



CONFLUENCE

ENVIRONMENTAL COMPANY

2000 24th Avenue NW REVISED CRITICAL AREAS STUDY

Prepared for:

RJ Development
August 2023



2000 24th Avenue NW REVISED CRITICAL AREAS STUDY

Prepared for:

RJ Development
401 Central Street SE
Olympia, WA 98501
Attn: Tyler Burbridge

Authored by:

Confluence Environmental Company
Kerrie McArthur, PWS
Natalie Dietsch, WPIT

August 2023

This report should be cited as:

Confluence (Confluence Environmental Company). 2023. 2000 24th Avenue NW revised critical areas study. Prepared for RJ Development, Olympia, Washington, by Confluence, Seattle, Washington.

TABLE OF CONTENTS

| | | |
|------------|--|-----------|
| 1.0 | INTRODUCTION | 1 |
| 2.0 | METHODS | 3 |
| 2.1 | Desktop Analysis | 3 |
| 2.2 | Site Investigation | 3 |
| 2.2.1 | Wetlands | 3 |
| 2.2.2 | Streams/Shorelines | 5 |
| 3.0 | RESULTS | 6 |
| 3.1 | Desktop Analysis | 6 |
| 3.2 | Test Plots | 6 |
| 3.3 | Wetlands | 11 |
| 3.3.1 | Wetland A | 11 |
| 3.3.2 | Wetland B | 12 |
| 3.3.3 | Wetland C | 12 |
| 3.3.4 | Off-Site Wetland | 12 |
| 3.4 | Fish and Wildlife Habitat Conservation Areas | 13 |
| 4.0 | REGULATORY IMPLICATIONS | 14 |
| 5.0 | BUFFER IMPACT AVOIDANCE | 15 |
| 6.0 | REFERENCES | 17 |

TABLES

| | |
|--------------------------------|----|
| Table 1. Wetland summary | 11 |
|--------------------------------|----|

FIGURES

| | |
|---|----|
| Figure 1. Subject property | 2 |
| Figure 2. Location of test plots, soil probes, and wetlands | 7 |
| Figure 3. Wetlands and proposed buffer reconfiguration | 16 |

APPENDICES

| | |
|---|---|
| Appendix A GIS Database Search Results | 1 |
| Appendix B Wetland Delineation Methods | 2 |
| Appendix C Wetland Delineation Data Forms | 3 |
| Appendix D Wetland Rating Forms | 4 |
| Appendix E Site Photographs | 5 |

1.0 INTRODUCTION

The project proposes to subdivide the property for residential development on tax parcel 09750029001 at 2000 24th Avenue NW, Olympia, Washington (Figure 1). Confluence Environmental Company (Confluence) prepared this report to assist with permitting the project. On October 25, 2022, May 30, 2023, and July 19, 2023, Confluence conducted a site investigation to determine the presence and extent of critical areas on and adjacent to the property. The effort focused on wetlands and fish and wildlife habitat conservation areas (FWHCAs). Critical areas such as erosion hazard areas, steep slopes, and landslide hazard areas were not evaluated in this study. This report discusses the results of the study.

The property is currently developed with a single-family residence, several outbuildings, and pasturelands. The western half of the property is relatively undisturbed in a forested condition. The property is 11 acres and zoned as residential 4-8, meaning 8 units per acre (Thurston County 2022).



Figure 1. Subject property

2.0 METHODS

Confluence conducted a critical areas study on the property. This section describes the methods used to confirm the presence or absence of critical areas.

2.1 Desktop Analysis

To develop a strategy for the site investigation, Confluence reviewed relevant regulations and GIS databases.

Confluence reviewed Thurston County Code (TCC) to determine the standard buffer requirements for critical areas in the project vicinity.

Confluence reviewed the GIS databases listed below for the documented presence of wetlands, streams, lakes, or species listed under the Endangered Species Act as threatened or endangered on or within 300 feet of the subject property. It was necessary to search within 300 feet to determine whether buffers for off-site critical areas encroach onto the site (300 feet is the largest buffer identified in TCC).

- Thurston County GIS (Thurston County 2022)
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) (USFWS 2022)
- Natural Resources Conservation Service (NRCS) Soil Survey (NRCS 2022a)
- Washington Department of Fish and Wildlife (WDFW) SalmonScape (WDFW 2022a)
- WDFW Priority Habitats and Species (PHS) (WDFW 2022b)
- Washington Department of Natural Resources (WDNR) Water Type GIS (WDNR 2022a)
- WDNR wetlands of high conservation value mapper (WDNR 2022b)

Results of the GIS database searches are in Appendix A.

2.2 Site Investigation

On October 25, 2022, May 30, 2023, and July 19, 2023, Confluence conducted a site investigation to determine the presence or absence of critical areas on or near the property.

2.2.1 *Wetlands*

Wetland Identification and Delineation

Confluence identified wetlands and delineated their boundaries using the methods described by the U.S. Army Corps of Engineers (Corps) in the Corps of Engineers Wetlands Delineation Manual (Corps 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Corps 2010). The Corps typically requires that the following 3 characteristics be present for an area to be identified as a

wetland: (1) hydrophytic vegetation, (2) hydric soil, and (3) wetland hydrology. For each criterion, there are several possible indicators that can be used to determine whether the criterion has been met. The indicators were established so that if a wetland were present on-site, sufficient indicators would be observed at any time of the year, including the driest months, to identify the wetland. Since “normal circumstances,” as defined by the Corps (1987), exist on the site, all 3 criteria must be present for an area to be determined a wetland. A more detailed description of delineation methodology is provided in Appendix B. Wetland delineation data forms completed during the site investigation are provided in Appendix C.

To confirm the presence or absence of a wetland, data were collected from representative test plots within and outside of potential wetlands. The locations of the test plots were based on the presence of visual wetland indicators (e.g., wetland vegetation, evidence of standing water) or were chosen to represent vegetative, topographic, or hydrologic features in the vicinity. Within these test plots, vegetation, soils, and hydrology were examined to determine whether wetland characteristics were present (see Appendix B for details). Plots that met all 3 wetland criteria were determined to be wetland plots; plots that did not meet all 3 wetland criteria were determined to be upland plots.

Once the presence of a wetland was confirmed, visual wetland indicators, such as topographic and vegetative shifts, were used to delineate the remainder of the wetland boundary. In areas with a lack of visual wetland indicators (i.e., areas with monoculture vegetation and no clear topographic break), Confluence used soil probes to determine the wetland boundary between test plots. Confluence evaluated the presence or absence of hydric soil and wetland hydrology indicators at soil probe locations to determine whether the area represented by the soil probe was wetland or upland. Soil probe locations and presence or absence of hydric soil and wetland hydrology indicators were recorded using GPS.

Confluence used the PLANTS Database (NRCS 2022b) to provide consistency in scientific naming and the 2020 National Wetland Plant List (Corps 2020) to determine the wetland indicator status of plants.

The wetland boundary and test plot locations were flagged using pink ribbon flagging. The flags were mapped using a Trimble mapping grade GPS receiver capable of sub-meter accuracy after post-processing.

Off-Site Wetland Identification

To assess whether there are possible wetlands with buffers encroaching from adjacent properties, Confluence modified the methods described by the Corps (Corps 1987, 2010). The modified method identified the presence or absence of visual wetland indicators. If hydrophytic vegetation was dominant and visual indicators of wetland hydrology were observed, then hydric soils were assumed to be present.

Wetland Rating

Confluence determined wetland ratings using the Washington State Wetland Rating System for Western Washington (Hruby 2014) to assess the resource value of any wetland identified on the site. This rating system is based on the wetland functions and values, sensitivity to disturbance, rarity, and irreplaceability.

Wetland rating forms are in Appendix D.

2.2.2 *Streams/Shorelines*

No streams or shorelines were identified on the subject property, so no ordinary high water mark delineation was needed.

3.0 RESULTS

3.1 Desktop Analysis

USFWS's NWI (2022) does not map any wetlands on the subject property. Thurston County GIS (Thurston County 2022) identifies 1 wetland within the western portion of the property. No wetlands of high conservation value are mapped on or within the vicinity of the subject property (WDNR 2022b). No streams are mapped on or within the vicinity of the property (WDFW 2022a,b, WDNR 2022a, Thurston County 2022). The nearest mapped stream is located approximately 850 feet northeast of the subject property (WDNR 2022a, WDFW 2022a). The unnamed stream, unknown in type, discharges to Budd Inlet within Puget Sound. WDFW's PHS system identifies the potential presence of Yuma myotis (*Myotis yumanensis*), little brown bat (*Myotis lucifugus*), and big brown bat (*Eptesicus fuscus*) in the vicinity of the property. None of these species has status under the Endangered Species Act.

Soils mapped on the subject property are Alderwood gravelly sandy loam (8-15% slopes) and Alderwood gravelly sandy loam (15-30% slopes). Neither of these soils is identified as hydric (NRCS 2022a).

3.2 Test Plots

During the site investigation, 10 test plots were established, in both uplands and wetlands. A soil probe was also collected to rapidly determine whether an area was wetland or upland. Test plot and soil probe locations are shown on Figure 2. Test plot characteristics are detailed below. Technical terms are explained in Appendix B. Photographs of the site are in Appendix E.

Test Plot 1 (TP-1) was located in the western half of the property in an area dominated by red alder (*Alnus rubra*), western red-cedar (*Thuja plicata*), salmonberry (*Rubus spectabilis*), Himalayan blackberry (*Rubus armeniacus*), Douglas spirea (*Spiraea douglasii*), slough sedge (*Carex obnupta*), skunk-cabbage (*Lysichiton americanus*), and lady fern (*Athyrium filix-femina*). Vegetation within TP-1 passed the Dominance Test and therefore met the wetland vegetation criterion. Soil in the top layer (0-5 inches) was a black (10YR 2/1) silty clay loam. Soil in the second layer (5-9 inches) was a black (10YR 2/1) silty clay loam with 7% dark gray (10YR 4/1) depletions in the matrix and 3% dark yellowish brown (10YR 4/6) redoximorphic concentrations in the matrix. The soils met the Redox Dark Surface (F6) and Depleted Below Dark Surface (A11) hydric soil indicators; therefore, the hydric soil criterion was met. One primary wetland hydrology indicator—Oxidized Rhizospheres along Living Roots (C3)—and 1 secondary indicators—FAC-Neutral Test (D5)—were observed. The presence of at least 1 primary or 2 secondary indicators meets the wetland hydrology criterion. Since TP-1 met all 3 criteria, the area represented by TP-1 is a wetland, identified as Wetland A.

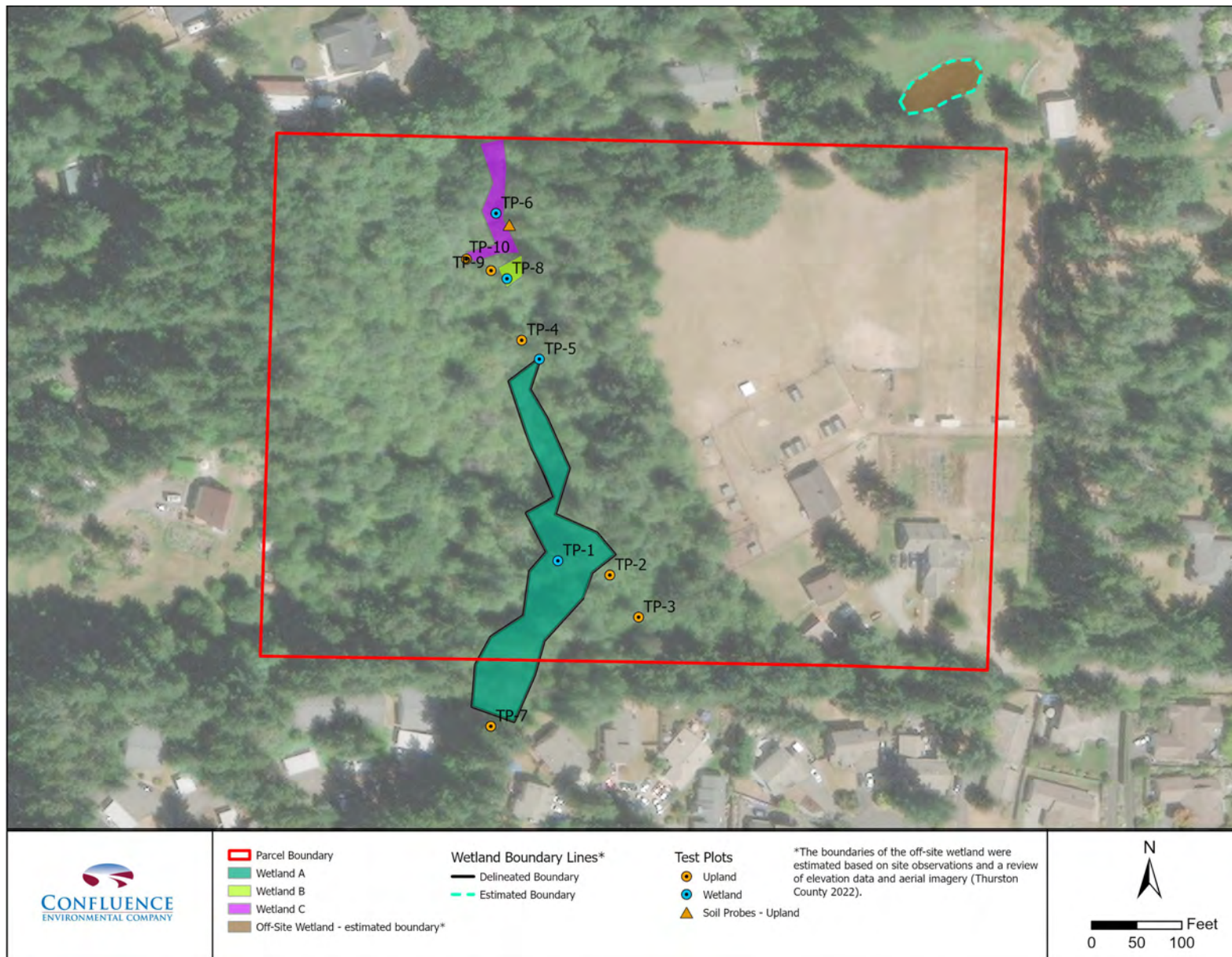


Figure 2. Location of test plots, soil probes, and wetlands

TP-2 was located in the western half of the property immediately east of TP-1. Vegetation was dominated by red alder, salmonberry, evergreen huckleberry (*Vaccinium ovatum*), sword fern (*Polystichum munitum*), field horsetail (*Equisetum arvense*), trailing blackberry (*Rubus ursinus*), and English ivy (*Hedera helix*). Vegetation within TP-2 passed the Dominance Test and therefore met the wetland vegetation criterion. Soil in the top layer (0-9 inches) was a very dark brown (10YR 2/2) silt loam. Soil in the second layer (9-14+ inches) was a gray (2.5Y 5/1) silt loam with 5% dark yellowish brown (10YR 4/6) redoximorphic concentrations in the matrix. The soils met the Redox Dark Surface (F6) and Depleted Below Dark Surface (A11) hydric soil indicators; therefore, the hydric soil criterion was met. No primary or secondary wetland hydrology indicators were observed; thus, the wetland hydrology criterion was not met. Since TP-2 did not meet all 3 criteria, the area represented by TP-2 is not a wetland. TP-2 represents the transition area adjacent to Wetland A.

