of the Site, but was prevalent in depressional areas, as described in Table III below.

Wetland	Herbaceous Layer <i>(Common & Scientific Name with Hydric Plant Classification)</i>	Scrub/Shrub Layer <i>(Common & Scientific Name with Hydric Plant Classification)</i>	Forested Layer <i>(Common & Scientific Name with Hydric Plant Classification)</i>
Wetland A	<ul style="list-style-type: none"> • <u>Reed Canarygrass</u> <i>(Phalaris arundinacea)</i> – FACW • <u>Soft Rush</u> <i>(juncus effusus)</i> – FAC • <u>Western Lady Fern</u> <i>(athrium cyclosorum)</i> 	<ul style="list-style-type: none"> • <u>Geyer’s Willow</u> <i>(Salix lutea)</i> – FACW 	<ul style="list-style-type: none"> • None

5.3 REGULATORY REVIEW

According to the USACE, EPA, and Ecology, a wetland is defined as:

“Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.”

Based on this regulatory definition, field observations, data collection, historical site data, and previous report documentation, Haley & Aldrich identified one wetland (Wetland 1) that likely meets Ecology and the City of Monroe’s jurisdictional criteria. In addition, a non-wetland water (stormwater ditch) is located along the eastern boundary of the Site. A summary and quantities of aquatic resources delineated within the study area are described in Table IV below.

ID	Type	Cowardin* Classification	Latitude	Longitude	Acres	Linear Feet	Average Width (inches)
W1	Wetland	PEM	47.86114	-121.964324	0.0084	N/A	NA
S1	Stormwater Ditch	Riverine	47.86114	-121.964324	NA	401.61	18-27"
Totals:					0.0084	401.61	
Notes: * = Class as defined in Cowardin, et al., 1979.							

5.3.1 Wetland W1—approximately 3659 square feet (sf) (0.0084 acres) in size

One wetland feature, with a Cowardin classification of PEM and HGM classification of Riverine, was confirmed within the study area. Wetland hydrology comes from surface water runoff from the uplands and overflow of the stormwater ditch into the PEM wetland during wet periods of the year.

The Wetland W1 (0.084 acres) is dominated by reed canary grass and soft rush, with lesser amounts of western lady fern . See Appendix A for wetland determination forms and Figure 4 for a map of delineated aquatic resources. The photographic record of wetland characteristics are provided in Appendix B.

Site observations indicated that the NWI classification/mapping effort incorrectly mapped the Site and/or changes occurred on Site that that may have altered the wetland parameters of hydric soils, hydric vegetation, and hydrology, since the development of the NWI and DNR mapping.

5.3.1.1 Wetland W1 Rating

Wetland W1 was rated using the Washington State Wetland Rating System for Western Washington (Hruby, et al., 2014). The HGM class used for the rating was Riverine, and found to be an overall Category IV wetland based on functions, with a total score of 14: water quality function rating of 7, hydrologic function rating of 4, and habitat function rating of 3. Buffer widths are recommended as identified in the City of Monroe Development Standards (Table 22.80.090(D)(3)). Utilizing the matrix provided, a 50 ft buffer for the Category IV wetland is recommended. A figure showing the location of buffers relative to the proposed project boundary can be found in Figure 5. Full wetland rating can be found in Appendix F.

5.3.2 Stormwater Ditch S1

One stormwater ditch (S1) was confirmed on Site. This ditch was identified in the City of Monroe utilities database, but was not depicted as a stream on the NWI database. The DNR Water Courses map indicated a type F (Fish-bearing) stream was located running from the northern most part of the property through the southern boundary of the property. No stream was found in this location. However, the City of Monroe Streams and Wetlands Map identified the stormwater ditch as an unclassified stream with a 50-foot buffer along the eastern boundary of the site (City of Monroe, 2024a), which is consistent with field observations. The confirmed stormwater ditch flows along the northeast property boundary, from northwest to southeast, and exits the property through a stormwater inlet to a 30-inch reinforced concrete pipe. See Appendix B for photographic record of the stormwater ditch.

5.3.3 Regulatory Correspondence

An agency Site visit to review the findings from the delineation of aquatic resources was conducted on 13 November 2024, with representatives from Ecology and the Washington Department of Fish and Wildlife (WDFW), as well as representatives from the City of Monroe and Haley & Aldrich, in attendance. On 18 November 2024, Ryan Shaw of WDFW communicated via email that WDFW confirmed the stormwater ditch is a non-fish bearing stormwater drainage, with no current or historical connection to a surface water body (R. Shaw personal communication November 18, 2024). An email correspondence dated 12 December 2024 (post-Site visit) from USACE local field representative Ryan Cochoit indicated that the USACE had no concerns about the stormwater ditch as a jurisdictional water body (R. Cochoit personal communication, December 12, 2024).

6. Conclusions

Haley & Aldrich conducted a wetland delineation on the 2.16 -acre parcel located at 19959 Oaks Street in Monroe, Washington. The Site is currently used as a parking or storage space for vehicles and trailers, and is largely undeveloped and overgrown with blackberry, reed canary grass, and upland grasses.

Haley & Aldrich identified and delineated one wetland (Wetland 1) within the project Site boundary. This wetland was classified as a PEM wetland, and is approximately 3659 square feet (sf; 0.084 acres) in size.

In addition, one approximately 402-foot-long stormwater ditch (S1) was identified connecting Wetland 1 to a downstream culvert at the site boundary. This stormwater ditch was confirmed as having no surface water connection to any downstream water bodies.

Haley & Aldrich believes Wetland 1 likely meet the requisite criteria to be considered jurisdictional by Ecology under current wetland definitions as defined in the GMA, and Stormwater ditch S1 will not be considered jurisdictional after correspondence with both the USACE, WDFW, and Ecology.

Please note, this report contains opinions from Haley & Aldrich based on specific site data and previous professional experience, however, final determinations will be made by the USACE and Washington Department of Ecology.

7. Limitations

The above services consist of professional opinions and conclusions by consulting professional wetland scientists. The only warranty or guarantee made by the consultant, in connection with the services performed for this project, is that such services are performed with the care and skill ordinarily exercised by members of the profession practicing under similar conditions, at the same time, and in the same or a similar locality. No other warranty, expressed or implied, is made or intended by rendering such consulting services, or by furnishing written reports of the findings.

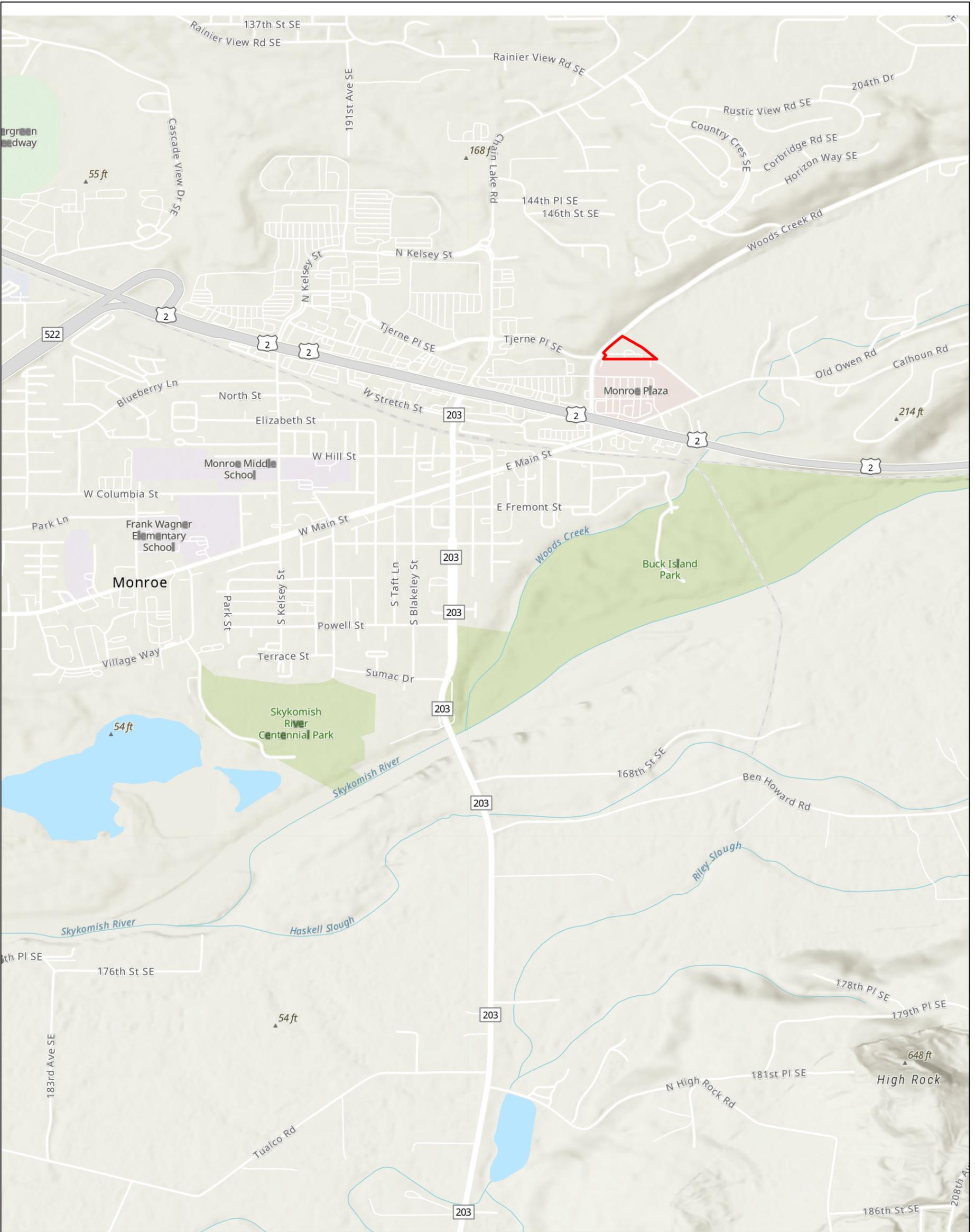
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FIGURES