TP-3 was located in the western half of the property south of TP-2 in an area dominated by western red-cedar, red alder, evergreen huckleberry, salmonberry, slough sedge, sword fern, and trailing blackberry. Vegetation within TP-3 passed the Dominance Test and therefore met the wetland vegetation criterion. Soil in the top layer (0-10 inches) was a very dark brown (10YR 2/2) silt loam. Soil in the second layer (10-12+ inches) was a dark yellowish brown (10YR 4/4) silt loam. The soils did not meet any hydric soil indicator; therefore, the hydric soil criterion was not met. No primary or secondary wetland hydrology indicators were observed; thus, the wetland hydrology criterion was not met. Since TP-3 did not meet all 3 criteria, the area represented by TP-3 is not a wetland.

TP-4 was located in the western half of the property north of TP-3. Vegetation was dominated by red alder, salmonberry, salal (*Gaultheria shallon*), and slough sedge. Vegetation within TP-4 passed the Dominance Test and therefore met the wetland vegetation criterion. Soil in the top layer (0-9 inches) was a very dark brown (10YR 2/2) silt loam. Soil in the second layer (9-12+ inches) was a dual matrix: a very dark grayish brown (10YR 3/2) and a brown (10YR 4/3) silt loam. The soils did not meet any hydric soil indicator; therefore, the hydric soil criterion was not met. No primary or secondary wetland hydrology indicators were observed; thus, the wetland hydrology criterion was not met. Since TP-4 did not meet all 3 criteria, the area represented by TP-4 is not a wetland.

TP-5 was located southwest of TP-4 in an area dominated by red alder, Douglas spirea, and soft rush (*Juncus effusus*). Vegetation within TP-5 passed the Dominance Test and therefore met the wetland vegetation criterion. Soil in the top layer (0-4 inches) was a very dark grayish brown (10YR 3/2) silt loam. Soil in the second layer (4-9 inches) was a dual matrix with 80% very dark grayish brown (10YR 3/2) silt loam and 20% dark grayish brown (2.5Y 4/2) silt loam. Soil in the third layer (9-13+ inches) was a gray (10YR 6/1) silt loam with 50% yellowish brown (10YR 5/8) redoximorphic concentrations in the matrix. The soils met the Depleted Below Dark Surface (A11) hydric soil indicator; therefore, the hydric soil criterion was met. One primary wetland

hydrology indicator—Water-Stained Leaves (B9)—and 1 secondary indicators—FAC-Neutral Test (D5)—were observed. The presence of at least 1 primary or 2 secondary indicators meets the wetland hydrology criterion. Since TP-5 met all 3 criteria, the area represented by TP-5 is a wetland, identified as Wetland A.

TP-6 was located north of TP-4. Vegetation was dominated by red alder, western red-cedar, salmonberry, and slough sedge. Vegetation within TP-6 passed the Dominance Test and therefore met the wetland vegetation criterion. Soil in the top layer (0-7 inches) was a very dark gray (10YR 3/1) silt loam. Soil in the second layer (7-11 inches) was a dark grayish brown (10YR 4/2) silt loam with less than 1% yellowish brown (10YR 5/6) redoximorphic concentrations in the matrix. Soil in the third layer was a brown (10YR 5/3) silt loam with 10% yellowish brown (10YR 5/6) redoximorphic concentrations in the matrix. The soils did not meet any hydric soil indicator; therefore, the hydric soil criterion was not met. During an April 2023 site visit by Thurston County, inundation was observed in this area (H. Tschaekofske, email dated July 6, 2023). During the October 2022 site visit no wetland hydrology indicators were observed in this area. However, during the May 2023 site visit by Confluence, 1 primary wetland hydrology indicator—Water-Stained Leaves (B9)—and 1 secondary indicator—FAC-Neutral Test (D5)—were observed. The presence of at least 1 primary or 2 secondary indicators meets the wetland hydrology criterion. The wetland hydrology indicators observed in April and May 2023 indicate that water is present during some portion of the growing season. However, it is unclear if that water is present for a sufficient amount of time for hydric soil to develop. During Thurston County's April 2023 site visit, they also dug 3 test pits in the vicinity of TP-6 (H. Tschaekofske, email dated July 6, 2023). One pit north of TP-6 and 1 pit south of TP-6 met the Depleted Matrix (F6) or Depleted Below Dark Surface (A11) hydric soil indicator, while the third test pit near TP-6 did not meet any hydric soil indicator. While TP-6 did not meet all 3 criteria, the additional soil and hydrology information collected by Thurston County suggests this area might be a wetland. The only way to confirm the presence of hydric soils would be to conduct an alpha-alpha dipyrindyl test in the spring. Therefore, without having conducted the alpha-alpha dipyrindyl test, we will conservatively assume the area represented by TP-6 is wetland, identified as Wetland C until an alpha-alpha dipyrindyl test confirms otherwise.

TP-7 was located south of the property in a tract for the Broomwood Subdivision in an area dominated by big-leaf maple (*Acer macrophyllum*), willow (*Salix* sp.), and Himalayan blackberry. Vegetation within TP-7 passed the Dominance Test and therefore met the wetland vegetation criterion. Soil in the top layer (0-4 inches) was a very dark gray (10YR 3/1) silt loam. Soil in the second layer (4-11 inches) was a very dark gray (10YR 3/1) silt loam with 1% brown (7.5YR 4/4) redoximorphic concentrations in the matrix. Soil in the third layer was dark brown (10YR 35/3) silt loam with 20% dark yellowish brown (10YR 4/6) redoximorphic concentrations in the matrix. The soils did not meet any hydric soil indicator; therefore, the hydric soil criterion was not met. No primary or secondary wetland hydrology indicators were observed; thus, the

wetland hydrology criterion was not met. Since TP-7 did not meet all 3 criteria, the area represented by TP-7 is not a wetland.

TP-8 was located south of TP-6 and north of TP-4 in an area dominated by red alder, Douglas spirea, lady fern, and slough sedge. Vegetation within TP-8 passed the Dominance Test and therefore met the wetland vegetation criterion. Soil in the top layer (0-5 inches) was a very dark grayish brown (10YR 3/2) silt loam. Soil in the second layer (5-16 inches) was a brown (10YR 4/3) silt loam with 5% yellowish brown (10YR 5/6) redoximorphic concentrations in the matrix. The soils did not meet any hydric soil indicator; therefore, the hydric soil criterion was not met. During an April 2023 site visit by Thurston County, inundation was observed in this area (H. Tschaekofske, email dated July 6, 2023). During the October 2022 site visit, no wetland hydrology indicators were observed in this area. However, during the May 2023 site visit by Confluence, 1 primary wetland hydrology indicator—Water-Stained Leaves (B9)—and 1 secondary indicator—FAC-Neutral Test (D5)—were observed. The presence of at least 1 primary or 2 secondary indicators meets the wetland hydrology criterion. The wetland hydrology indicators observed in April and May 2023 indicate that water is present during some portions of the growing season. However, it is unclear if that water is present for a sufficient amount of time for hydric soil to develop. While TP-8 did not meet all 3 criteria, the additional hydrology information collected by Thurston County suggests this area might be a wetland. The only way to confirm the presence of hydric soils would be to conduct an alpha-alpha dipyrindyl test in the spring. Therefore, without having conducted the alpha-alpha dipyrindyl test, we will conservatively assume the area represented by TP-8 is wetland, identified as Wetland BC until an alpha-alpha dipyrindyl test confirms otherwise.

TP-9 is located north of TP-8 in an area dominated by red alder, western red-cedar, salal, lady fern, and sword fern. Vegetation within TP-9 passed the Dominance Test and therefore met the wetland vegetation criterion. Soil in the top layer (0-11 inches) was a very dark grayish brown (10YR 3/2) loam. Soil in the second layer (11-14 inches) was a dark grayish brown (10YR 4/2) silt loam. Soil in the third layer (14-16+ inches) was a dark grayish brown (10YR 4/2) silt loam with 5% yellowish brown (10YR 5/6) redoximorphic concentrations in the matrix. The soils did not meet any hydric soil indicator; therefore, the hydric soil criterion was not met. No primary or secondary wetland hydrology indicators were observed; thus, the wetland hydrology criterion was not met. Since TP-9 did not meet all 3 criteria, the area represented by TP-9 is not a wetland.

TP-10 is located northwest of TP-9 in an area dominated by red alder, beaked hazelnut (*Corylus cornuta*), and deer fern (*Blechnum spicant*). Vegetation within TP-10 passed the Dominance Test and therefore met the wetland vegetation criterion. Soil in the top layer (0-11 inches) was a very dark grayish brown (10YR 3/2) loam. Soil in the second layer (11-15 inches) was a dark grayish brown (10YR 4/2) silt loam. The soils did not meet any hydric soil indicator; therefore, the hydric soil criterion was not met. No primary or secondary wetland hydrology indicators were

observed; thus, the wetland hydrology criterion was not met. Since TP-10 did not meet all 3 criteria, the area represented by TP-10 is not a wetland.

3.3 Wetlands

TP-1 and TP-5 represented an area on the subject property that met all 3 wetland criteria, identified as Wetland A. TP-6 and TP-8 represented areas that are conservatively assumed at this time to be wetlands based on additional soil and hydrology information collected by Thurston County, as discussed in Section 3.2. These areas are therefore identified as Wetlands B and C. One additional off-site wetland within 300 feet of the subject property was identified from the property line. These wetlands are described in detail below, summarized in Table 1, and shown on Figure 2.

Table 1. Wetland summary

| Wetland Name | Cowardin Classification ¹ | Size (square feet) ² | Wetland Rating | | | | |
|--|---|------------------------------------|------------------|-----------|---------|-------|-----------------|
| | | | Water Quality | Hydrology | Habitat | Total | Category |
| Wetland A | Palustrine forested | 15,292 | 8 | 5 | 4 | 17 | III |
| Wetland B | Palustrine forested | 579 | 8 | 4 | 3 | 15 | IV |
| Wetland C | Palustrine forested | 3,116 | 7 | 4 | 3 | 14 | IV |
| Off-Site Wetland | Palustrine emergent, palustrine unconsolidated bottom | 3,191 | 7 | 4 | 3 | 14 | IV ³ |
| ¹ FGDC 2013 ² The sizes of both Wetland A and the off-site wetland are approximate. ³ The rating of the off-site wetland was estimated. | | | | | | | |

3.3.1 Wetland A

Wetland A is located in the western half of the property and extends off-site to the south. The wetland is approximately 15,292 square feet. The off-site boundary of Wetland A was approximated using site observations, elevation data, and aerial imagery (Thurston County 2022). TP-1 and TP-5, described above in Section 3.2, represent Wetland A. Hydrologic inputs to Wetland A are dominated by groundwater and precipitation.

According to the Cowardin classification system (FGDC 2013), Wetland A is a forested wetland. Dominant vegetation in Wetland A includes western red-cedar, red alder, salmonberry, slough sedge, and lady fern. The boundary of Wetland A was determined by a distinct topographic break, evidence of standing water, and the vegetative shift to non-hydrophytic vegetation (e.g, sword fern, evergreen huckleberry, salal). According to the 2014 Wetland Rating System (Hruby 2014), Wetland A was rated as a Category III wetland, with a water quality score of 8, hydrology score of 5, and habitat score of 4.

3.3.2 Wetland B

Wetland B is located north of Wetland A. The wetland is approximately 579 square feet. TP-8, described above in Section 3.2, represents Wetland B. Hydrologic inputs to Wetland B are dominated by groundwater and precipitation. As described in Section 3.2, there is some uncertainty that Wetland B meets the hydric soil criterion. For the purposes of this report, we are conservatively assuming that the soil is hydric. During the spring of 2024, an alpha-alpha dipyrindyl test may be conducted to determine if Wetland B does have hydric soils. If this test is conducted and it is determined that the soil in Wetland B is not hydric, then an addendum to this report will be prepared.

According to the Cowardin classification system (FGDC 2013), Wetland B is a forested wetland. Dominant vegetation in Wetland B includes red alder, Douglas spirea, lady fern, and slough sedge. The boundary of Wetland B was determined by a distinct topographic break, evidence of standing water, and the vegetative shift to non-hydrophytic vegetation (e.g. sword fern, evergreen huckleberry, salal). According to the 2014 Wetland Rating System (Hruby 2014), Wetland B was rated as a Category IV wetland, with a water quality score of 8, hydrology score of 4, and habitat score of 3.

3.3.3 Wetland C

Wetland C is located north of Wetland B. The wetland is approximately 3,116 square feet. TP-6, described above in Section 3.2, represents Wetland C. Hydrologic inputs to Wetland C are dominated by groundwater and precipitation. As described in Section 3.2, there is some uncertainty that Wetland C meets the hydric soil criterion. For the purposes of this report, we are conservatively assuming that the soil is hydric. During the spring of 2024, an alpha-alpha dipyrindyl test may be conducted to determine if Wetland C does have hydric soils. If this test is conducted and it is determined that the soil in Wetland C is not hydric, then an addendum to this report will be prepared.

According to the Cowardin classification system (FGDC 2013), Wetland C is a forested wetland. Dominant vegetation in Wetland A includes red alder, western red-cedar, salmonberry, and slough sedge. The boundary of Wetland C was determined by a topographic break, evidence of standing water, and the vegetative shift to non-hydrophytic vegetation (e.g. sword fern, evergreen huckleberry, salal). According to the 2014 Wetland Rating System (Hruby 2014), Wetland C was rated as a Category IV wetland, with a water quality score of 7, hydrology score of 4, and habitat score of 3.