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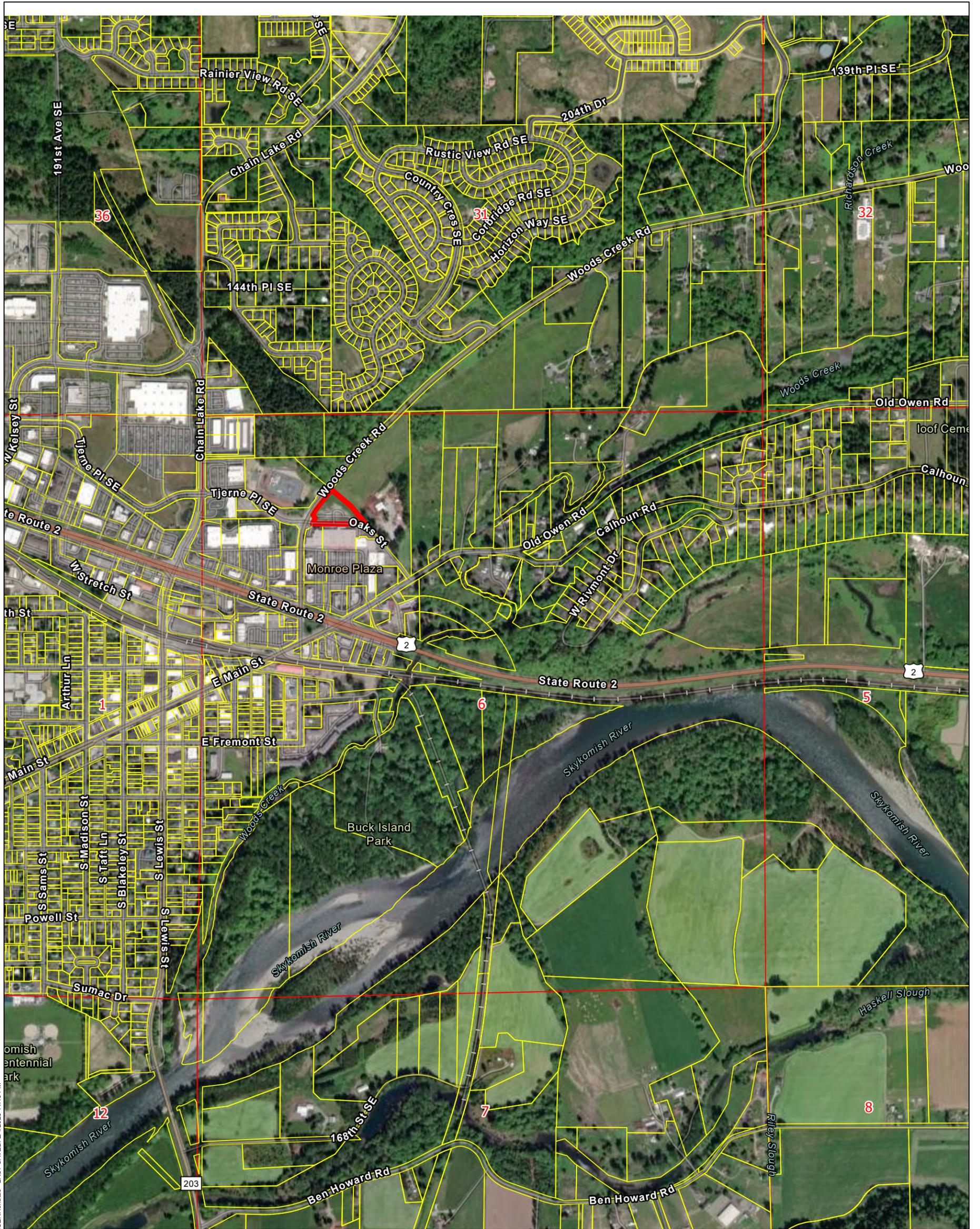
LEGEND
 **STUDY AREA**



01 0200
 SCALE IN FEET

	SRFR SITE 19959 OAKS STREET OAC SERVICES MONROE, WASHINGTON
	VICINITY
	FEBRUARY 2025

FIGURE 1



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- LEGEND**
- STUDY AREA
 - PARCELS
 - PUBLIC LAND SURVEY SECTIONS



**HALEY
ALDRICH**

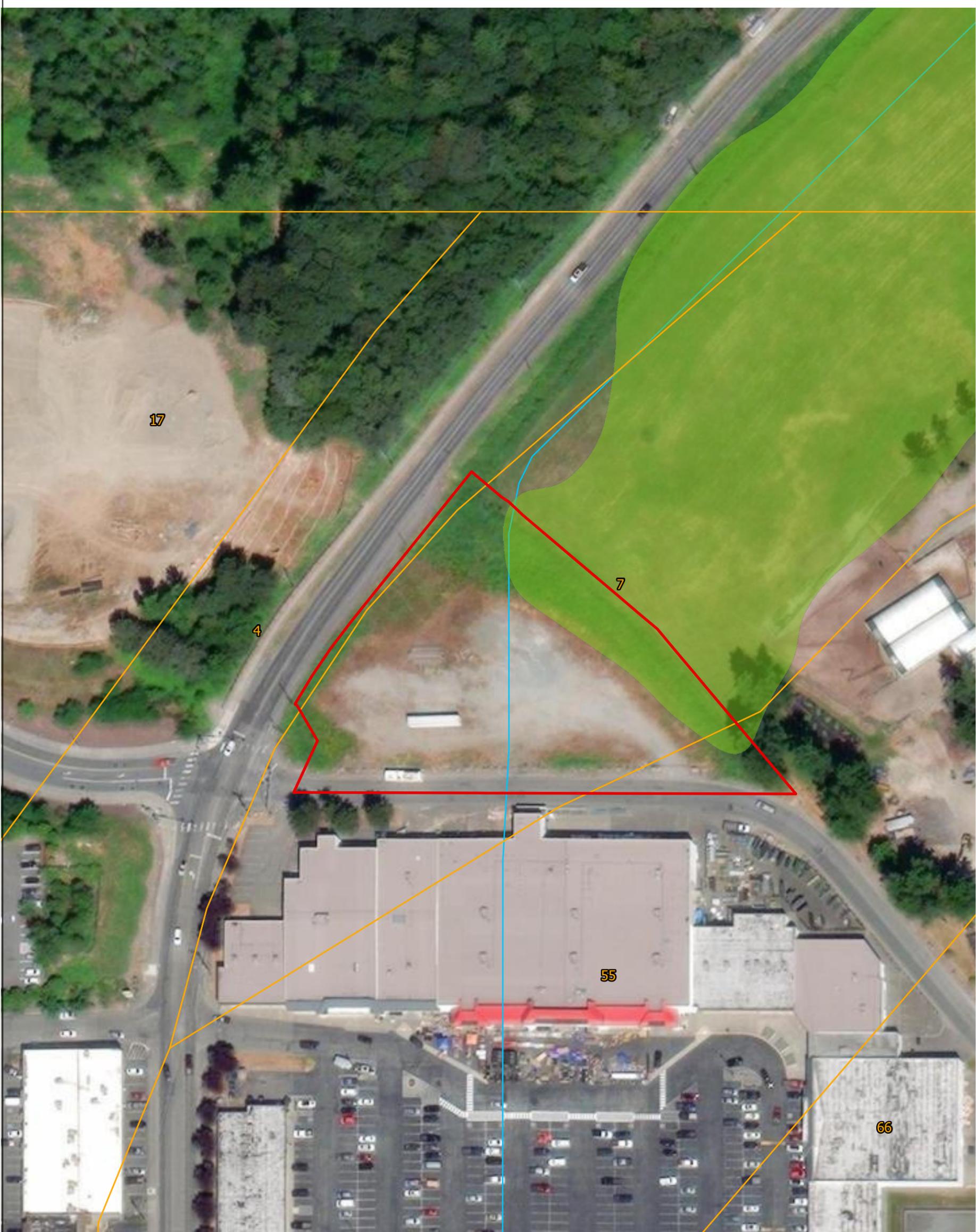
SRFR SITE 19959 OAKS STREET
OAC SERVICES
MONROE, WASHINGTON

STUDY AREA

FEBRUARY 2025

FIGURE 2

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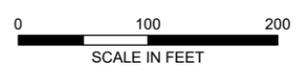
- LEGEND**
- STUDY AREA**
 - NRCS SOIL MAP UNITS**

- WETLANDS**
- Estuarine and Marine Deepwater
 - Estuarine and Marine Wetland
 - Freshwater Emergent Wetland
 - Freshwater Forested/Shrub Wetland
 - Freshwater Pond
 - Lake
 - Other
 - Riverine

- DNR WATER TYPE**
- F**

Wetlands

NOTES
1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.