3.3.4 Off-Site Wetland

No test plots were evaluated in the off-site wetland, located approximately 35 feet north of the property, because Confluence did not have access to the property on which this wetland was located. Though Confluence lacked access to the off-site wetland, its proximity to the property

line made it possible to observe the dominant wetland characteristics and complete a conservative rating.

According to the Cowardin classification system (FGDC 2013), the off-site wetland contains an emergent fringe with an area of open water (palustrine unconsolidated bottom). Based on site observations and a review of historical aerial imagery, the wetland was likely created as a livestock pond (Netronline 2022). The closest edge of the off-site wetland is approximately 35 feet north of the property boundary. According to the 2014 Wetland Rating System (Hruby 2014), the off-site wetland was conservatively rated as a Category IV wetland, with a water quality score of 7, hydrology score of 4, and a habitat score of 3.

3.4 Fish and Wildlife Habitat Conservation Areas

Per TCC 24.03, Thurston County defines fish and wildlife conservation areas (FWHCAs) as areas that serve a critical role in sustaining needed habitats and species for the functional integrity of the ecosystem, and which, if altered, may reduce the likelihood that the species will persist over the long term. These areas may include, but are not limited to, rare or vulnerable ecological systems, communities, and habitat or habitat elements including seasonal ranges, breeding habitat, winter range, and movement corridors; and areas with high relative population density or species richness. These also include locally important habitats and species. Confluence did not identify any streams or other FWHCAs on or within 300 feet of the subject property.

4.0 REGULATORY IMPLICATIONS

Per TCC 24.30.045, the county specifies wetland buffer widths for both habitat and water quality protection. The larger of the 2 buffer widths is the designated buffer width for the wetland. The overall rating of the wetland does not factor into the assigned buffer width. According to TCC 24.30.045, the following standard buffers apply:

- Wetland A has a habitat score of 4 and a water quality score of 8. The wetland does not meet the criteria associated with the water quality buffers and therefore the habitat buffer width of 140 feet applies.
- Wetland B has a habitat score of 3 and a water quality score of 8. The wetland does not meet the criteria associated with the water quality buffers and therefore the habitat buffer width of 120 feet applies.
- Wetland C has a habitat score of 3 and a water quality score of 7. The wetland does not meet the criteria associated with the water quality buffers and therefore the habitat buffer width of 120 feet applies.
- The off-site wetland was conservatively rated with a habitat score of 3 and a water quality score of 7. While the wetland meets the criteria for the 50-foot water quality buffer, the habitat buffer of 100 feet is larger and therefore applies as the standard buffer. Since the wetland is approximately 35 feet from the subject property, the buffer of the off-site wetland encroaches a maximum of 65 feet onto the property.

5.0 BUFFER IMPACT AVOIDANCE

The project proposes to use buffer reduction—using the mitigation measures shown in TCC 24.30.050, Table 24.30-2—in conjunction with buffer reconfiguration—as allowed under TCC 24.30.060—to avoid wetland buffer impacts.

To avoid impacts to the buffers of Wetlands A, B and C, the mitigation measures shown in TCC 24.30.050, Table 24.30-2 will be implemented. The civil site plans document when and how the mitigation measures will be implemented. Implementation of TCC 24.30.050 would result in the following buffer widths:

- Wetland A reduced buffer of 105 feet (75% of 140 feet)
- Wetland B reduced buffer of 90 feet (75% reduction of 120 feet)
- Wetland C reduced buffer of 90 feet (75% reduction of 120 feet)

All of these buffers are larger than the 50-foot water quality buffer described in TCC 23.30.045. The reduced buffer areas do not need enhancement because the forested buffer has a thick, multilayered, and diverse understory. In addition, there is large woody debris throughout the buffer. Combined, these characteristics provide filtration of sediments, excess nutrients, and pollutants; flood storage; erosion control; moderation of stormwater impacts; and shading.

In addition, to ensure there is no net loss of buffer function from the proposed reduction, the project includes adding 20,780 square feet of buffer to the west side of Wetland A, which will ensure there is no net loss of buffer area despite buffer reduction, as allowed under TCC 23.30.050, reducing the buffer by 20,780 square feet.

A portion of the proposed buffer reduction area is currently in agricultural use and the remainder in a forested condition. The proposed addition area is entirely forested with a thick, multilayered, diverse, and healthy understory and therefore will provide greater buffer function than the proposed reduction area.



6.0 REFERENCES

- Corps (U.S. Army Corps of Engineers). 1987. Corps of Engineers wetlands delineation manual. Corps Environmental Laboratory, Waterways Experiment Station, Vicksburg, Mississippi. Technical Report Y-87-1.
- Corps. 2010. Regional supplement to the Corps of Engineers wetland delineation manual: western mountains, valleys, and coast region. U.S. Army Engineer Research and Development Center, Vicksburg, Mississippi. ERDC/EL TR-08-13.
- Corps. 2020. National wetland plant list, version 3.5 [online document]. Corps Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, New Hampshire. Available at: https://wetland-plants.sec.usace.army.mil/nwpl_static/v34/home/home.html.
- FGDC (Federal Geographic Data Committee). 2013. Classification of wetlands and deepwater habitats of the United States. Second Edition. Wetlands Subcommittee, Federal Data Committee and U.S. Fish and Wildlife Service, Publication FGDC-STD-004-2013, Washington, D.C.
- Hruby, T. 2014. Washington State wetland rating system for western Washington, 2014 update. Washington State Department of Ecology, Olympia. Publication # 14-06-029.
- Netronline. 2022. Historical aeriels. Available at: <https://www.historicaerials.com/viewer> (accessed on November 9, 2022).
- NRCS (Natural Resources Conservation Service). 2022a. Web soil survey [online database]. U.S. Department of Agriculture, NRCS, Soil Science Division, Washington D.C. Available at: <http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm> (accessed on November 7, 2022).
- NRCS. 2022b. The PLANTS database [online database]. U.S. Department of Agriculture, NRCS, National Plant Data Team, Greensboro, North Carolina. Available at: <https://plants.sc.egov.usda.gov/java/> (accessed on November 7, 2022).
- Thurston County. 2022. Thurston County – show me everything map [online database]. Available at: <https://map.co.thurston.wa.us/Html5Viewer/Index.html?viewer=uMap.Main> (accessed on November 8, 2022).
- USFWS (U.S. Fish and Wildlife Service). 2022. National wetlands inventory wetlands mapper [online database]. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Available at: <https://www.fws.gov/wetlands/Data/Mapper.html> (accessed on November 7, 2022).

WDFW (Washington Department of Fish and Wildlife). 2022a. SalmonScape interactive mapping [online database]. Washington Department of Fish and Wildlife, Olympia, Washington. Available at: <http://apps.wdfw.wa.gov/salmonscape/map.html> (accessed on November 7, 2022).

WDFW. 2022b. PHS on the web interactive mapping [online database]. Washington Department of Fish and Wildlife Habitat Program, Olympia, Washington. Available at: <https://geodataservices.wdfw.wa.gov/hp/phs/> (accessed on November 7, 2022).

WDNR (Washington Department of Natural Resources). 2022a. Forest practices application mapping tool. Olympia, Washington. Available at: <https://fpamt.dnr.wa.gov/default.aspx#> (accessed on November 7, 2022).

WDNR. 2022b. Wetlands of high conservation value map viewer. Olympia, Washington. Available at: <https://www.dnr.wa.gov/NHPwetlandviewer> (accessed on November 7, 2022).

An abstract graphic consisting of several overlapping, light blue, curved shapes that sweep across the lower half of the page, creating a sense of movement and depth.

Appendix A

GIS Database Search Results

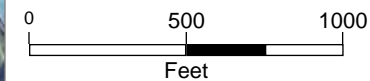


Thurston County

Legend

- Streams
- Wetlands
- Waterbodies
- Parcel Boundaries
- Roads - Major
 - Major Roads
 - Ramp
 - I 5; US 101
- Roads (Large Scale)
- Railroads
- County Border

Scale 1: 10,738



Map Created Using GeoData Public Website

Published: 11/7/2022

Note:



The information included on this map has been compiled by Thurston County staff from a variety of sources and is subject to change without notice. Additional elements may be present in reality that are not represented on the map. Ortho-photos and other data may not align. The boundaries depicted by these datasets are approximate. This document is not intended for use as a survey product. ALL DATA IS EXPRESSLY PROVIDED 'AS IS' AND 'WITH ALL FAULTS'. Thurston County makes no representations or warranties, express or implied, as to accuracy, completeness, timeliness, or rights to the use of such information. In no event shall Thurston County be liable for direct, indirect, incidental, consequential, special, or tort damages of any kind, including, but not limited to, lost revenues or lost profits, real or anticipated, resulting from the use, misuse or reliance of the information contained on this map. If any portion of this map or disclaimer is missing or altered, Thurston County removes itself from all responsibility from the map and the data contained within. The burden for determining fitness for use lies entirely with the user and the user is solely responsible for understanding the accuracy limitation of the information contained in this map. Authorized for 3rd Party reproduction for personal use only.



PUBH

LP Brown Elementary

E2USN



E1UBL




0 0.05 0.1 0.2 mi




0 0.1 0.2 0.4 km

1:7,523

U.S. Fish and Wildlife Service, National Standards and Support Team,
wetlands_team@fws.gov

 Estuarine and Marine Deepwater
 Estuarine and Marine Wetland

 Freshwater Emergent Wetland
 Freshwater Forested/Shrub Wetland
 Freshwater Pond

 Lake
 Other
 Riverine

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

Soil Map—Thurston County Area, Washington (WSS)



**Natural Resources
Conservation Service**


Web Soil Survey
National Cooperative Soil Survey

11/7/2022
Page 1 of 3

Soil Map—Thurston County Area, Washington (WSS)

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: Thurston County Area, Washington

Survey Area Data: Version 16, Sep 8, 2022

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

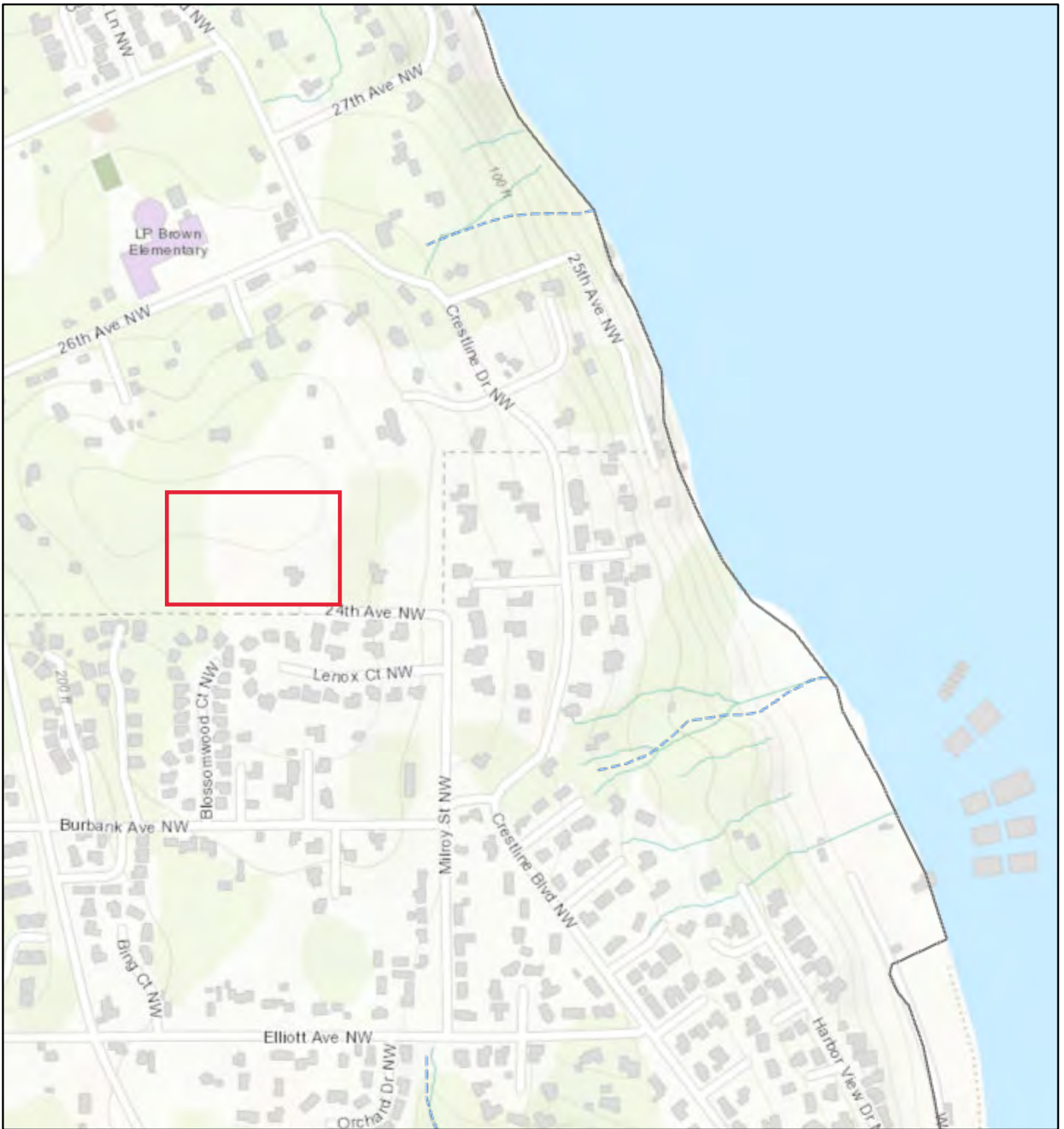
Date(s) aerial images were photographed: Jul 18, 2020—Jul 30, 2020

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

Map Unit Legend

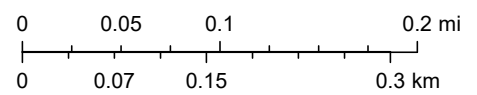
| Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI |
|------------------------------------|--|--------------|----------------|
| 2 | Alderwood gravelly sandy loam, 8 to 15 percent slopes | 9.9 | 86.4% |
| 3 | Alderwood gravelly sandy loam, 15 to 30 percent slopes | 1.6 | 13.6% |
| Totals for Area of Interest | | 11.4 | 100.0% |