HALEY ALDRICH SRFR SITE 19959 OAKS STREET
OAC SERVICES
MONROE, WASHINGTON

DESKTOP REVIEW

FEBRUARY 2025

FIGURE 3

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LEGEND

- STUDY AREA
- STORMWATER DITCH
- SOIL PLOT TYPE**
- UPLAND
- WETLAND
- DELINEATED WETLAND



NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

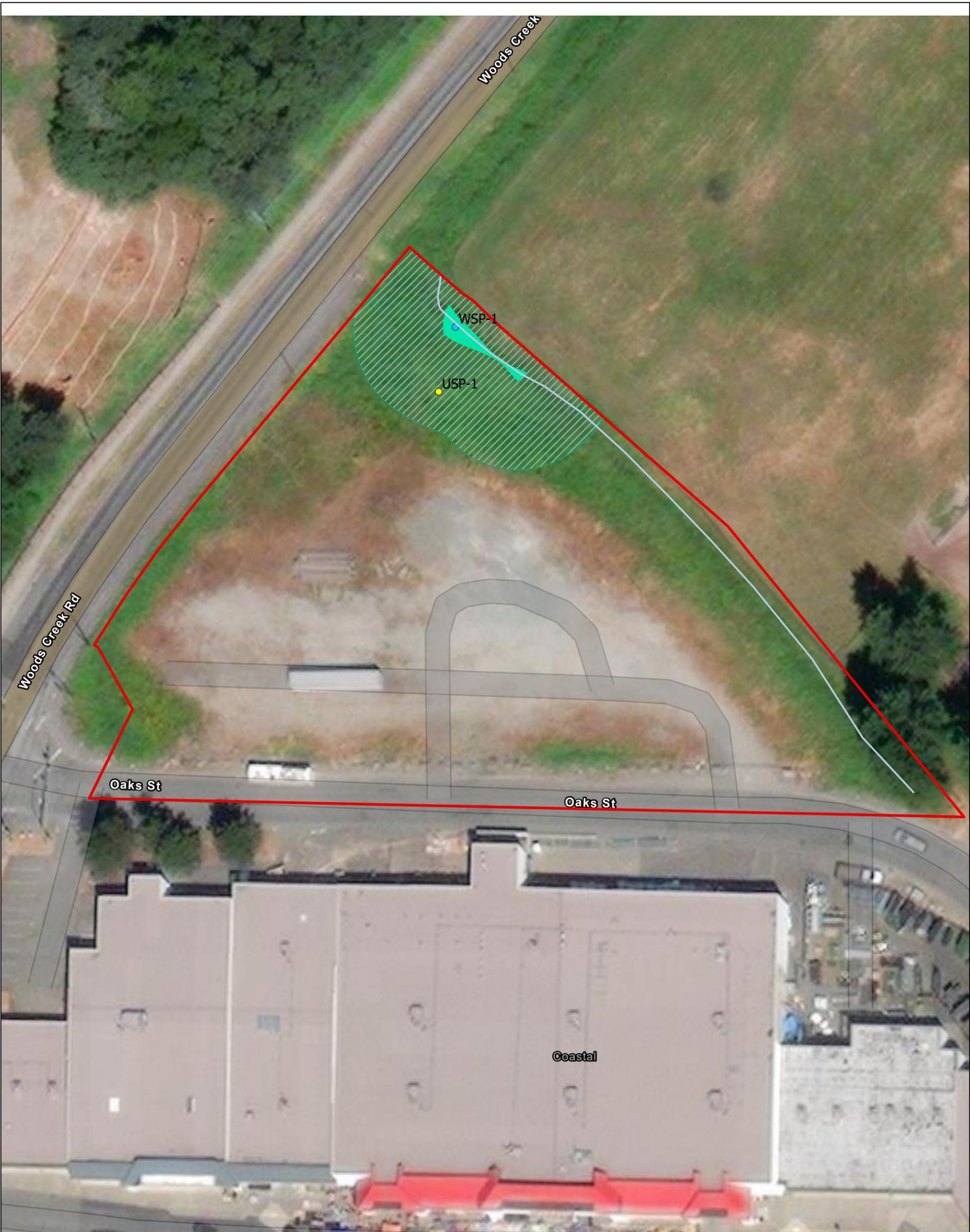
**HALEY
ALDRICH**

SRFR SITE 19959 OAKS STREET
OAC SERVICES
MONROE, WASHINGTON

**DELINEATED AQUATIC
RESOURCES**

FEBRUARY 2025

FIGURE 4



GIS FILE PATH: \\haleyaldrich\share\CF\Projects\0211007\GIS\SRFR MONROE\SRFR MONROE.aprx - USER: lchulas - LAST SAVED: 2/4/2025 11:10 PM

LEGEND

SOIL PLOTS

- UPLAND
- WETLAND

— DELINEATED STREAM/STORMWATER DITCH

STUDY AREA

DELINEATED WETLAND

50 FT WETLAND BUFFER



NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.



SRFR SITE
OAC SERVICES
MONROE, WASHINGTON

**DELINEATED AQUATIC
RESOURCES WITH BUFFERS**

FEBRUARY 2025

FIGURE 5

APPENDIX A
USACE Wetland Determination Data Sheet

Project/Site: OAC-SRFR City/County: Monroe/Snohomis Sampling Date: 2024-05-15
 Applicant/Owner: OAC-SRFR State: WA Sampling Point: WSP1
 Investigator(s): Chutas, Fisher, Bangasser Section, Township, Range: S06 T27N R7E
 Landform (hillside, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): 2-5
 Subregion (LRR): LRR A, MLRA 2 Lat: 47.861195 Long: -121.964381 Datum: WGS 84
 Soil Map Unit Name: 7- Bellingham silty clay loam NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u>x</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
---	--

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Salix geyeriana</u>	5	Yes	FACW	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)																
2. _____																				
3. _____																				
4. _____																				
<u>5</u> =Total Cover																				
Sapling/Shrub Stratum (Plot size: <u>5</u>)																				
1. _____				Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse; font-size: small;"> <tr> <td style="text-align: right;">Total % Cover of:</td> <td style="text-align: center;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>80</u></td> <td>x 2 = <u>160</u></td> </tr> <tr> <td>FAC species <u>25</u></td> <td>x 3 = <u>75</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>105</u> (A)</td> <td><u>235</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>2.24</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>80</u>	x 2 = <u>160</u>	FAC species <u>25</u>	x 3 = <u>75</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>105</u> (A)	<u>235</u> (B)	Prevalence Index = B/A = <u>2.24</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>80</u>	x 2 = <u>160</u>																			
FAC species <u>25</u>	x 3 = <u>75</u>																			
FACU species <u>0</u>	x 4 = <u>0</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>105</u> (A)	<u>235</u> (B)																			
Prevalence Index = B/A = <u>2.24</u>																				
2. _____																				
3. _____																				
4. _____																				
<u> </u> =Total Cover																				
Herb Stratum (Plot size: <u>5</u>)																				
1. <u>Phalaris arundinacea</u>	75	Yes	FACW	Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u>X</u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> 5 - Wetland Non-Vascular Plants ¹ <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u>Juncus effusus</u>	15	No	FAC																	
3. <u>Athyrium cyclosum</u>	10	No	FAC																	
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
9. _____																				
10. _____																				
<u>100</u> =Total Cover																				
Woody Vine Stratum (Plot size: <u>30</u>)																				
1. _____																				
2. _____																				
<u> </u> =Total Cover																				
% Bare Ground in Herb Stratum <u> </u>																				

Remarks:

SOIL

Sampling Point: WSP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 3/3	100					Mucky Loam/Clay	with roots
4-7	10YR 4/1	60	7.5YR 4/6	40	C	M	Loamy/Clayey	Prominent redox concentrations
7-16	N 4/	100					Loamy/Clayey	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)			Indicators for Problematic Hydric Soils ³ :		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 2 cm Muck (A10) (LRR A, E)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR D)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input checked="" type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (F22)			
<input type="checkbox"/> 1 cm Muck (A9) (LRR D, G)	<input checked="" type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)				
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)				
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)				
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G)	<input checked="" type="checkbox"/> Redox Depressions (F8)				

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

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
---	---

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): 15 Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
--	---

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

Remarks:

Project/Site: OAC-SRFR City/County: Monroe/Snohomis Sampling Date: 2024-05-15
 Applicant/Owner: OAC-SRFR State: WA Sampling Point: USP1
 Investigator(s): Chutas, Fisher, Bangasser Section, Township, Range: S06 T27N R7E
 Landform (hillside, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0-2%
 Subregion (LRR): LRR A, MLRA 2 Lat: 47.86108134 Long: -121.96449587 Datum: WGS 84
 Soil Map Unit Name: 7- Bellingham silty clay loam NWI classification: _____
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1.	_____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33.3%</u> (A/B)
2.	_____	_____	_____	_____	
3.	_____	_____	_____	_____	
4.	_____	_____	_____	_____	
=Total Cover					
Sapling/Shrub Stratum	(Plot size: <u>5</u>)				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>5</u> x 2 = <u>10</u> FAC species <u>35</u> x 3 = <u>105</u> FACU species <u>35</u> x 4 = <u>140</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>75</u> (A) <u>255</u> (B) Prevalence Index = B/A = <u>3.40</u>
1.	<u>Rubus armeniacus</u>	<u>40</u>	<u>Yes</u>	_____	
2.	<u>Salix pseudomonticola</u>	<u>5</u>	<u>No</u>	<u>FACW</u>	
3.	_____	_____	_____	_____	
4.	_____	_____	_____	_____	
5.	_____	_____	_____	_____	
=Total Cover					
Herb Stratum	(Plot size: <u>5</u>)				Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u>5</u> - Wetland Non-Vascular Plants ¹ <u>_____</u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
1.	<u>Tanacetum vulgare</u>	<u>30</u>	<u>Yes</u>	<u>FACU</u>	
2.	<u>Digitaria</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>	
3.	<u>Geranium californicum</u>	<u>10</u>	<u>No</u>	<u>FAC</u>	
4.	<u>Myosotis discolor</u>	<u>5</u>	<u>No</u>	<u>FAC</u>	
5.	<u>Taraxacum officinale</u>	<u>5</u>	<u>No</u>	<u>FACU</u>	
6.	_____	_____	_____	_____	
7.	_____	_____	_____	_____	
8.	_____	_____	_____	_____	
9.	_____	_____	_____	_____	
10.	_____	_____	_____	_____	
11.	_____	_____	_____	_____	
=Total Cover					
Woody Vine Stratum	(Plot size: <u>30</u>)				
1.	_____	_____	_____	_____	
2.	_____	_____	_____	_____	
=Total Cover					
% Bare Ground in Herb Stratum _____					

Remarks:

SOIL

Sampling Point: USP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	10YR 3/2	100					Loamy/Clayey	with roots
7-17	10YR 3/3	99	10YR 5/8	1	C	M	Loamy/Clayey	with gravel

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)			Indicators for Problematic Hydric Soils ³ :		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 2 cm Muck (A10) (LRR A, E)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR D)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (F22)			
<input type="checkbox"/> 1 cm Muck (A9) (LRR D, G)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)				
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)				
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)				
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G)	<input type="checkbox"/> Redox Depressions (F8)				

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

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes _____ No <u>X</u>
---	---

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <u>X</u>
---	---

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

Remarks:

APPENDIX B
Site Photographs

Aquatic Resources Report-Snohomish Regional Fire and Rescue
Monroe, Washington
File No. 0211017-000
Date Photographs Taken: 15 May 2024



Photo 1: Soil profile of WSP-1



Photo 2: Wetland vegetation looking northeast from WSP-1



Photo 3: Upland Vegetation looking north from USP-1



Photo 4: Stormwater ditch S1



Photo 5: Stormwater ditch S1; view is upstream looking North



Photo 6: Stormwater ditch S1 entering the stormwater inlet to concrete pipe at southeast corner of property

**Aquatic Resources Report-Snohomish Regional Fire and Rescue
Monroe, Washington
File No. 0211017-000
Date Photographs Taken: 15 May 2024**



Photo 7: View north across property from south property boundary. Note lack of type F stream as indicated on DNR water type map



Photo 8: Current property use for trailer storage

APPENDIX C
NRCS Custom Soil Resource Report



United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for Snohomish County Area, Washington



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

Custom Soil Resource Report

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

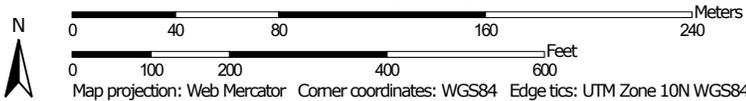
Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



Map Scale: 1:2,910 if printed on A landscape (11" x 8.5") sheet.



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 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

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 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: Snohomish County Area, Washington
 Survey Area Data: Version 25, Aug 29, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 6, 2022—Sep 8, 2022

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
4	Alderwood-Everett gravelly sandy loams, 25 to 70 percent slopes	5.8	17.3%
7	Bellingham silty clay loam	7.2	21.6%
17	Everett very gravelly sandy loam, 0 to 8 percent slopes	4.4	13.1%
55	Puget silty clay loam	10.5	31.5%
66	Sultan silt loam	5.5	16.5%
Totals for Area of Interest		33.5	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

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The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Snohomish County Area, Washington

4—Alderwood-Everett gravelly sandy loams, 25 to 70 percent slopes

Map Unit Setting

National map unit symbol: 2hyy
Elevation: 50 to 800 feet
Mean annual precipitation: 25 to 60 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 180 to 220 days
Farmland classification: Not prime farmland

Map Unit Composition

Alderwood and similar soils: 60 percent
Everett and similar soils: 25 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Alderwood

Setting

Landform: Till plains
Parent material: Basal till

Typical profile

H1 - 0 to 7 inches: gravelly ashy sandy loam
H2 - 7 to 35 inches: very gravelly ashy sandy loam
H3 - 35 to 60 inches: gravelly sandy loam

Properties and qualities

Slope: 25 to 70 percent
Depth to restrictive feature: 20 to 40 inches to densic material
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: F002XA004WA - Puget Lowlands Forest
Hydric soil rating: No

Description of Everett

Setting

Landform: Plains, terraces
Parent material: Glacial outwash

Typical profile

H1 - 0 to 6 inches: gravelly ashy sandy loam
H2 - 6 to 18 inches: very gravelly ashy sandy loam

Custom Soil Resource Report

H3 - 18 to 60 inches: extremely gravelly sand

Properties and qualities

Slope: 25 to 70 percent

Depth to restrictive feature: 14 to 20 inches to strongly contrasting textural stratification

Drainage class: Somewhat excessively drained

Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Very low (about 2.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: A

Ecological site: F002XA004WA - Puget Lowlands Forest

Hydric soil rating: No

Minor Components

Mckenna

Percent of map unit: 5 percent

Landform: Depressions

Other vegetative classification: Wet Soils (G002XN102WA)

Hydric soil rating: Yes

Norma, undrained

Percent of map unit: 5 percent

Landform: Depressions

Other vegetative classification: Wet Soils (G002XN102WA)

Hydric soil rating: Yes

Terric medisaprists, undrained

Percent of map unit: 5 percent

Landform: Depressions

Other vegetative classification: Wet Soils (G002XN102WA)

Hydric soil rating: Yes

7—Bellingham silty clay loam

Map Unit Setting

National map unit symbol: 2j00

Elevation: 0 to 820 feet

Mean annual precipitation: 35 to 60 inches

Mean annual air temperature: 50 degrees F

Frost-free period: 150 to 210 days

Farmland classification: Prime farmland if drained

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Map Unit Composition

Bellingham, undrained, and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bellingham, Undrained

Setting

Landform: Drainageways, depressions

Parent material: Alluvium over lacustrine deposits

Typical profile

H1 - 0 to 9 inches: silty clay loam

H2 - 9 to 60 inches: silty clay

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: About 0 to 12 inches

Frequency of flooding: None

Frequency of ponding: Frequent

Available water supply, 0 to 60 inches: Very high (about 12.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 5w

Hydrologic Soil Group: C/D

Ecological site: F002XA007WA - Puget Lowlands Wet Forest

Forage suitability group: Wet Soils (G002XN102WA)

Other vegetative classification: Wet Soils (G002XN102WA)

Hydric soil rating: Yes

Minor Components

Kitsap

Percent of map unit: 5 percent

Hydric soil rating: No

Bellingham, drained

Percent of map unit: 5 percent

Landform: Depressions

Other vegetative classification: Soils with Few Limitations (G002XN502WA)