SalmonScape



November 7, 2022

1:9,028





Priority Habitats and Species on the Web



Report Date: 11/07/2022, Parcel ID: [09750029001](#)

PHS Species/Habitats Overview:

| Occurence Name | Federal Status | State Status | Sensitive Location |
|------------------|----------------|--------------|--------------------|
| Yuma myotis | N/A | N/A | Yes |
| Little Brown Bat | N/A | N/A | Yes |
| Big brown bat | N/A | N/A | Yes |

PHS Species/Habitats Details:

| Yuma myotis | |
|---------------------------|---|
| Scientific Name | <i>Myotis yumanensis</i> |
| Notes | This polygon mask represents one or more records of the above species or habitat occurrence. Contact PHS Data Release (360-902-2543) for obtaining information about masked sensitive species and habitats. |
| Federal Status | N/A |
| State Status | N/A |
| PHS Listing Status | PHS Listed Occurrence |
| Sensitive | Y |
| SGCN | N |
| Display Resolution | TOWNSHIP |
| ManagementRecommendations | http://wdfw.wa.gov/publications/pub.php?id=00605 |

| Little Brown Bat | |
|---------------------------|---|
| Scientific Name | <i>Myotis lucifugus</i> |
| Notes | This polygon mask represents one or more records of the above species or habitat occurrence. Contact PHS Data Release (360-902-2543) for obtaining information about masked sensitive species and habitats. |
| Federal Status | N/A |
| State Status | N/A |
| PHS Listing Status | PHS Listed Occurrence |
| Sensitive | Y |
| SGCN | N |
| Display Resolution | TOWNSHIP |
| ManagementRecommendations | http://wdfw.wa.gov/publications/pub.php?id=00605 |

| Big brown bat | |
|---------------------------|---|
| Scientific Name | <i>Eptesicus fuscus</i> |
| Notes | This polygon mask represents one or more records of the above species or habitat occurrence. Contact PHS Data Release (360-902-2543) for obtaining information about masked sensitive species and habitats. |
| Federal Status | N/A |
| State Status | N/A |
| PHS Listing Status | PHS Listed Occurrence |
| Sensitive | Y |
| SGCN | N |
| Display Resolution | TOWNSHIP |
| ManagementRecommendations | http://wdfw.wa.gov/publications/pub.php?id=00605 |

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



Legal Description
































S04 T18.0N R02.0W, S57 T18.0N
R02.0W, S66 T18.0N R02.0W, S62
T18.0N R02.0W, S09 T18.0N R02.0W,
S59 T18.0N R02.0W, S51 T18.0N
R02.0W, S48 T18.0N R02.0W

Approximate Scale : 1:12,000

0 500 1,000 2,000 Feet

Date: 11/7/2022 Time: 3:30 PM

Legend

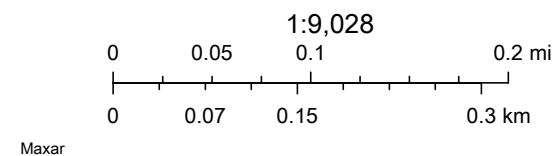
| | | | | | |
|--|-----------------------------|---|------------------------------|---|-----------------------------------|
|  | Map Registration Tics |  | Paved Road |  | Tribal Cultural Resource Contacts |
|  | Water Type Breaks (FP) |  | Unpaved Road/Surface Unknown |  | County Boundaries |
|  | Type S |  | Abandoned |  | Fire Shutdown Zones |
|  | Type F |  | Orphaned |  | SOSEA Boundaries |
|  | Type N, Np, Ns |  | Other Impoundments |  | WRIA Boundaries |
|  | U, unknown |  | Open Freshwater |  | WAUs |
|  | X, non-typed per WAC 222-16 |  | Subject to Inundation |  | Public Land Survey Sections |
|  | 40 ft. Contours |  | Glacier / Snowfield |  | Public Land Survey Townships |
|  | Trail |  | Wet Area |  | County Tax Parcels |
|  | Railroad |  | Open Saltwater | | |
|  | Railroad Grade |  | Artificial Feature | | |

WA Wetlands of High Conservation Value



11/7/2022, 3:32:22 PM

 Counties



An abstract, light blue graphic element that resembles a stylized, flowing shape or a large, soft-edged arrow pointing towards the right. It is positioned in the lower half of the page, behind the text.

Appendix B

Wetland Delineation Methods

2000 24th Avenue NW Revised Critical Areas Study: Appendix B

**CONFLUENCE ENVIRONMENTAL COMPANY
WETLAND DELINEATION METHODS**

Prepared by:

Confluence Environmental Company
2023

TABLE OF CONTENTS

| | | |
|-----|-----------------------------|---|
| 1.0 | METHODOLOGIES..... | 1 |
| 2.0 | WETLAND CRITERIA..... | 1 |
| 2.1 | Hydrophytic Vegetation..... | 2 |
| 2.2 | Hydric Soils..... | 3 |
| 2.3 | Hydrology | 4 |
| 3.0 | REFERENCES..... | 4 |

This appendix describes the methods used to confirm the presence or absence of wetlands in a study area.

1.0 METHODOLOGIES

Confluence delineates the boundaries of wetlands using the “Routine Determinations for Areas Less Than 5 Acres in Size” method described by the U.S. Army Corps of Engineers (Corps) in the Corps of Engineers Wetlands Delineation Manual (Delineation Manual; Corps 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Regional Supplement; Corps 2010). The Regional Supplement was part of a nationwide effort to address regional wetland characteristics and improve the accuracy and efficiency of wetland-delineation procedures. The Regional Supplement uses the best available science to address regional differences in climate, geology, soils, hydrology, and plant and animal communities that cannot be addressed in a single national document, such as the Delineation Manual. The Regional Supplement was designed for use with the 1987 Delineation Manual and all subsequent versions. Where differences in the 2 documents occur, the Regional Supplement takes precedence over the 1987 Delineation Manual (Corps 2010). The Regional Supplement was developed to clarify the indicators of hydrophytic vegetation, hydric soils, and wetland hydrology found in the region (these indicators are discussed in detail in Section 2.0). It is important to note that areas that may have been determined to be wetlands under the 1987 Delineation Manual may not be determined to be wetlands under the Regional Supplement, and vice versa.

Confluence uses the PLANTS Database (NRCS 2022) for scientific names and the 2020 National Wetland Plant List (Corps 2020) to determine the wetland indicator status of plants. Wetlands are classified using the Cowardin Classification System (FGDC 2013). Confluence determines the wetland rating using Washington State Department of Ecology’s Wetland Rating System for Western Washington (Hruby 2014). The National Wetland Inventory is also researched to determine if wetlands have previously been identified on the property (USFWS 2022).

The locations of test plots, soil cores, and wetland edges on a project property are recorded using a differential Global Positioning System with sub-meter accuracy. Delineated and surveyed wetland boundaries are subject to verification and approval by jurisdictional agencies.

2.0 WETLAND CRITERIA

There is specific technical language that applies to the study of wetlands. This section briefly explains the language Confluence uses in its wetland delineation reports.

The identification of wetlands is based on 3 criteria: hydrophytic vegetation, hydric soils, and hydrology. Each criterion has a number of indicators that can be used to determine whether the criterion has been met. The Corps, which is the federal authority on the regulation of wetlands,

has developed the guidance and the data form that are the standards used in all wetland determinations. The information presented below is based on their Delineation Manual (Corps 1987) and Regional Supplement (Corps 2010).

In order to confirm the presence of a wetland, data are collected from representative test plots chosen within and outside of a potential wetland. The test plots are representative of particular vegetative, topographic, and hydrologic features in the vicinity. Within the test plots particular data (see sections below) about vegetation, soils, and hydrology are collected to determine whether wetland characteristics are present. Plots that meet all 3 wetland criteria are wetland plots; plots that do not meet all 3 wetland criteria are upland (i.e., nonwetland) plots. The test plots (along with topographic and vegetative shifts) then inform the delineation of wetland boundaries.

2.1 Hydrophytic Vegetation

Vegetation is often the first visual cue that an area is a wetland. Similarly, vegetation often also signals the shift from wetland to upland. The question regarding plants to be answered when performing a wetland delineation is, “Is the vegetation hydrophytic?” That is, is the vegetation of the variety that is adapted to live in wetter-than-average conditions? To determine the answer, there are a few resources and steps to follow. First, the indicator status for each plant present in the test plot is determined from the National Wetland Plant List (Corps 2020). The indicator status is a continuum from almost exclusively occurring in wetlands (obligate wetland plants, or OBL) to almost never occurring in wetlands (obligate upland plants, or UPL). The middle ground between those 2 extremes is known as a facultative plant (or FAC), which is found equally in wetland and upland environments. The FAC category has 2 further gradations: facultative upland plants (FACU), which are plants that are usually found in uplands, and facultative wetland plants (FACW), which are plants that are usually found in wetlands.

After the status of each plant species in the test plot has been determined, the hydrophytic vegetation indicators can be applied. The application of the indicators is performed sequentially, and once one is “passed,” the box for hydrophytic vegetation is checked, and the process continues to the next criterion. The first hydrophytic vegetation indicator is the “Rapid Test,” which means with a quick visual survey, all the plants in the test plot are either OBL or FACW. The second test is the “Dominance Test.” For the Dominance Test, the total number of dominant species in the test plot is divided by the number of species that are OBL, FACW, or FAC. The resulting percentage must be greater than 50 to pass this test. The third test is the “Prevalence Index.” The Prevalence Index is a weighted average of the absolute cover of all the plant species present in the plot, regardless of dominance. There are also 2 other, less common, indicators: morphological adaptations (e.g., buttressed trunks) and nonvascular plant species (e.g., sphagnum moss).

2.2 Hydric Soils

The soils tell the story about the presence of water over time. The National Technical Committee defines a hydric soil as, “A soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part” (USDA Soil Conservation Service 1994). The question to be answered here is, “Has water been present long enough and recently enough to form hydric soils?” In order to examine the soil characteristics, a test pit must be dug, usually to about 18 inches. A sliver of soil from the test pit is extracted with a shovel (i.e., the soil profile) to examine the layers. The thickness, color, texture, redoximorphic features, and any other interesting information about each layer are observed and recorded. Those features are described more fully below.

- **Thickness.** Layers are measured to the nearest inch. Usually, each soil profile has at least 2 layers.
- **Color.** Color is determined by comparison to a color chart. The industry standard is the Munsell Soil-Color Chart, which assigns each color a designation for hue, value, and chroma (e.g., 10YR 3/2, where 10YR=hue, 3=value, and 2=chroma).
- **Texture.** The precision of texture description for the purpose of wetland delineation is at a general scale. The Washington State University texture chart (Cogger 2010) is often used, but the delineator just needs to determine if the soil is sandy or loamy/clayey.
- **Redoximorphic Features.** The most common redoximorphic features are concentrations or depletions of iron in the soil matrix. Concentrations occur as red or yellow deposits, and depletions occur as grayish deposits.

When the soil profile is fully described, it can be determined whether any of the layers meets a hydric soil indicator. The presence of any hydric soil indicator signifies a hydric soil, although a soil may be hydric and not meet any of these indicators. There are 19 hydric soil indicators in our region, 2 of which were observed at the site (Corps 2010). Additional hydric soil terminology definitions are in the sidebar.

More Hydric Soils Definitions (adapted from Corps 2010)

Matrix: the dominant soil volume in a given soil layer

Depleted Matrix: the volume of a soil horizon in which soil processes have removed or transformed iron, creating colors of low chroma and high value, specifically:

- Value ≥ 5 , chroma = 1, with or without redoximorphic features
- Value ≥ 6 , chroma = 1 or 2, with or without redoximorphic features
- Value of 4 or 5, chroma = 2, $\geq 2\%$ distinct or prominent redoximorphic features
- Value of 4, chroma = 1, $\geq 2\%$ distinct or prominent redoximorphic features

Distinct: readily seen, but contrasting* moderately with comparison color

Prominent: readily seen and contrasting* greatly with comparison color

*See Corps 2010, Table A1, page 130 for full key on contrast determinations.

- **A11—Depleted Below Dark Surface.** A soil layer with a depleted matrix, with 60% or more chroma of ≤ 2 , which starts within 12 inches of the surface and is at least 6 inches thick. Layers above the depleted layer must have a value ≤ 3 , and a chroma ≤ 2 .
- **F6—Redox Dark Surface.** A soil layer at least 4 inches thick, entirely within the upper 12 inches of the soil with:
 - matrix value ≤ 3 , chroma ≤ 1 , and 2% or more distinct or prominent redoximorphic concentrations, or
 - matrix value ≤ 3 , chroma ≤ 2 , and 5% or more distinct or prominent redoximorphic concentrations.

2.3 Hydrology

Wetland hydrology is the broadest criterion and has to do with signs of saturation and inundation in the test plot. While hydrophytic vegetation and hydric soils are the result of hydrology, they remain even during the dry season, whereas wetland hydrology can be less apparent or absent during the dry season. The hydrology indicators are broad enough to encompass characteristics that may be present even during the dry season. Hydrology indicators are in 4 groups:

- Group A is based on direct observation of surface or ground water.
- Group B consists of evidence that the site is subject to inundation.
- Group C consists of other evidence that soil is or was saturated.
- Group D consists of landscape, vegetation, and soil characteristics indicating contemporary wet conditions.

The indicators are further divided into 2 categories: primary and secondary. A test plot must have either 1 primary or 2 secondary indicators to pass the hydrology criterion. Primary and secondary indicators observed during this delineation are recorded on the wetland delineation data forms in Appendix C.

3.0 REFERENCES

- Cogger, C.G. 2010. Estimating soil texture flowchart. Washington State University Puyallup Research Center, Puyallup, Washington.
- Corps (U.S. Army Corps of Engineers). 1987. Corps of Engineers Wetlands Delineation Manual. Corps Environmental Laboratory, Waterways Experiment Station, Technical Report Y-87-1, Vicksburg, Mississippi.
- Corps. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region. U.S. Army Engineer Research and Development Center, ERDC/EL TR-08-13, Vicksburg, Mississippi.