Hydric soil rating: Yes

Terric medisaprists, undrained

Percent of map unit: 5 percent

Landform: Depressions

Other vegetative classification: Wet Soils (G002XN102WA)

Hydric soil rating: Yes

17—Everett very gravelly sandy loam, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2t629

Elevation: 30 to 900 feet

Mean annual precipitation: 35 to 91 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 180 to 240 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Everett and similar soils: 80 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Everett

Setting

Landform: Kames, moraines, eskers

Landform position (two-dimensional): Summit, shoulder

Landform position (three-dimensional): Interfluve, crest

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Sandy and gravelly glacial outwash

Typical profile

O_i - 0 to 1 inches: slightly decomposed plant material

A - 1 to 3 inches: very gravelly sandy loam

B_w - 3 to 24 inches: very gravelly sandy loam

C₁ - 24 to 35 inches: very gravelly loamy sand

C₂ - 35 to 60 inches: extremely cobbly coarse sand

Properties and qualities

Slope: 0 to 8 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Somewhat excessively drained

Capacity of the most limiting layer to transmit water (K_{sat}): High (1.98 to 5.95 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 3.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4s

Hydrologic Soil Group: A

Ecological site: F002XA004WA - Puget Lowlands Forest

Forage suitability group: Droughty Soils (G002XN402WA), Droughty Soils (G002XF403WA), Droughty Soils (G002XS401WA)

Custom Soil Resource Report

Other vegetative classification: Droughty Soils (G002XN402WA), Droughty Soils (G002XF403WA), Droughty Soils (G002XS401WA)
Hydric soil rating: No

Minor Components

Alderwood

Percent of map unit: 10 percent
Landform: Hills, ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest, talus
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: No

Indianola

Percent of map unit: 10 percent
Landform: Terraces, kames, eskers
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

55—Puget silty clay loam

Map Unit Setting

National map unit symbol: 2hzh
Elevation: 10 to 650 feet
Mean annual precipitation: 35 to 55 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 160 to 180 days
Farmland classification: Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season

Map Unit Composition

Puget, drained, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Puget, Drained

Setting

Landform: Flood plains
Parent material: Alluvium

Typical profile

H1 - 0 to 9 inches: silty clay loam
H2 - 9 to 38 inches: silty clay loam
H3 - 38 to 60 inches: silty clay loam

Custom Soil Resource Report

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 24 to 47 inches
Frequency of flooding: Rare
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 12.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C
Ecological site: F002XA007WA - Puget Lowlands Wet Forest
Forage suitability group: Soils with Few Limitations (G002XN502WA)
Other vegetative classification: Soils with Few Limitations (G002XN502WA)
Hydric soil rating: Yes

Minor Components

Puget, undrained

Percent of map unit: 5 percent
Other vegetative classification: Wet Soils (G002XN102WA)
Hydric soil rating: Yes

Sultan

Percent of map unit: 4 percent
Hydric soil rating: No

Snohomish, undrained

Percent of map unit: 3 percent
Landform: Flood plains
Other vegetative classification: Wet Soils (G002XN102WA)
Hydric soil rating: Yes

Sumas, undrained

Percent of map unit: 3 percent
Landform: Flood plains
Other vegetative classification: Wet Soils (G002XN102WA)
Hydric soil rating: Yes

66—Sultan silt loam

Map Unit Setting

National map unit symbol: 2hzw
Elevation: 0 to 820 feet
Mean annual precipitation: 35 to 55 inches
Mean annual air temperature: 50 degrees F
Frost-free period: 150 to 200 days

Custom Soil Resource Report

Farmland classification: All areas are prime farmland

Map Unit Composition

Sultan and similar soils: 85 percent

Minor components: 5 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sultan

Setting

Landform: Flood plains

Parent material: Alluvium

Typical profile

H1 - 0 to 12 inches: ashy silt loam

H2 - 12 to 42 inches: silty clay loam

H3 - 42 to 60 inches: stratified sand to silt loam

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)

Depth to water table: About 24 to 48 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: High (about 10.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: C

Ecological site: F002XA005WA - Puget Lowlands Moist Forest

Forage suitability group: Seasonally Wet Soils (G002XN202WA)

Other vegetative classification: Seasonally Wet Soils (G002XN202WA)

Hydric soil rating: No

Minor Components

Puget, undrained

Percent of map unit: 5 percent

Landform: Flood plains

Other vegetative classification: Wet Soils (G002XN102WA)

Hydric soil rating: Yes

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Custom Soil Resource Report

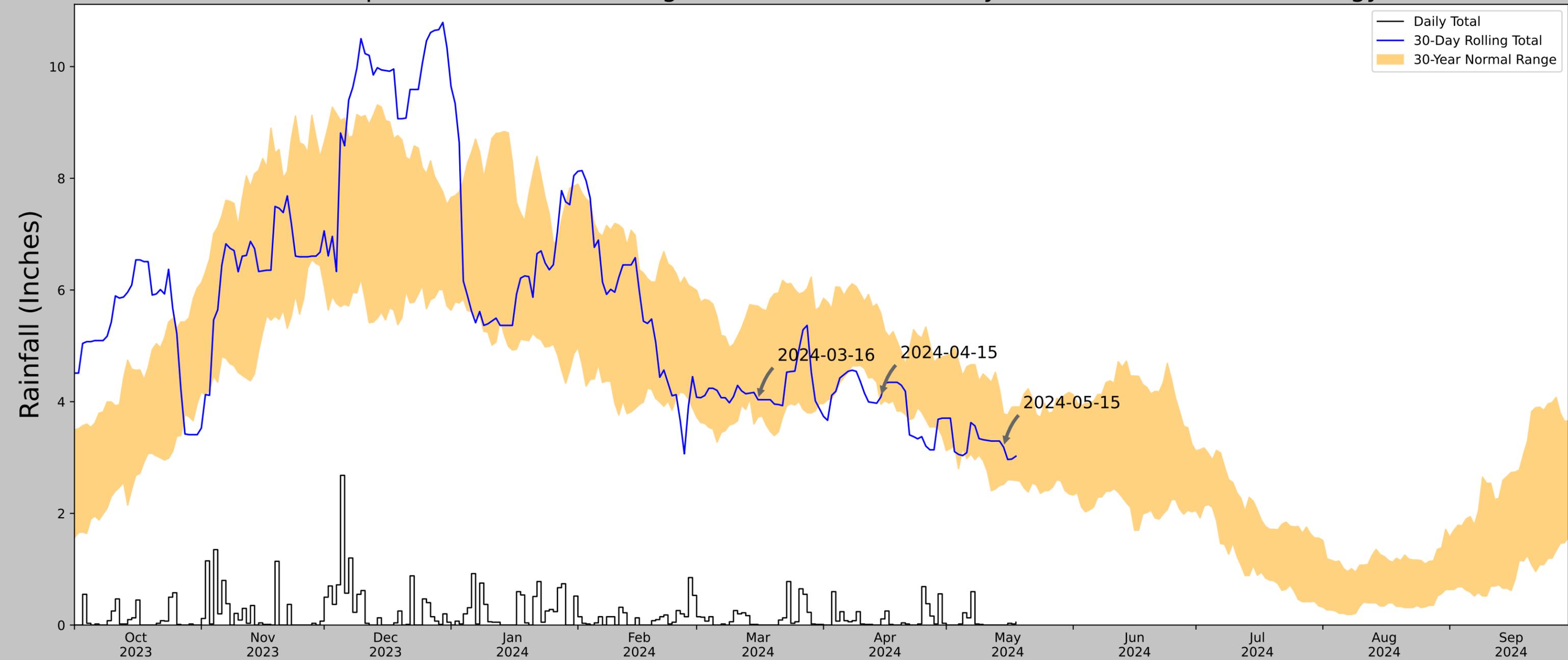
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APPENDIX D
Antecedent Precipitation vs. Normal Range

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	47.861299, -121.964381
Observation Date	2024-05-15
Elevation (ft)	73.518
Drought Index (PDSI)	Moderate drought (2024-04)
WebWIMP H ₂ O Balance	Wet Season

30 Days Ending	30 th %ile (in)	70 th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2024-05-15	2.518504	3.780709	3.185039	Normal	2	3	6
2024-04-15	3.953937	5.583071	4.082677	Normal	2	2	4
2024-03-16	3.72441	5.711811	4.035433	Normal	2	1	2
Result							Normal Conditions - 12