- Corps. 2020. National wetland plant list, version 3.5 [online document]. Corps Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, New Hampshire. Available at: https://wetland-plants.sec.usace.army.mil/nwpl_static/v34/home/home.html.
- FGDC (Federal Geographic Data Committee). 2013. Classification of wetlands and deepwater habitats of the United States. Second Edition. Wetlands Subcommittee, Federal Data Committee and U.S. Fish and Wildlife Service, Publication FGDC-STD-004-2013, Washington, D.C.
- Hruby, T. 2014. Washington State wetland rating system for western Washington, 2014 update. Washington State Department of Ecology, Publication #14-06-029, Olympia, Washington.
- NRCS (Natural Resources Conservation Service). 2022. The PLANTS database [online database]. U.S. Department of Agriculture, NRCS, National Plant Data Team, Greensboro, North Carolina. Available at: <https://plants.sc.egov.usda.gov/java/> (accessed on November 7, 2022).
- USDA (U.S. Department of Agriculture) Soil Conservation Service. 1994. Changes in hydric soils of the United States. Federal Register 59(133): 35680-35681, July 13, 1994.
- USFWS (U.S. Fish and Wildlife Service). 2022. National wetlands inventory wetlands mapper [online database]. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Available at: <https://www.fws.gov/wetlands/Data/Mapper.html> (accessed on November 7, 2022).

An abstract, light blue graphic element that resembles a stylized, flowing shape or a large, soft-edged arrow pointing towards the right. It is positioned in the lower half of the page, behind the text.

Appendix C

Wetland Delineation Data Forms

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

Project/Site: 2000 24th Ave NW City/County: Olympia/Thurston Sampling Date: 10/25/02
 Applicant/Owner: RT Development State: WA Sampling Point: IP-1
 Investigator(s): KAM/NAD Section, Township, Range: 557 T18N R2W
 Landform (hillslope, terrace, etc.): — Local relief (concave, convex, none): concave Slope (%): 0
 Subregion (LRR): A Lat: 47.06755°N Long: 122.92691°W Datum: WGS84
 Soil Map Unit Name: Alder wood gravelly sandy loam NW classification: A8Hae
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes — No ✓ (If no, explain in Remarks.)
 Are Vegetation —, Soil —, or Hydrology — significantly disturbed? Are "Normal Circumstances" present? Yes ✓ 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>✓</u> No <u>—</u> | Is the Sampled Area within a Wetland? Yes <u>✓</u> No <u>—</u> |
| Hydric Soil Present? | Yes <u>—</u> No <u>—</u> | |
| Wetland Hydrology Present? | Yes <u>—</u> No <u>—</u> | |

Remarks:

overcast / rainy - poor lighting for coloring soils
Unusually warm/dry October. Rain began a couple days prior to site visit.

VEGETATION - Use scientific names of plants.

| Tree Stratum (Plot size: <u>30'</u>) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>7</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B) |
|--|------------------|-------------------|------------------|---|
| 1. <u>red alder</u> | <u>95</u> | <u>✓</u> | <u>FAC</u> | |
| 2. <u>w. red cedar</u> | <u>5</u> | <u>—</u> | <u>FAC</u> | |
| 3. <u>—</u> | <u>—</u> | <u>—</u> | <u>—</u> | |
| 4. <u>—</u> | <u>—</u> | <u>—</u> | <u>—</u> | |
| <u>100</u> = Total Cover | | | | Prevalence Index worksheet: Total % Cover of: <u>—</u> Multiply by: <u>—</u> OBL species <u>—</u> x 1 = <u>—</u> FACW species <u>—</u> x 2 = <u>—</u> FAC species <u>—</u> x 3 = <u>—</u> FACU species <u>—</u> x 4 = <u>—</u> UPL species <u>—</u> x 5 = <u>—</u> Column Totals: (A) <u>—</u> (B) <u>—</u> Prevalence Index = B/A = <u>—</u> |
| | | | | |
| Sapling/Shrub Stratum (Plot size: <u>15'</u>) | | | | Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation <u>—</u> 2 - Dominance Test is >50% <u>✓</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) <u>—</u> ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. |
| 1. <u>salmon berry</u> | <u>15</u> | <u>✓</u> | <u>FAC</u> | |
| 2. <u>him. blackberry</u> | <u>15</u> | <u>✓</u> | <u>FAC</u> | |
| 3. <u>D. spirea</u> | <u>15</u> | <u>✓</u> | <u>FACW</u> | |
| 4. <u>—</u> | <u>—</u> | <u>—</u> | <u>—</u> | |
| 5. <u>—</u> | <u>—</u> | <u>—</u> | <u>—</u> | |
| <u>45</u> = Total Cover | | | | |
| Herb Stratum (Plot size: <u>5'</u>) | | | | Hydrophytic Vegetation Present? Yes <u>✓</u> No <u>—</u> |
| 1. <u>little-coddy hedge</u> | <u>3</u> | <u>—</u> | <u>FACW</u> | |
| 2. <u>slough sedge</u> | <u>40</u> | <u>✓</u> | <u>OBL</u> | |
| 3. <u>skunk cabbage</u> | <u>25</u> | <u>✓</u> | <u>OBL</u> | |
| 4. <u>ladyfern</u> | <u>25</u> | <u>✓</u> | <u>FAC</u> | |
| 5. <u>horsetail</u> | <u>7</u> | <u>—</u> | <u>FAC</u> | |
| 6. <u>—</u> | <u>—</u> | <u>—</u> | <u>—</u> | |
| 7. <u>—</u> | <u>—</u> | <u>—</u> | <u>—</u> | |
| 8. <u>—</u> | <u>—</u> | <u>—</u> | <u>—</u> | |
| 9. <u>—</u> | <u>—</u> | <u>—</u> | <u>—</u> | |
| 10. <u>—</u> | <u>—</u> | <u>—</u> | <u>—</u> | |
| 11. <u>—</u> | <u>—</u> | <u>—</u> | <u>—</u> | |
| <u>100</u> = Total Cover | | | | |
| Woody Vine Stratum (Plot size: <u>5'</u>) | | | | |
| 1. <u>—</u> | <u>—</u> | <u>—</u> | <u>—</u> | |
| 2. <u>—</u> | <u>—</u> | <u>—</u> | <u>—</u> | |
| <u>0</u> = Total Cover | | | | |
| % Bare Ground in Herb Stratum <u>0</u> | | | | |
| Remarks: | | | | |

SOIL

Sampling Point: TP-1

| Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) | | | | | | | | |
|---|---------------|-----|----------------|----|-------------------|------------------|-----------------|---------|
| Depth (inches) | Matrix | | Redox Features | | Type ¹ | Loc ² | Texture | Remarks |
| | Color (moist) | % | Color (moist) | % | | | | |
| 0-5 | 10YR 2/1 | 100 | | | | | Silty clay loam | |
| 5-9 | 10YR 2/1 | 90 | 10YR 4/1 | 7 | D | M | Silty clay loam | |
| | | | 10YR 4/6 | 3 | C | M | | |
| 9+14+ | 2.5Y 5/2 | 90 | 10YR 4/6 | 10 | C | M | clay loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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"/> 2 cm Muck (A10) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input checked="" type="checkbox"/> Depleted Below Dark Surface (A11) | |
| <input type="checkbox"/> Thick Dark Surface (A12) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | |
| <input type="checkbox"/> Sandy Redox (S5) | |
| <input type="checkbox"/> Stripped Matrix (S6) | |
| <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) | |
| <input type="checkbox"/> Loamy Gleyed Matrix (F2) | |
| <input type="checkbox"/> Depleted Matrix (F3) | |
| <input checked="" type="checkbox"/> Redox Dark Surface (F6) | |
| <input type="checkbox"/> Depleted Dark Surface (F7) | |
| <input type="checkbox"/> Redox Depressions (F8) | |

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

Restrictive Layer (if present):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks: _____

HYDROLOGY

| Wetland Hydrology Indicators: | | | Secondary Indicators (2 or more required) |
|--|---|--|--|
| Primary Indicators (minimum of one required, check all that apply) | | | |
| <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 checked="" type="checkbox"/> Oxidized Rhizospheres along 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 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): _____ | Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| Water Table Present? | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | Depth (inches): _____ | |
| Saturation Present? (includes capillary fringe) | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | Depth (inches): _____ | |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: | | | |
| Remarks: _____ | | | |

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

Project/Site: 2000 24th Ave NW City/County: Olympia/Thurston Sampling Date: 10/25/22
 Applicant/Owner: RT Development State: WA Sampling Point: TP-2
 Investigator(s): KAM/NAS Section, Township, Range: 55T T18N R2W
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): A Lat: 47.06755°N Long: 122.92681°W Datum: NAD83
 Soil Map Unit Name: Alderwood gravelly sandy loam (8-10% clay) NWI classification: none
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ☒ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input checked="" type="checkbox"/> No _____ | Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> |
| Hydric Soil Present? | Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> | |
| Wetland Hydrology Present? | Yes _____ No <input checked="" type="checkbox"/> | |
| Remarks: <u>unusually dry/warm October. Rain just started a couple days prior to site visit.</u> <u>transition zone</u> | | |

VEGETATION - Use scientific names of plants.

| Tree Stratum (Plot size: <u>30'</u>) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: |
|--|------------------|-------------------------------------|------------------|--|
| 1. <u>red alder</u> | <u>100</u> | <input checked="" type="checkbox"/> | <u>FAC</u> | |
| 2. _____ | _____ | _____ | _____ | Total Number of Dominant Species Across All Strata: <u>7</u> (B) |
| 3. _____ | _____ | _____ | _____ | Percent of Dominant Species That Are OBL, FACW, or FAC: <u>57%</u> (A/B) |
| 4. _____ | _____ | _____ | _____ | |
| <u>100</u> = Total Cover | | | | |
| Sapling/Shrub Stratum (Plot size: <u>15'</u>) | Absolute % Cover | Dominant Species? | Indicator Status | Prevalence Index worksheet: |
| 1. <u>Salmonberry</u> | <u>10</u> | <input checked="" type="checkbox"/> | <u>FAC</u> | |
| 2. <u>evergreen huckleberry</u> | <u>20</u> | <input checked="" type="checkbox"/> | <u>FACW</u> | OBL species _____ x 1 = _____ |
| 3. <u>red huckleberry</u> | <u>5</u> | _____ | <u>FACW</u> | FACW species _____ x 2 = _____ |
| 4. _____ | _____ | _____ | _____ | FAC species <u>175</u> x 3 = <u>525</u> |
| 5. _____ | _____ | _____ | _____ | FACU species <u>75</u> x 4 = <u>300</u> |
| <u>35</u> = Total Cover | | | | UPL species _____ x 5 = _____ |
| | | | | Column Totals: <u>250</u> (A) <u>825</u> (B) |
| | | | | Prevalence Index = B/A = <u>3.3</u> |
| Herb Stratum (Plot size: <u>5'</u>) | Absolute % Cover | Dominant Species? | Indicator Status | Hydrophytic Vegetation Indicators: |
| 1. <u>Sword Fern</u> | <u>40</u> | <input checked="" type="checkbox"/> | <u>FACU</u> | |
| 2. <u>horsetail</u> | <u>40</u> | <input checked="" type="checkbox"/> | <u>FAC</u> | <input checked="" type="checkbox"/> 2 - Dominance Test is >50% |
| 3. <u>lady fern</u> | <u>5</u> | _____ | <u>FAC</u> | 3 - Prevalence Index is ≤ 3.0 ¹ |
| 4. _____ | _____ | _____ | _____ | 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) |
| 5. _____ | _____ | _____ | _____ | 5 - Wetland Non-Vascular Plants ¹ |
| 6. _____ | _____ | _____ | _____ | Problematic Hydrophytic Vegetation ¹ (Explain) |
| 7. _____ | _____ | _____ | _____ | ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. |
| 8. _____ | _____ | _____ | _____ | |
| 9. _____ | _____ | _____ | _____ | |
| 10. _____ | _____ | _____ | _____ | |
| 11. _____ | _____ | _____ | _____ | |
| <u>80</u> = Total Cover | | | | |
| Woody Vine Stratum (Plot size: <u>15'</u>) | Absolute % Cover | Dominant Species? | Indicator Status | Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ |
| 1. <u>hairy blackberry</u> | <u>20</u> | <input checked="" type="checkbox"/> | <u>FAC</u> | |
| 2. <u>B. Ivy</u> | <u>10</u> | <input checked="" type="checkbox"/> | <u>FACU</u> | |
| <u>30</u> = Total Cover | | | | |
| % Bare Ground in Herb Stratum <u>0</u> | | | | |
| Remarks: <u>loss of FACW/OBL spp. + dominance of FACU spp met dominance test but failed Prev. Index & wetland veg. but transitional veg.</u> | | | | |

SOIL

Sampling Point: TP-2

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 | | |
| 0-9 | 10YR 2/2 | 100 | | | | | silt loam | |
| 9-14 | 2.5Y 5/1 | 95 | 10YR 4/6 | 5 | C | M | silt loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains²Location: PL=Pore Lining, M=Matrix

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

Indicators for Problematic Hydric Soils³:

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

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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 along 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 ☒ Depth (inches): _____Water Table Present? Yes ☐ No ☒ Depth (inches): _____Saturation Present? Yes ☐ No ☒ Depth (inches): _____

(includes capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

No indicators observed

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

Project/Site: 2000 24th Ave NW City/County: Olympia Thurston Sampling Date: 10/05/02
 Applicant/Owner: KT Development State: WA Sampling Point: TP-3
 Investigator(s): KAM & MAD Section, Township, Range: 157 T18N R2W
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): concave Slope (%): 0
 Subregion (LRR): A Lat: 47.06744° N Long: 122.92467° W Datum: NAD83
 Soil Map Unit Name: Alderwood gravelly sandy loam NWI classification: none
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ☒ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input checked="" type="checkbox"/> No _____ | Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> |
| Hydric Soil Present? | Yes _____ No <input checked="" type="checkbox"/> | |
| Wetland Hydrology Present? | Yes _____ No <input checked="" type="checkbox"/> | |
| Remarks: <u>Unusually dry / warm October. Rain just started a couple days prior to site visit.</u> | | |

VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: <u>30'</u>) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>57</u> (A/B) |
|--|------------------|-------------------------------------|------------------|---|
| 1. <u>W. red cedar</u> | <u>30</u> | <input checked="" type="checkbox"/> | <u>FAC</u> | |
| 2. <u>red alder</u> | <u>100</u> | <input checked="" type="checkbox"/> | <u>FAC</u> | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| <u>130</u> = Total Cover | | | | Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____ |
| Sapling/Shrub Stratum (Plot size: <u>15'</u>) | Absolute % Cover | Dominant Species? | Indicator Status | |
| 1. <u>E. huckleberry</u> | <u>30</u> | <input checked="" type="checkbox"/> | <u>FACU</u> | |
| 2. <u>Salmonberry</u> | <u>10</u> | <input checked="" type="checkbox"/> | <u>FAC</u> | |
| 3. <u>Indian plum</u> | <u>5</u> | _____ | <u>FACU</u> | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| <u>45</u> = Total Cover | | | | |
| Herb Stratum (Plot size: <u>5'</u>) | Absolute % Cover | Dominant Species? | Indicator Status | Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. |
| 1. <u>Shrub sedge</u> | <u>25</u> | <input checked="" type="checkbox"/> | <u>OBL</u> | |
| 2. <u>Lady fern</u> | <u>5</u> | _____ | <u>FAC</u> | |
| 3. <u>Sweetfern</u> | <u>100</u> | <input checked="" type="checkbox"/> | <u>FACU</u> | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| 6. _____ | _____ | _____ | _____ | |
| 7. _____ | _____ | _____ | _____ | |
| 8. _____ | _____ | _____ | _____ | |
| 9. _____ | _____ | _____ | _____ | |
| 10. _____ | _____ | _____ | _____ | |
| 11. _____ | _____ | _____ | _____ | |
| <u>40</u> = Total Cover | | | | |
| Woody Vine Stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ |
| 1. <u>Smiling blackberry</u> | <u>10</u> | <input checked="" type="checkbox"/> | <u>FACU</u> | |
| 2. _____ | _____ | _____ | _____ | |
| <u>10</u> = Total Cover | | | | |
| % Bare Ground in Herb Stratum <u>0</u> | | | | |
| Remarks: _____ | | | | |

SOIL

Sampling Point: TP-3

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 | | |
| 0-10 | 10YR 2/2 | 100 | | | | | Silt loam | |
| 10-12+ | 10YR 4/4 | 100 | | | | | Silt loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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 Soils³:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <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"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) |

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes _____ No ☒ Depth (inches): _____Water Table Present? Yes _____ No ☒ Depth (inches): _____Saturation Present? Yes _____ No ☒ Depth (inches): _____

(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No ☒

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

Remarks:

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

Project/Site: 2000 24th Ave NW City/County: Olympia Thurston Sampling Date: 10/25/22
 Applicant/Owner: RS Development State: WA Sampling Point: TP-4
 Investigator(s): KAM/NAD Section, Township, Range: S57 T18N R2W
 Landform (hillslope, terrace, etc.): - Local relief (concave, convex, none): concave Slope (%): -
 Subregion (LRR): A Lat: 47.06825°N Long: 122.92721°W Datum: NAD83
 Soil Map Unit Name: Alder wood gravelly sandy loam (8-15% slopes) NWI classification: none
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes - No ✓ (If no, explain in Remarks)
 Are Vegetation -, Soil -, or Hydrology - significantly disturbed? Are "Normal Circumstances" present? Yes ✓ 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>✓</u> No <u>-</u> | Is the Sampled Area within a Wetland? Yes <u>-</u> No <u>✓</u> |
| Hydric Soil Present? | Yes <u>-</u> No <u>✓</u> | |
| Wetland Hydrology Present? | Yes <u>-</u> No <u>✓</u> | |
| Remarks: <u>Unusually warm/dry October. Rains just started a couple days prior to site visit.</u> | | |

VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: <u>30'</u>) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: |
|--|------------------|-------------------|------------------|--|
| 1. <u>red alder</u> | <u>80</u> | <u>✓</u> | <u>FAC</u> | |
| 2. <u>-</u> | | | | Total Number of Dominant Species Across All Strata: <u>4</u> (B) |
| 3. <u>-</u> | | | | Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75</u> (A/B) |
| 4. <u>-</u> | | | | |
| <u>80</u> = Total Cover | | | | |
| Sapling/Shrub Stratum (Plot size: <u>15'</u>) | Absolute % Cover | Dominant Species? | Indicator Status | Prevalence Index worksheet: |
| 1. <u>Salmonberry</u> | <u>20</u> | <u>✓</u> | <u>FAC</u> | |
| 2. <u>Salal</u> | <u>25</u> | <u>✓</u> | <u>FACU</u> | OBL species <u>-</u> x 1 = <u>-</u> |
| 3. <u>-</u> | | | | FACW species <u>-</u> x 2 = <u>-</u> |
| 4. <u>-</u> | | | | FAC species <u>-</u> x 3 = <u>-</u> |
| 5. <u>-</u> | | | | FACU species <u>-</u> x 4 = <u>-</u> |
| <u>45</u> = Total Cover | | | | UPL species <u>-</u> x 5 = <u>-</u> |
| | | | | Column Totals: <u>-</u> (A) <u>-</u> (B) |
| | | | | Prevalence Index = B/A = <u>-</u> |
| Herb Stratum (Plot size: <u>5'</u>) | Absolute % Cover | Dominant Species? | Indicator Status | Hydrophytic Vegetation Indicators: |
| 1. <u>slough sedge</u> | <u>50</u> | <u>✓</u> | <u>OBL</u> | |
| 2. <u>swordfern</u> | <u>10</u> | | <u>FACU</u> | <u>✓</u> 2 - Dominance Test is >50% |
| 3. <u>-</u> | | | | 3 - Prevalence Index is ≤3.0 ¹ |
| 4. <u>-</u> | | | | 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) |
| 5. <u>-</u> | | | | 5 - Wetland Non-Vascular Plants ¹ |
| 6. <u>-</u> | | | | Problematic Hydrophytic Vegetation ¹ (Explain) |
| 7. <u>-</u> | | | | ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. |
| 8. <u>-</u> | | | | |
| 9. <u>-</u> | | | | |
| 10. <u>-</u> | | | | |
| 11. <u>-</u> | | | | |
| <u>60</u> = Total Cover | | | | |
| Woody Vine Stratum (Plot size: <u>5'</u>) | Absolute % Cover | Dominant Species? | Indicator Status | Hydrophytic Vegetation Present? Yes <u>✓</u> No <u>-</u> |
| 1. <u>-</u> | | | | |
| 2. <u>-</u> | | | | |
| <u>0</u> = Total Cover | | | | |
| % Bare Ground in Herb Stratum <u>5</u> | | | | |
| Remarks: | | | | |

SOIL

Sampling Point: TP-4

| 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 | | |
| 0-9 | 10YR 2/2 | 100 | | | | | Silt loam | |
| 9-24 | 10YR 3/2 | 80 | | | | | Silt loam | |
| | 10YR 4/3 | 20 | | | | | Silt loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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 Redox (S5) | <input type="checkbox"/> 2 cm Muck (A10) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <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"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) | |

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

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

Remarks:

HYDROLOGY

| Wetland Hydrology Indicators: | | Secondary Indicators (2 or more required) |
|--|---|--|
| Primary Indicators (minimum of one required; check all that apply) | | |
| <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 along 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 <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe) | Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/> |
|--|---|

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

Remarks:

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

Project/Site: 2000 24th Ave NW City/County: Olympia/Thurston Sampling Date: 5/30/23
 Applicant/Owner: RS Development State: WA Sampling Point: TP-5
 Investigator(s): KAM / IK'S Section, Township, Range: T18N R2W S57
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 0
 Subregion (LRR): A Lat: 47.08620° N Long: 122.92715° W Datum: WGS 84
 Soil Map Unit Name: Alderwood Gravelly sandy loam NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input checked="" type="checkbox"/> No <input type="checkbox"/> | Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | |
| Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | |
| Remarks: <u>Continuation of Wetland A Hung Flap WA-7A through WA-7C. Overcast / Flag WA-1 connects to WA-7A → WA-7B → WA-7C → DCA-8</u> | |

VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: <u>30'</u>) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</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>100</u> (A/B) |
|--|------------------|-------------------------------------|------------------|---|
| 1. <u>red alder</u> | <u>90</u> | <input checked="" type="checkbox"/> | <u>FAC</u> | |
| 2. _____ | | | | Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____ |
| 3. _____ | | | | |
| 4. _____ | | | | |
| 5. _____ | | | | |
| <u>90</u> = Total Cover | | | | |
| Sapling/Shrub Stratum (Plot size: <u>10'</u>) | | | | |
| 1. <u>D. spira</u> | <u>5</u> | <input checked="" type="checkbox"/> | <u>FACW</u> | Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. |
| 2. <u>Blueberry huckleberry</u> | <u>3</u> | | <u>FACU</u> | |
| 3. <u>S. sp.</u> | <u>3</u> | | <u>FACU</u> | |
| 4. <u>HBB</u> | <u>3</u> | | <u>FAC</u> | |
| 5. _____ | | | | |
| <u>14</u> = Total Cover | | | | |
| Herb Stratum (Plot size: <u>10'</u>) | | | | |
| 1. <u>lady fern</u> | <u>3</u> | | <u>FAC</u> | Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| 2. <u>soft rush</u> | <u>10</u> | <input checked="" type="checkbox"/> | <u>FACW</u> | |
| 3. _____ | | | | |
| 4. _____ | | | | |
| 5. _____ | | | | |
| 6. _____ | | | | |
| 7. _____ | | | | |
| 8. _____ | | | | |
| 9. _____ | | | | |
| 10. _____ | | | | |
| 11. _____ | | | | |
| <u>13</u> = Total Cover | | | | |
| Woody Vine Stratum (Plot size: <u>10'</u>) | | | | |
| 1. _____ | | | | |
| 2. _____ | | | | |
| <u>0</u> = Total Cover | | | | |
| % Bare Ground in Herb Stratum <u>80</u> | | | | |
| Remarks: _____ | | | | |

SOIL

Sampling Point: TP.5

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 3/2 | 100 | | | | | silt loam | |
| 4-9 | 10YR 3/2 | 80 | | | | | silt loam | |
| 4-9 | 2.5Y 4/2 | 20 | | | | | silt loam | |
| 9-13+ | 10YR 6/1 | 50% | 10YR 5/8 | 50% | C | M | silt loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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 Soils³:

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

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Channel is 8"

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

- | | | |
|--|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input checked="" 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 along 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 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 ☐ No ☒ Depth (inches): _____Water Table Present? Yes ☐ No ☒ Depth (inches): _____Saturation Present? Yes ☐ No ☒ Depth (inches): _____
(includes capillary fringe)Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

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

Project/Site: 2000 24th Ave NW City/County: Olympia Thurston Sampling Date: 5/30/23
 Applicant/Owner: RJ Development State: WA Sampling Point: TP-6
 Investigator(s): ICM + IKS Section, Township, Range: T18N R21W S57
 Landform (hillslope, terrace, etc.): hillside Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): A Lat: 47.0684°N Long: 122.92734°W Datum: NAD83
 Soil Map Unit Name: Alderwood gravelly loam NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> |
| Hydric Soil Present? | Yes _____ | No <input checked="" type="checkbox"/> | |
| Wetland Hydrology Present? | Yes <input checked="" type="checkbox"/> | No _____ | |
| Remarks: <u>located N. of TP-4 in small depression w/ slough sedge</u> | | | |

VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: <u>30'</u>) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80</u> (A/B) |
|---|------------------|-------------------------------------|------------------|--|
| 1. <u>red alder</u> | <u>70</u> | <input checked="" type="checkbox"/> | <u>FAC</u> | |
| 2. <u>wo. red cedar</u> | <u>30</u> | <input checked="" type="checkbox"/> | <u>FAC</u> | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| <u>100</u> = Total Cover | | | | |
| Sapling/Shrub Stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____ |
| 1. <u>salmonberry</u> | <u>40</u> | <input checked="" type="checkbox"/> | <u>FAC</u> | |
| 2. _____ | _____ | _____ | _____ | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| <u>40</u> = Total Cover | | | | |
| Herb Stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status | Hydrophytic Vegetation Indicators: ____ 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% ____ 3 - Prevalence Index is ≤3.0 ¹ ____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ____ 5 - Wetland Non-Vascular Plants ¹ ____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. |
| 1. <u>slough sedge</u> | <u>30</u> | <input checked="" type="checkbox"/> | <u>OBL</u> | |
| 2. <u>soft rush</u> | <u>5</u> | _____ | <u>FACW</u> | |
| 3. <u>lady fern</u> | <u>10</u> | _____ | <u>FAC</u> | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| 6. _____ | _____ | _____ | _____ | |
| 7. _____ | _____ | _____ | _____ | |
| 8. _____ | _____ | _____ | _____ | |
| 9. _____ | _____ | _____ | _____ | |
| 10. _____ | _____ | _____ | _____ | |
| 11. _____ | _____ | _____ | _____ | |
| <u>45</u> = Total Cover | | | | |
| Woody Vine Stratum (Plot size: <u>10'</u>) | Absolute % Cover | Dominant Species? | Indicator Status | Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ |
| 1. <u>English ivy</u> | <u>5</u> | <input checked="" type="checkbox"/> | <u>UPL</u> | |
| 2. _____ | _____ | _____ | _____ | |
| <u>5</u> = Total Cover | | | | |
| % Bare Ground in Herb Stratum <u>20</u> | | | | |
| Remarks: | | | | |

SOIL

Sampling Point: _____

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 3/1 | 100 | | | | | | |
| 7-11 | 10YR 4/2 | 99 | 10YR 5/6 | 21 | C | M | | |
| 11-16+ | 10Y 5/3 | 100 | 10YR 5/6 | 10 | C | M | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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 Soils³:**

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <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"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) |

- | |
|---|
| <input type="checkbox"/> 2 cm Muck (A10) |
| <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one required; check all that apply)Secondary Indicators (2 or more required)

- | | | |
|--|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input checked="" 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 along 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 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 _____ No ☒ Depth (inches): _____Water Table Present? Yes _____ No ☒ Depth (inches): _____Saturation Present? Yes _____ No ☒ Depth (inches): _____
(includes capillary fringe)Wetland Hydrology Present? Yes ☒ No _____