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
MONROE	47.8453, -121.9944	120.079	1.777	46.561	0.883	10966	88
MONROE 0.6 SE	47.8526, -121.9712	73.163	1.188	46.916	0.59	6	0
MONROE 1.8 NW	47.8785, -122.0066	128.937	2.363	8.858	1.084	4	2
DUVALL 0.8 WNW	47.7391, -121.9841	129.921	7.353	9.842	3.381	14	0
WOODINVILLE 0.9 ENE	47.7531, -122.0943	288.058	7.879	167.979	4.869	117	0
WOODINVILLE 1.7 SE	47.7295, -122.0836	217.848	9.009	97.769	4.935	7	0
SNOHOMISH 3.5 NNE	47.9641, -122.0572	255.906	8.708	135.827	5.101	1	0
STARTUP 1 E	47.8672, -121.7175	170.932	12.926	50.853	6.474	235	0
EVERETT	47.9753, -122.195	60.039	12.922	60.04	6.591	2	0



Figures and tables made by the
Antecedent Precipitation Tool
Version 2.0

Developed by:
U.S. Army Corps of Engineers and
U.S. Army Engineer Research and
Development Center



APPENDIX E
National Flood Hazard Layer FIRMette

National Flood Hazard Layer FIRMette



121°58'10"W 47°51'51"N



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) <i>Zone A, V, A99</i>
		With BFE or Depth <i>Zone AE, AO, AH, VE, AR</i>
		Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile <i>Zone X</i>
		Future Conditions 1% Annual Chance Flood Hazard <i>Zone X</i>
		Area with Reduced Flood Risk due to Levee. See Notes. <i>Zone X</i>
		Area with Flood Risk due to Levee <i>Zone D</i>

OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard <i>Zone X</i>
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard <i>Zone D</i>
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall

OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
MAP PANELS		Profile Baseline
		Hydrographic Feature

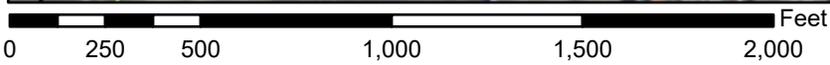
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped
		The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.



This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 5/20/2024 at 11:03 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



1:6,000 121°57'33"W 47°51'27"N

Basemap Imagery Source: USGS National Map 2023

APPENDIX F
Wetland Rating Summary

Wetland name or number: SRFR Option 1

RATING SUMMARY - Western Washington

Name of wetland (or ID#): SRFR Option 1 Date of site visit: 05/15/2024

Rated By: Lindsay Chutas Trained by Ecology? Yes No Date of Training: 11/10/2022

HGM Class used for rating: Riverine

Wetland has multiple HGM classes? Yes No

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

Source of base aerial photo/map: Bing

OVERALL WETLAND CATEGORY: [Category IV] (based on functions or special characteristics)

1. Category of wetland based on FUNCTIONS

- Category I - Total score = 23 - 27
- Category II - Total score = 20 - 22
- Category III - Total score = 16 - 19
- Category IV - Total score = 9 - 15

Score for each function based on three ratings

(order of ratings is not important)

9 = H,H,H

8 = H,H,M

7 = H,H,L

7 = H,M,M

6 = H,M,L

6 = M,M,M

5 = H,L,L

5 = M,M,L

4 = M,L,L

3 = L,L,L

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
Site Potential	L	L	L	
Landscape Potential	H	M	L	
Value	H	L	L	Total
Score Based on Ratings	7	4	3	14

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	
Wetland of High Conservation Value	
Bog	
Forested	
Coastal Lagoon	
Interdunal	
None of the above	Not Applicable

Wetland name or number: SRFR Option 1

Maps and figures required to answer questions correctly for Western Washington

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 (<i>can be added to another figure</i>)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (<i>can be added to another figure</i>)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1km Polygon: Area that extends 1km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Wetland name or number: SRFR Option 1

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

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

R 1.0 Does the site have the potential to improve water quality?

R 1.1 What is the total area of surface depressions within the Riverine wetland that can trap sediments during a flooding event?

Depressions cover >75% area of wetland	points = 8	
Depressions cover >50% area of wetland	points = 4	
Depressions present but cover <50% area of wetland	points = 2	
No depressions present	points = 0	Score: 0

R 1.2 What is the structure of plants in the wetland?

Trees or shrubs cover >66% area of the wetland	points = 8	
Trees or shrubs cover 33% - 66% of the area of the wetland	points = 6	
Ungrazed, herbaceous plants cover (>6in high) >66% area of the wetland	points = 6	
Ungrazed, herbaceous plants cover (>6in high) 33%-66% of the area of the wetland	points = 3	
Trees, shrubs, and ungrazed herbaceous plants cover <33% area of the wetland	points = 0	Score: 3

Total for R 1: **3**

Rating of Site Potential

12-16 = H 6-11 = M 0-5 = L

Record the rating on the first page

R 2.0 Does the landscape have the potential to support the water quality function of the site?

R 2.1 Is the wetland within an incorporated city or within its UGA?

Yes	points = 2	
No	points = 0	Score: 2

R 2.2 Does the contributing basin to the wetland include a UGA or incorporated area?

Yes	points = 1	
No	points = 0	Score: 1

R 2.3 Does at least 10% of the contributing basin contain tilled fields, pastures, or forests that have been clearcut within the last 5 years?

Yes	points = 1	
No	points = 0	Score: 1

R 2.4 Is >10% of the area within 150ft of the wetland in land uses that generate pollutants?

Yes	points = 1	
No	points = 0	Score: 1

R 2.5 Are there other sources of pollutants coming into the wetland that are not listed in question R 2.1-R 2.4?

Yes	points = 1	
No	points = 0	Score: 0

R 2.6 What are the other sources of pollutants coming into the wetland?

Total for R 2: **5**

Rating of Landscape Potential

3-4 = H 1-2 = M 0 = L

Record the rating on the first page

Wetland name or number: SRFR Option 1

R 3.0 Is the water quality improvement provided by the site valuable to society?		
R 3.1 <u>Is the wetland along a stream or river that is on the 303(d) list or on a tributary that drains to one within 1 mi?</u>		
Yes	points = 1	
No	points = 0	Score: 0
R 3.2 <u>Is the wetland along a stream or river that has TMDL limits for nutrients, toxics, or pathogens?</u>		
Yes	points = 1	
No	points = 0	Score: 1
R 3.3 <u>Has the site been identified in a watershed or local plan as important for maintaining water quality?</u>		
Yes	points = 2	
No	points = 0	Score: 2
Total for R 3:		3

Rating of Value

 2-4 = H 1 = M 0 = L

Record the rating on the first page

<u>RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS</u>		
Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation		
R 4.0 Does the site have the potential to reduce flooding and erosion?		
R 4.1 <u>What are the characteristics of the overbank storage the wetland provides?</u>		
If the ratio is more than 20	points = 9	
If the ratio is 10-20	points = 6	
If the ratio is 5-<10	points = 4	
If the ratio is 1-<5	points = 2	
If the ratio is < 1	points = 1	Score: 1
R 4.2 <u>What are the characteristics of plants that slow down water velocities during floods?</u>		
Forest or shrubs cover >33% of the wetland area OR emergent plants cover >66% of the wetland area	points = 7	
Forest or shrubs cover >10% of the wetland area OR emergent plants cover >33% of the wetland area	points = 4	
Plants do not meet the above criteria	points = 0	Score: 4
Total for R 4:		5

Rating of Site Potential

 12-16 = H 6-11 = M 0-5 = L

Record the rating on the first page

Wetland name or number: SRFR Option 1

R 5.0 Does the landscape have the potential to support the hydrologic functions of the site?		
R 5.1 <u>Is the stream or river adjacent to the wetland downcut?</u>		
Yes	points = 0	
No	points = 1	Score: 0
R 5.2 <u>Does the up-gradient watershed include a UGA or incorporated area?</u>		
Yes	points = 1	
No	points = 0	Score: 1
R 5.3 <u>Is the up-gradient stream or river controlled by dams?</u>		
Yes	points = 0	
No	points = 1	Score: 1
Total for R 5:		2

Rating of Landscape Potential 3 = H 1-2 = M 0 = L *Record the rating on the first page*

R 6.0 Are the hydrologic functions provided by the site valuable to society?		
R 6.1 <u>What is the distance to the nearest areas downstream that have flooding problems?</u>		
The sub-basin immediately down-gradient of the wetland has flooding problems	points = 2	
Surface flooding problems are in a sub-basin farther down-gradient	points = 1	
No flooding problems anywhere downstream	points = 0	Score: 0
R 6.2 <u>Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?</u>		
Yes	points = 2	
No	points = 0	Score: 0
Total for R 6:		0

Rating of Value 2-4 = H 1 = M 0 = L *Record the rating on the first page*

Wetland name or number: SRFR Option 1

HABITAT FUNCTIONS

These questions apply to wetlands of all HGM classes - Indicators that the site functions to provide important habitat

H 1.0 Does the wetland have the potential to provide habitat for many species?**H 1.1** What is the structure of the plant community?

- Aquatic Bed
- Emergent
- Scrub-shrub
- Forested
- Multiple strata within the Forested class (canopy, sub-canopy, shrubs, herbaceous, moss/ground cover)

4 structures or more	points = 4
3 structures	points = 2
2 structures	points = 1
1 structure	points = 0
No structures present	points = 0

Score: 0**H 1.2** What are the hydroperiods that meet the size thresholds in the wetland?

- Permanently flooded or inundated
- Seasonally flooded or inundated
- Occasionally flooded or inundated
- Saturated only
- Permanently flowing stream or river in, or adjacent to, the wetland
- Seasonally flowing stream in, or adjacent to, the wetland
- Lake Fringe wetland
- Freshwater Tidal wetland

4 or more types present	points = 3
3 types present or Lake Fringe / Freshwater Tidal Fringe	points = 2
2 types present	points = 1
1 type present	points = 0
None present	points = 0

Score: 1**H 1.3** What is the richness of the plant species in the wetland?

> 19 species	points = 2
5-19 species	points = 1
< 5 species	points = 0

Score: 0

Wetland name or number: SRFR Option 1

H 1.4 <u>What is the interspersion of habitats?</u>	
High	points = 3
Moderate	points = 2
Low	points = 1
None	points = 0
Score: 0	
H 1.5 <u>What are the special habitat features in the wetland?</u>	
<input type="checkbox"/> Large, downed, woody debris within the wetland (>4in diameter and 6ft long).	
<input type="checkbox"/> Standing snags (dbh >4in) within the wetland	
<input type="checkbox"/> Undercut banks are present for at least 6.6ft (2m) and/or overhanging plants extend at least 3.3ft (1m) over open water or a stream (or ditch) in, or contiguous with the wetland, for at least 33ft (10m)	
<input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet weathered where wood is exposed)	
<input type="checkbox"/> At least 0.25ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (structures for egg-laying by amphibians)	
<input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (see H 1.1 for list of strata)	
6 habitats selected	points = 6
5 habitats selected	points = 5
4 habitats selected	points = 4
3 habitats selected	points = 3
2 habitats selected	points = 2
1 habitat selected	points = 1
No habitats selected	points = 0
Score:	
Total for H 1: 1	

Rating of Site Potential

[] 15-18 = H [] 7-14 = M [X] 0-6 = L

Record the rating on the first page

H 2.0 Does the landscape have the potential to support habitat functions of the site?

H 2.1 <u>What is the percentage of accessible habitat within 1km of the wetland?</u>	
>33% of 1km Polygon	points = 3
20-33% of 1km Polygon	points = 2
10-19% of 1km Polygon	points = 1
<10% of 1km Polygon	points = 0
Score: 0	
H 2.2 <u>What is the percentage of total habitat in a 1km polygon around the wetland?</u>	
Total habitat is >50% of the Polygon	points = 3
Total habitat is 10-50% of the Polygon and in 1-3 patches	points = 2
Total habitat is 10-50% of the Polygon and in >3 patches	points = 1
Total habitat is <10% of the Polygon	points = 0
Score: 1	

Wetland name or number: SRFR Option 1

H 2.3 What is the land use intensity in the 1km polygon?		
50% of the Polygon is high intensity land use	points = -2	
<50% of the Polygon is high intensity land use	points = 0	Score: -2
Total for H 2:		-1

Rating of Landscape Potential

[] 4-6 = H [] 1-3 = M [X] 0 = 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?		
<input type="checkbox"/> Aspen Stands		
<input type="checkbox"/> Biodiversity Areas and Corridors		
<input type="checkbox"/> Herbaceous Balds		
<input type="checkbox"/> Old-growth/Mature Forests		
<input type="checkbox"/> Oregon White Oak		
<input type="checkbox"/> Riparian		
<input type="checkbox"/> Westside Prarie		
<input type="checkbox"/> Fresh Deepwater		
<input type="checkbox"/> Instream		
<input type="checkbox"/> Nearshore (Coastal, Open Coast, Puget Sound)		
<input type="checkbox"/> Caves		
<input type="checkbox"/> Cliffs		
<input type="checkbox"/> Snags and Logs		
<input type="checkbox"/> Talus		
The following criteria automatically score 2 points:		
<input type="checkbox"/> The wetland provides habitat for Threatened or Endangered species		
<input type="checkbox"/> The wetland is mapped as a location for an individual WDFW priority species		
<input type="checkbox"/> The wetland is a Wetland of High Conservation Value		
<input type="checkbox"/> The wetland has been categorized as an important habitat site in a local plan		
The wetland has 3 or more WDFW priority habitats within 100m, or meets the criteria for societal value	points = 2	
The site has 1 or 2 WDFW priority habitats within 100m	points = 1	
The site does not meet any of the criteria for societal value	points = 0	Score: 0
Total for H 3:		0

Rating of Value

[] 2 = H [] 1 = M [X] 0 = L

Record the rating on the first page

Wetland name or number: SRFR Option 1

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

SC 1.0 Estuarine Wetlands

SC 1.1 Does the wetland meet all of the following criteria for Estuarine wetlands?

- The dominant water regime is tidal
- The wetland is vegetated
- The water salinity is greater than 0.5 ppt

Yes - Go to SC 1.2

No - Not an Estuarine Wetland

Result:

SC 1.2 Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?

Yes - Category I Estuarine Wetland

No - Go to SC 1.3

Result:

SC 1.3 Is the wetland unit at least 1ac in size and meets at least two of the following three conditions?

- The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 10% cover of non-native plant species.
- At least 75% of the landward edge of the wetland has a 100ft buffer of shrub, forest, or un-grazed or un-mowed grassland
- The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.

Yes - Category I Estuarine Wetland

No - Category II Estuarine Wetland

Result:

SC 2.0 Wetlands of High Conservation Value

SC 2.1 Does the wetland overlap with any known or historical rare plant or rare & high-quality ecosystem polygons on the WNHP Data Explorer?

Yes - Category I Wetland of High Conservation Value

No - Go to SC 2.2

Result:

SC 2.2 Does the wetland have a rare plant species, rare plant community, or high-quality common plant community that may qualify the site as a WHCV?

Yes - Category I Wetland of High Conservation Value

No - Not a Wetland of High Conservation Value

Result:

Wetland name or number: SRFR Option 1

SC 3.0 Bogs

SC 3.1 Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16in or more of the first 32in of the soil profile?

Yes - Go to SC 3.3

No - Go to SC 3.2

Result:

SC 3.2 Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond?

Yes - Go to SC 3.3

No - Not a Bog Wetland

Result:

SC 3.3 Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least 30% cover of plant species listed in the table provided in the instructions?

Yes - Category I Bog Wetland

No - Go to SC 3.4

Result:

SC 3.4 Is an area with peats or mucks forested (>30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann Spruce, or western white pine AND any of the species (or combinations of species) listed in the table found in the instructions provide more than 30% of the cover under the canopy?

Yes - Category I Bog Wetland

No - Not a Bog Wetland

Result:

SC 4.0 Forested Wetlands

SC 4.1 Does the wetland have at least 1 contiguous acre of forest that meets one of the following criteria?

Old-growth forests

Mature forests

Yes - Category I Forested Wetland

No - Not a Forested Wetland

Result:

Wetland name or number: SRFR Option 1

SC 5.0 Wetlands in Coastal Lagoons

SC 5.1 Coastal Lagoons: Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

- The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or rocks
- The depression in which the wetland is located contains ponded water that is saline or brackish (>0.5 ppt) during most of the year in at least a portion of the open water area (measured near the bottom)
- The lagoon retains some of its surface water at low tide during spring tides

Yes - Go to SC 5.2

No - Not a Coastal Lagoon Wetland

Result:

SC 5.2 Does the wetland meet all of the following three conditions?

- The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species).
- At least 75% of the landward edge of the wetland has a 100ft buffer of shrub, forest, or un-grazed or un-mowed grassland.
- the wetland is larger than 0.10ac (4350 sqft)

Yes - Category I Coastal Lagoon

No - Category II Coastal Lagoon

Result:

SC 6.0 Interdunal Wetlands

SC 6.1 Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership WBUO)?

Yes - Go to SC 6.2

No - Not an Interdunal Wetland

Result:

SC 6.2 Is the wetland 1ac or larger in size, or a mosaic that is 1ac or larger in size?

Wetland is larger than 1ac in size - Go to SC 6.3

Wetland is a mosaic larger than 1ac is size - Category II Interdunal Wetland

No - Go to SC 6.4

Result:

SC 6.3 Does the wetland score 8 or 9 points for the habitat functions?

Yes - Category I Interdunal Wetland

No - Category II Interdunal Wetland

Result:

SC 6.4 Is the wetland unit between 0.1ac and 1ac, or in a mosaic of wetlands that is between 0.1ac and 1ac in size?

Yes - Category III Interdunal Wetland

No - Category IV Interdunal Wetland

Result:

Wetland name or number: SRFR Option 1

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

**Final Category: Not
Applicable**

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LEGEND

COWARDIN CLASS NAME

- EMERGENT
- OPEN WATER



NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.