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

Remarks:

while hydrology indicators present. Hydrology not present in Nov '22; present April '23; absent May '23 - indicates hydrology not present long enough to create hydric soils. Water stained

leaves can be created in winter (outside of growing season) & over short periods (too short for hydric soils to develop) & may not happen every year. This indicator along w/ lack of soil indicators

may not be a "normal" indicator

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

Project/Site: 2000 24th Ave NW City/County: Olympia/Thurston Sampling Date: 5/30/23
 Applicant/Owner: RT Development State: WA Sampling Point: TP 7
 Investigator(s): KAM & IKS Section, Township, Range: T18N R2W S5T
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 0
 Subregion (LRR): A Lat: 47.06706° N Long: 122.92731° W Datum: WGS 84
 Soil Map Unit Name: Heterogeneous gravelly loam NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input checked="" type="checkbox"/> No _____ | Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> |
| Hydric Soil Present? | Yes _____ No <input checked="" type="checkbox"/> | |
| Wetland Hydrology Present? | Yes _____ No <input checked="" type="checkbox"/> | |
| Remarks: <u>TP located S. of wetland A & N. of ditch</u> | | |

VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: <u>30'</u>) | Absolute % Cover | Dominant Species? | Indicator Status |
|--|------------------|-------------------------------------|------------------|
| 1. <u>Big leaf maple</u> | <u>15</u> | <input checked="" type="checkbox"/> | <u>FACU</u> |
| 2. _____ | _____ | _____ | _____ |
| 3. _____ | _____ | _____ | _____ |
| 4. _____ | _____ | _____ | _____ |
| <u>15</u> = Total Cover | | | |
| Sapling/Shrub Stratum (Plot size: <u>10'</u>) | Absolute % Cover | Dominant Species? | Indicator Status |
| 1. <u>willow</u> | <u>20</u> | <input checked="" type="checkbox"/> | <u>FAC</u> |
| 2. <u>Indian Plum</u> | <u>5</u> | <input checked="" type="checkbox"/> | <u>FACU</u> |
| 3. <u>H. Blackberry</u> | <u>75</u> | <input checked="" type="checkbox"/> | <u>FAC</u> |
| 4. _____ | _____ | _____ | _____ |
| 5. _____ | _____ | _____ | _____ |
| <u>100</u> = Total Cover | | | |
| Herb Stratum (Plot size: <u>10'</u>) | Absolute % Cover | Dominant Species? | Indicator Status |
| 1. _____ | _____ | _____ | _____ |
| 2. _____ | _____ | _____ | _____ |
| 3. _____ | _____ | _____ | _____ |
| 4. _____ | _____ | _____ | _____ |
| 5. _____ | _____ | _____ | _____ |
| 6. _____ | _____ | _____ | _____ |
| 7. _____ | _____ | _____ | _____ |
| 8. _____ | _____ | _____ | _____ |
| 9. _____ | _____ | _____ | _____ |
| 10. _____ | _____ | _____ | _____ |
| 11. _____ | _____ | _____ | _____ |
| <u>0</u> = Total Cover | | | |
| Woody Vine Stratum (Plot size: <u>10'</u>) | Absolute % Cover | Dominant Species? | Indicator Status |
| 1. _____ | _____ | _____ | _____ |
| 2. _____ | _____ | _____ | _____ |
| <u>0</u> = Total Cover | | | |
| % Bare Ground in Herb Stratum <u>0</u> | | | |
| Remarks: | | | |

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
 Total Number of Dominant Species Across All Strata: 3 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

| | |
|--------------------------------|---------------------|
| Total % Cover of: | Multiply by: |
| OBL species _____ | x 1 = _____ |
| FACW species _____ | x 2 = _____ |
| FAC species _____ | x 3 = _____ |
| FACU species _____ | x 4 = _____ |
| UPL species _____ | x 5 = _____ |
| Column Totals: _____ | (A) _____ (B) _____ |
| Prevalence Index = B/A = _____ | |

Hydrophytic Vegetation Indicators:
 ___ 1 - Rapid Test for Hydrophytic Vegetation
 ___ 2 - Dominance Test is >50%
 ___ 3 - Prevalence Index is ≤3.0¹
 ___ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ___ 5 - Wetland Non-Vascular Plants¹
 ___ Problematic Hydrophytic Vegetation¹ (Explain)
¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No _____

SOIL

Sampling Point: TP-7

| 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 3/1 | 100 | | | | | silt loam | |
| 4-11 | 10YR 3/1 | 99 | 7.5YR 4/4 | 1% | C | M | silt loam | |
| 11-16 | 10YR 3/3 | 80 | 10YR 4/6 | 20 | C | M | loam w/ 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 Redox (S5) | <input type="checkbox"/> 2 cm Muck (A10) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <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) | ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. |
| <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"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) | |

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

HYDROLOGY

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

| | |
|---|--|
| Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe) | Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/> |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: | |
| Remarks: | |

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

Project/Site: 2000 24th Ave NE City/County: Olympia/Thurston Sampling Date: 7/19/23
 Applicant/Owner: RJ Development State: WA Sampling Point: TP-8
 Investigator(s): KRM Section, Township, Range: T18N R2W S57
 Landform (hillslope, terrace, etc.): — Local relief (concave, convex, none): Concave Slope (%): 7
 Subregion (LRR): A Lat: 47.06846°N Long: 122.9273°W Datum: WGS84
 Soil Map Unit Name: Alderwood gravelly sandy loam NWI classification: —
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes — No — (If no, explain in Remarks.)
 Are Vegetation —, Soil —, or Hydrology — significantly disturbed? Are "Normal Circumstances" present? Yes ✓ 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>✓</u> | No <u>—</u> | Is the Sampled Area within a Wetland? | Yes <u>✓</u> | No <u>—</u> |
| Hydric Soil Present? | Yes <u>✓</u> | No <u>—</u> | | | |
| Wetland Hydrology Present? | Yes <u>—</u> | No <u>—</u> | | | |
| Remarks: <u>Wetland edge to po & salal break</u> | | | | | |

VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: <u>30'</u>) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: |
|--|------------------|-------------------|------------------|---|
| 1. <u>red alder</u> | <u>9.5</u> | <u>✓</u> | <u>FAC</u> | |
| 2. <u>w red cedar</u> | <u>5</u> | <u>—</u> | <u>FAC</u> | Total Number of Dominant Species Across All Strata: <u>4</u> (B) |
| 3. <u>—</u> | <u>—</u> | <u>—</u> | <u>—</u> | Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B) |
| 4. <u>—</u> | <u>—</u> | <u>—</u> | <u>—</u> | Prevalence Index worksheet: |
| <u>100</u> = Total Cover | | | | |
| Sapling/Shrub Stratum (Plot size: <u>10'</u>) | | | | Total % Cover of: <u>—</u> Multiply by: <u>—</u> |
| 1. <u>D. Spirea</u> | <u>25</u> | <u>✓</u> | <u>FACW</u> | OBL species <u>—</u> x 1 = <u>—</u> |
| 2. <u>A Blackberry</u> | <u>5</u> | <u>—</u> | <u>FAC</u> | FACW species <u>—</u> x 2 = <u>—</u> |
| 3. <u>—</u> | <u>—</u> | <u>—</u> | <u>—</u> | FAC species <u>—</u> x 3 = <u>—</u> |
| 4. <u>—</u> | <u>—</u> | <u>—</u> | <u>—</u> | FACU species <u>—</u> x 4 = <u>—</u> |
| 5. <u>—</u> | <u>—</u> | <u>—</u> | <u>—</u> | UPL species <u>—</u> x 5 = <u>—</u> |
| <u>30</u> = Total Cover | | | | Column Totals: <u>—</u> (A) <u>—</u> (B) |
| Herb Stratum (Plot size: <u>5'</u>) | | | | Prevalence Index = B/A = <u>—</u> |
| 1. <u>lady fern</u> | <u>15</u> | <u>✓</u> | <u>FAC</u> | Hydrophytic Vegetation Indicators: <u>—</u> 1 - Rapid Test for Hydrophytic Vegetation <u>—</u> 2 - Dominance Test is >50% <u>—</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>slough sedge</u> | <u>5</u> | <u>✓</u> | <u>OBL</u> | |
| 3. <u>—</u> | <u>—</u> | <u>—</u> | <u>—</u> | |
| 4. <u>—</u> | <u>—</u> | <u>—</u> | <u>—</u> | |
| 5. <u>—</u> | <u>—</u> | <u>—</u> | <u>—</u> | |
| 6. <u>—</u> | <u>—</u> | <u>—</u> | <u>—</u> | |
| 7. <u>—</u> | <u>—</u> | <u>—</u> | <u>—</u> | |
| 8. <u>—</u> | <u>—</u> | <u>—</u> | <u>—</u> | |
| 9. <u>—</u> | <u>—</u> | <u>—</u> | <u>—</u> | |
| 10. <u>—</u> | <u>—</u> | <u>—</u> | <u>—</u> | |
| Woody Vine Stratum (Plot size: <u>10'</u>) | | | | Hydrophytic Vegetation Present? Yes <u>—</u> No <u>—</u> |
| 1. <u>—</u> | <u>—</u> | <u>—</u> | <u>—</u> | |
| 2. <u>—</u> | <u>—</u> | <u>—</u> | <u>—</u> | |
| <u>20</u> = Total Cover | | | | |
| % Bare Ground in Herb Stratum <u>80</u> | | | | |
| <u>80</u> = Total Cover | | | | |
| Remarks: | | | | |

Sampling Point: TP-8

HYDROLOGY

Western Mountains, Valleys, and Coast – Version 2.0

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

Project/Site: 2000 24th Ave NW City/County: Olympia/Thurston Sampling Date: 7/19/23
 Applicant/Owner: RS Development State: WA Sampling Point: TP-9
 Investigator(s): KAM Section, Township, Range: T18N R2W S57
 Landform (hillslope, terrace, etc.): - Local relief (concave, convex, none): Convex Slope (%): 2
 Subregion (LRR): A Lat: 47.06847°N Long: 122.92735°W Datum: WGS80
 Soil Map Unit Name: Aldorundgnelly sandy loam NWI classification: -
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes - No - (If no, explain in Remarks.)
 Are Vegetation -, Soil -, or Hydrology - significantly disturbed? Are "Normal Circumstances" present? Yes ✓ 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>✓</u> | No <u>-</u> | Is the Sampled Area within a Wetland? Yes <u>-</u> No <u>✓</u> |
| Hydric Soil Present? | Yes <u>-</u> | No <u>✓</u> | |
| Wetland Hydrology Present? | Yes <u>-</u> | No <u>✓</u> | |
| Remarks: | | | |

VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: <u>80</u>) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>60</u> (A/B) |
|--|------------------|-------------------|------------------|--|
| 1. <u>red alder</u> | <u>60</u> | <u>✓</u> | <u>FAC</u> | |
| 2. <u>W. red cedar</u> | <u>80</u> | <u>✓</u> | <u>FAC</u> | |
| 3. <u>-</u> | <u>-</u> | <u>-</u> | <u>-</u> | |
| 4. <u>-</u> | <u>-</u> | <u>-</u> | <u>-</u> | |
| <u>90</u> = Total Cover | | | | |
| Sapling/Shrub Stratum (Plot size: <u>-</u>) | | | | Prevalence Index worksheet: Total % Cover of: <u>-</u> Multiply by: <u>-</u> OBL species <u>-</u> x 1 = <u>-</u> FACW species <u>-</u> x 2 = <u>-</u> FAC species <u>-</u> x 3 = <u>-</u> FACU species <u>-</u> x 4 = <u>-</u> UPL species <u>-</u> x 5 = <u>-</u> Column Totals: <u>-</u> (A) <u>-</u> (B) Prevalence Index = B/A = <u>-</u> |
| 1. <u>S. al</u> | <u>25</u> | <u>✓</u> | <u>FACU</u> | |
| 2. <u>Salmonberry</u> | <u>5</u> | <u>-</u> | <u>FAC</u> | |
| 3. <u>A. Blackberry</u> | <u>5</u> | <u>-</u> | <u>FAC</u> | |
| 4. <u>-</u> | <u>-</u> | <u>-</u> | <u>-</u> | |
| 5. <u>-</u> | <u>-</u> | <u>-</u> | <u>-</u> | |
| <u>85</u> = Total Cover | | | | |
| Herb Stratum (Plot size: <u>-</u>) | | | | Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation <u>-</u> 2 - Dominance Test is >50% <u>✓</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) <u>-</u> ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. |
| 1. <u>lady fern</u> | <u>10</u> | <u>✓</u> | <u>FAC</u> | |
| 2. <u>slough sedge</u> | <u>3</u> | <u>-</u> | <u>OBL</u> | |
| 3. <u>sword fern</u> | <u>10</u> | <u>✓</u> | <u>FACU</u> | |
| 4. <u>-</u> | <u>-</u> | <u>-</u> | <u>-</u> | |
| 5. <u>-</u> | <u>-</u> | <u>-</u> | <u>-</u> | |
| 6. <u>-</u> | <u>-</u> | <u>-</u> | <u>-</u> | |
| 7. <u>-</u> | <u>-</u> | <u>-</u> | <u>-</u> | |
| 8. <u>-</u> | <u>-</u> | <u>-</u> | <u>-</u> | |
| 9. <u>-</u> | <u>-</u> | <u>-</u> | <u>-</u> | |
| 10. <u>-</u> | <u>-</u> | <u>-</u> | <u>-</u> | |
| 11. <u>-</u> | <u>-</u> | <u>-</u> | <u>-</u> | |
| <u>23</u> = Total Cover | | | | |
| Woody Vine Stratum (Plot size: <u>10'</u>) | | | | Hydrophytic Vegetation Present? Yes <u>✓</u> No <u>-</u> |
| 1. <u>-</u> | <u>-</u> | <u>-</u> | <u>-</u> | |
| 2. <u>-</u> | <u>-</u> | <u>-</u> | <u>-</u> | |
| <u>0</u> = Total Cover | | | | |
| % Bare Ground in Herb Stratum <u>0</u> | | | | |
| Remarks: | | | | |

SOIL

Sampling Point: _____

| 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 | | |
| 0-11 | 10YR 3/2 | 100 | | | | | loam | |
| 11-14 | 10YR 4/2 | 100 | | | | | silt loam | |
| 14-16+ | 10YR 4/2 | 95 | 10YR 5/6 | 5 | C | M | silt loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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 Redox (S5) | <input type="checkbox"/> 2 cm Muck (A10) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <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"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) | |

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

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

Remarks:
depleted color (10YR 4/2 w/ redox) = too deep to meet indicator

HYDROLOGY

| Wetland Hydrology Indicators: | |
|--|---|
| Primary Indicators (minimum of one required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | Secondary Indicators (2 or more required) <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A) <input type="checkbox"/> Other (Explain in Remarks) |