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**WETLAND RATING
 COWARDIN CLASSES**

FEBRUARY 2025

FIGURE 6

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LEGEND

- HYDROPERIOD CLASS NAME**
- PERMENANT STREAM
 - SATURATED ONLY



NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.



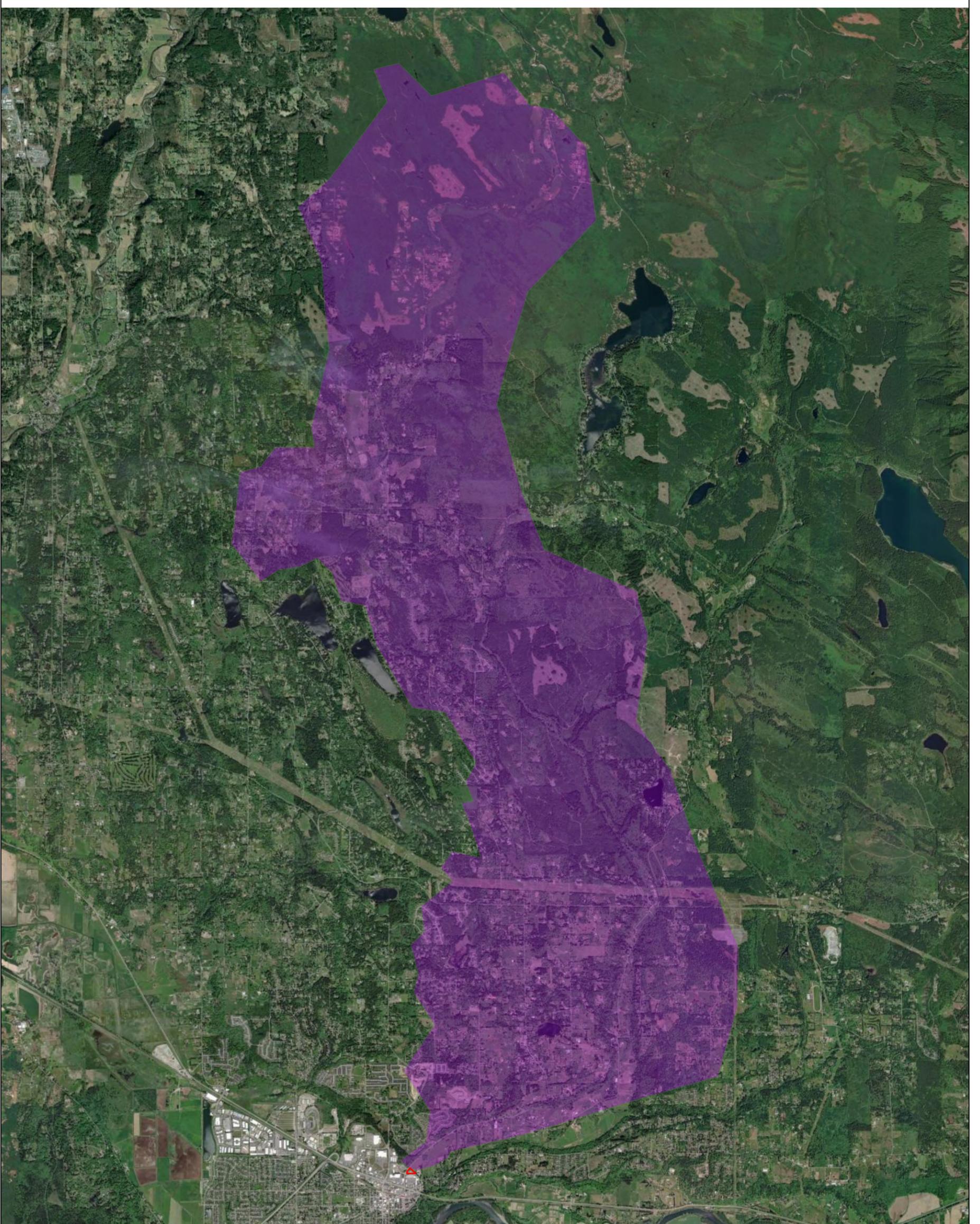
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**WETLAND RATING
HYDROPERIODS**

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FIGURE 7

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LEGEND

-  STUDY AREA
-  CONTRIBUTING BASIN



200
SCALE IN FEET

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.



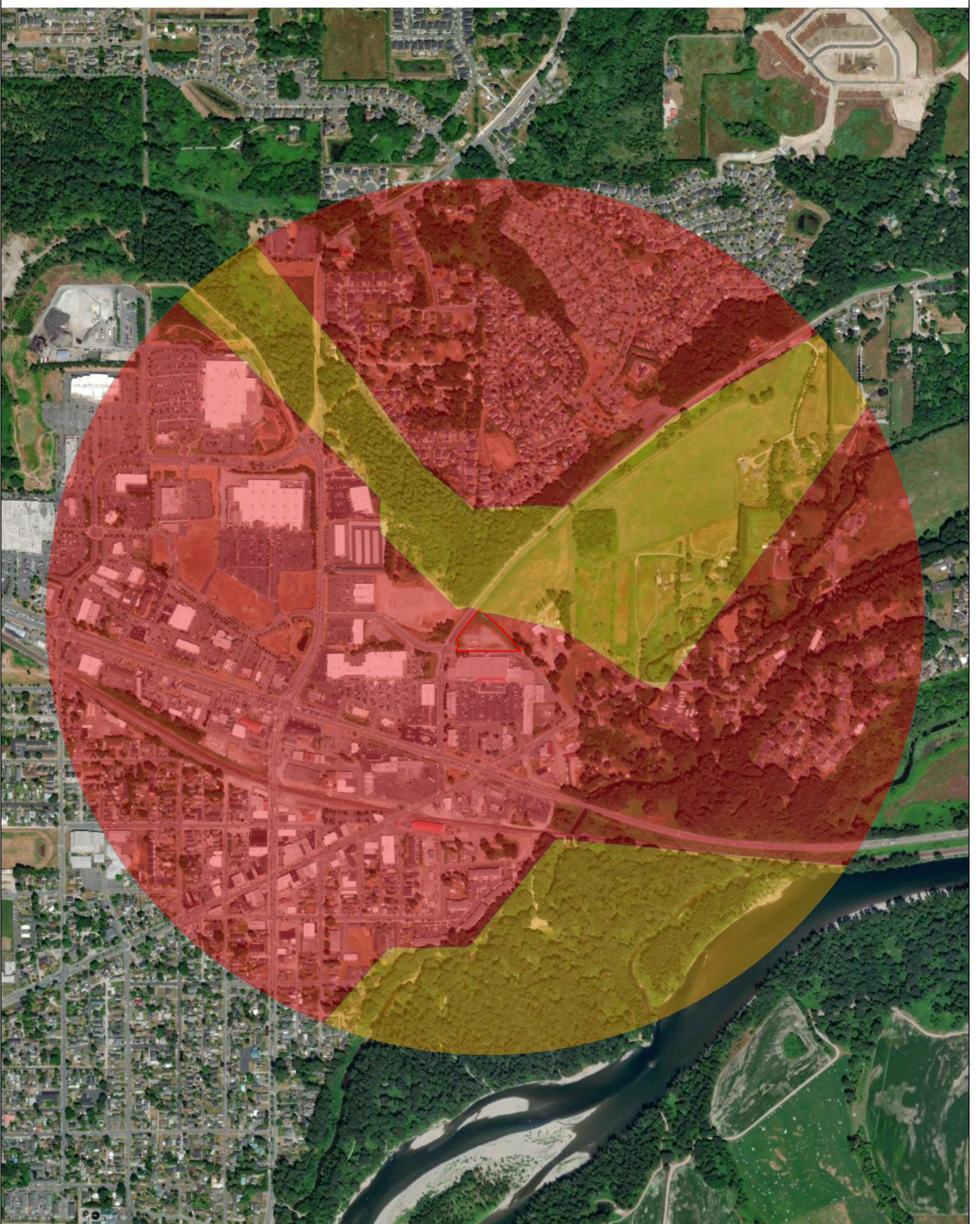
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**WETLAND RATING
CONTRIBUTING BASIN**

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FIGURE 8

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LEGEND

HABITAT CLASS INTENSITY

- HIGH INTENSITY
- LOW/MODERATE INTENSITY-NOT ACCESSIBLE
- WETLAND
- STUDY AREA



010000
SCALE IN FEET

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.



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**WETLAND RATING
HABITAT ACCESSIBILITY**

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FIGURE 9

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LEGEND

- DELINEATED WETLAND**
- BUFFER DISTANCE**
- 100 FT**
- 150 FT**
- 1 KM**
- 250 FT**



0 100200
SCALE IN FEET

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.



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**WETLAND RATING
BUFFER AREAS**

FEBRUARY 2025

FIGURE 10