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

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

Remarks:
No indicators observed

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

Project/Site: 2000 24th Ave NW City/County: Olympia/Thurston Sampling Date: 7/19/23
 Applicant/Owner: RT Development State: WA Sampling Point: TP-10
 Investigator(s): KAM Section, Township, Range: T18N R20W S57
 Landform (hillslope, terrace, etc.): hill slope Local relief (concave, convex, none): none Slope (%): 2%
 Subregion (LRR): A Lat: 47.068457°N Long: 122.92746°W Datum: NAD83
 Soil Map Unit Name: Alderwood gravelly sandy loam NWI classification: —
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes ✓ 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>✓</u> | No <u> </u> | Is the Sampled Area within a Wetland? | Yes <u> </u> | No <u>✓</u> |
| Hydric Soil Present? | Yes <u> </u> | No <u>✓</u> | | | |
| Wetland Hydrology Present? | Yes <u> </u> | No <u>✓</u> | | | |
| Remarks: | | | | | |

VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: <u>30'</u>) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: |
|--|------------------|-------------------|------------------|--|
| 1. <u>red alder</u> | <u>30</u> | <u>✓</u> | <u>FAC</u> | |
| 2. <u> </u> | <u> </u> | <u> </u> | <u> </u> | Total Number of Dominant Species Across All Strata: <u>3</u> (B) |
| 3. <u> </u> | <u> </u> | <u> </u> | <u> </u> | Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66</u> (A/B) |
| 4. <u> </u> | <u> </u> | <u> </u> | <u> </u> | |
| <u>30</u> = Total Cover | | | | |
| Sapling/Shrub Stratum (Plot size: <u>10'</u>) | Absolute % Cover | Dominant Species? | Indicator Status | Prevalence Index worksheet: |
| 1. <u>red alder</u> | <u>10</u> | <u> </u> | <u>FAC</u> | |
| 2. <u>black hazelnut</u> | <u>70</u> | <u>✓</u> | <u>FACW</u> | OBL species <u> </u> x 1 = <u> </u> |
| 3. <u>salmonberry</u> | <u>10</u> | <u> </u> | <u>FAC</u> | FACW species <u> </u> x 2 = <u> </u> |
| 4. <u>salal</u> | <u>10</u> | <u> </u> | <u>FACW</u> | FAC species <u> </u> x 3 = <u> </u> |
| 5. <u>D. spirea</u> | <u>10</u> | <u> </u> | <u>FAC</u> | FACU species <u> </u> x 4 = <u> </u> |
| <u>110</u> = Total Cover | | | | UPL species <u> </u> x 5 = <u> </u> |
| | | | | Column Totals: <u> </u> (A) <u> </u> (B) |
| | | | | Prevalence Index = B/A = <u> </u> |
| Herb Stratum (Plot size: <u> </u>) | Absolute % Cover | Dominant Species? | Indicator Status | Hydrophytic Vegetation Indicators: |
| 1. <u>lady fern</u> | <u>10</u> | <u> </u> | <u>FAC</u> | |
| 2. <u>deer fern</u> | <u>60</u> | <u>✓</u> | <u>FAC</u> | <u>✓</u> 2 - Dominance Test is >50% |
| 3. <u>sword fern</u> | <u>5</u> | <u> </u> | <u>FACW</u> | <u> </u> 3 - Prevalence Index is ≤3.0 ¹ |
| 4. <u> </u> | <u> </u> | <u> </u> | <u> </u> | <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) |
| 5. <u> </u> | <u> </u> | <u> </u> | <u> </u> | <u> </u> 5 - Wetland Non-Vascular Plants ¹ |
| 6. <u> </u> | <u> </u> | <u> </u> | <u> </u> | <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) |
| 7. <u> </u> | <u> </u> | <u> </u> | <u> </u> | ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. |
| 8. <u> </u> | <u> </u> | <u> </u> | <u> </u> | |
| 9. <u> </u> | <u> </u> | <u> </u> | <u> </u> | |
| 10. <u> </u> | <u> </u> | <u> </u> | <u> </u> | |
| 11. <u> </u> | <u> </u> | <u> </u> | <u> </u> | |
| <u>75</u> = Total Cover | | | | |
| Woody Vine Stratum (Plot size: <u>10'</u>) | Absolute % Cover | Dominant Species? | Indicator Status | Hydrophytic Vegetation Present? |
| 1. <u> </u> | <u> </u> | <u> </u> | <u> </u> | |
| 2. <u> </u> | <u> </u> | <u> </u> | <u> </u> | |
| <u>0</u> = Total Cover | | | | |
| % Bare Ground in Herb Stratum <u>0</u> | | | | |
| Remarks: | | | | |

SOIL

Sampling Point: TP-10

| 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 | | |
| 0-11 | 10YR 3/2 | 100 | | | | | Silt loam | |
| 11-15+ | 10YR 4/2 | 100 | | | | | Silt loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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 Redox (S5) | <input type="checkbox"/> 2 cm Muck (A10) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <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"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) | |

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

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

Remarks:

HYDROLOGY

| Wetland Hydrology Indicators: | |
|--|---|
| Primary Indicators (minimum of one required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | Secondary Indicators (2 or more required) <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A) <input type="checkbox"/> Other (Explain in Remarks) |

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

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

Remarks:

No indicators observed

An abstract, light blue graphic element that resembles a stylized, flowing shape or a large, soft-edged arrow pointing towards the right. It is positioned in the lower half of the page, behind the text.

Appendix D

Wetland Rating Forms

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A

Date of site visit: 10/25/2022

Rated by K. McArthur and N. Dietsch

Trained by Ecology? ☒ Yes ☐ No

Date of training Mar-21

HGM Class used for rating Depressional & Flats

Wetland has multiple HGM classes? ☐ Yes ☒ No

NOTE: Form is not complete with out the figures requested (figures can be combined).

Source of base aerial photo/map _____

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

1. Category of wetland based on FUNCTIONS

Category I - Total score = 23 - 27

Category II - Total score = 20 - 22

| | |
|---|--------------------------------------|
| X | Category III - Total score = 16 - 19 |
|---|--------------------------------------|

Category IV - Total score = 9 - 15

| FUNCTION | Improving Water Quality | Hydrologic | Habitat | |
|-----------------------------------|-------------------------|------------|---------|--------------|
| List appropriate rating (H, M, L) | | | | |
| Site Potential | H | M | M | |
| Landscape Potential | M | M | L | |
| Value | H | L | L | Total |
| Score Based on Ratings | 8 | 5 | 4 | 17 |

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

9 = H, H, H

8 = H, H, M

7 = H, H, L

7 = H, M, M

6 = H. M. L

$$6 = M \cdot M \cdot M$$

5 = H L L

$$5 = M \quad M \quad I$$
$$4 = M \quad | \quad |$$

3 = 1 1 1

2. Category based on SPECIAL CHARACTERISTICS of wetland

| CHARACTERISTIC | Category |
|------------------------------------|----------|
| Estuarine | |
| Wetland of High Conservation Value | |
| Bog | |
| Mature Forest | |
| Old Growth Forest | |
| Coastal Lagoon | |
| Interdunal | |
| None of the above | X |

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

| Map of: | To answer questions: | Figure # |
|---|----------------------|----------|
| Cowardin plant classes | D 1.3, H 1.1, H 1.4 | 1 |
| Hydroperiods | D 1.4, H 1.2 | 2 |
| Location of outlet (<i>can be added to map of hydroperiods</i>) | D 1.1, D 4.1 | N/A |
| Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>) | D 2.2, D 5.2 | 1 |
| Map of the contributing basin | D 4.3, D 5.3 | 3 |
| 1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat | H 2.1, H 2.2, H 2.3 | 4 |
| Screen capture of map of 303(d) listed waters in basin (from Ecology website) | D 3.1, D 3.2 | 5 |
| Screen capture of list of TMDLs for WRIA in which unit is found (from web) | D 3.3 | 6 |

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 | |
| 1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat | H 2.1, H 2.2, H 2.3 | |
| Screen capture of map of 303(d) listed waters in basin (from Ecology website) | R 3.1 | |
| Screen capture of list of TMDLs for WRIA in which unit is found (from web) | R 3.2, R 3.3 | |

Lake Fringe Wetlands

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

Slope Wetlands

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

HGM Classification of Wetland in Western Washington

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

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

☒ NO - go to 2

☐ YES - the wetland class is **Tidal Fringe** - go to 1.1

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

☐ NO - **Saltwater Tidal Fringe (Estuarine)**

☐ YES - **Freshwater Tidal Fringe**

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

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it.

Groundwater and surface water runoff are NOT sources of water to the unit.

☒ NO - go to 3

☐ YES - The wetland class is **Flats**

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

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

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

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

☒ NO - go to 4

☐ YES - The wetland class is **Lake Fringe** (Lacustrine Fringe)

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

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

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

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

☒ NO - go to 5

☐ YES - The wetland class is **Slope**

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

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

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

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

☒ NO - go to 6

☐ YES - The wetland class is **Riverine**

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

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

☐ NO - go to 7

☒ YES - The wetland class is **Depressional**

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

☐ NO - go to 8

☐ YES - The wetland class is **Depressional**

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

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

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

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

NOTES and FIELD OBSERVATIONS:

DEPRESSIONAL AND FLATS WETLANDS**Water Quality Functions** - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?

D 1.1. Characteristics of surface water outflows from the wetland:Wetland is a depression or flat depression (QUESTION 7 on key)
with no surface water leaving it (no outlet).

points = 3

Wetland has an intermittently flowing stream or ditch, OR highly
constricted permanently flowing outlet.

points = 2

☐ Wetland has an unconstricted, or slightly constricted, surface outlet
that is permanently flowing

points = 1

☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is
a permanently flowing ditch.

points = 1

3

D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic
(use NRCS definitions).

Yes = 4 No = 0

0

D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or
Forested Cowardin classes):

Wetland has persistent, ungrazed, plants > 95% of area

points = 5

Wetland has persistent, ungrazed, plants > 1/2 of area

points = 3

Wetland has persistent, ungrazed plants > 1/10 of area

points = 1

Wetland has persistent, ungrazed plants < 1/10 of area

points = 0

5

D 1.4. Characteristics of seasonal ponding or inundation:*This is the area that is ponded for at least 2 months. See description in manual.*

Area seasonally ponded is > 1/2 total area of wetland

points = 4

Area seasonally ponded is > 1/4 total area of wetland

points = 2

Area seasonally ponded is < 1/4 total area of wetland

points = 0

4

Total for D 1

Add the points in the boxes above

12

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

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

D 2.1. Does the wetland unit receive stormwater discharges?

Yes = 1 No = 0

0

D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that
generate pollutants?

Yes = 1 No = 0

1

D 2.3. Are there septic systems within 250 ft of the wetland?

Yes = 1 No = 0

0

D 2.4. Are there other sources of pollutants coming into the wetland that are
not listed in questions D 2.1 - D 2.3?

Source

Yes = 1 No = 0

0

Total for D 2

Add the points in the boxes above

1

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

D 3.0. Is the water quality improvement provided by the site valuable to society?

D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river,
lake, or marine water that is on the 303(d) list?

Yes = 1 No = 0

0

D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?

Yes = 1 No = 0

1

D 3.3. Has the site been identified in a watershed or local plan as important for
maintaining water quality (answer YES if there is a TMDL for the basin in
which the unit is found)?

Yes = 2 No = 0

2

Total for D 3

Add the points in the boxes above

3

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

DEPRESSIONAL AND FLATS WETLANDS**Hydrologic Functions** - Indicators that the site functions to reduce flooding and stream degradation**D 4.0. Does the site have the potential to reduce flooding and erosion?****D 4.1. Characteristics of surface water outflows from the wetland:**

- | | | |
|---|------------|---|
| Wetland is a depression or flat depression with no surface water leaving it (no outlet) | points = 4 | 4 |
| Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet | points = 2 | |
| Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch | points = 1 | |
| Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing | points = 0 | |

D 4.2. Depth of storage during wet periods: Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.

- | | | |
|---|------------|---|
| Marks of ponding are 3 ft or more above the surface or bottom of outlet | points = 7 | 0 |
| Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet | points = 5 | |
| <input type="checkbox"/> Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet | points = 3 | |
| <input type="checkbox"/> The wetland is a "headwater" wetland | points = 3 | |
| Wetland is flat but has small depressions on the surface that trap water | points = 1 | |
| Marks of ponding less than 0.5 ft (6 in) | points = 0 | |

D 4.3. Contribution of the wetland to storage in the watershed: Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.

- | | | |
|---|------------|---|
| <input type="checkbox"/> The area of the basin is less than 10 times the area of the unit | points = 5 | 3 |
| The area of the basin is 10 to 100 times the area of the unit | points = 3 | |
| The area of the basin is more than 100 times the area of the unit | points = 0 | |
| <input type="checkbox"/> Entire wetland is in the Flats class | points = 5 | |

Total for D 4 Add the points in the boxes above **7****Rating of Site Potential** If score is: ☐ 12 - 16 = H ☒ 6 - 11 = M ☐ 0 - 5 = L Record the rating on the first page**D 5.0. Does the landscape have the potential to support hydrologic function of the site?****D 5.1. Does the wetland unit receive stormwater discharges?** Yes = 1 No = 0 **0****D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff?** Yes = 1 No = 0 **1****D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?** Yes = 1 No = 0 **0****Total for D 5** Add the points in the boxes above **1****Rating of Landscape Potential** If score is: ☐ 3 = H ☒ 1 or 2 = M ☐ 0 = L Record the rating on the first page**D 6.0. Are the hydrologic functions provided by the site valuable to society?****D 6.1. The unit is in a landscape that has flooding problems. Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.**

- | | | |
|--|------------|---|
| The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds): | | 0 |
| • Flooding occurs in a sub-basin that is immediately down-gradient of unit. | points = 2 | |
| <input type="checkbox"/> • Surface flooding problems are in a sub-basin farther down-gradient. | points = 1 | |
| <input type="checkbox"/> Flooding from groundwater is an issue in the sub-basin. | points = 1 | |
| <input type="checkbox"/> The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why | points = 0 | |
| <input type="checkbox"/> There are no problems with flooding downstream of the wetland. | points = 0 | |

D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0 **0****Total for D 6** Add the points in the boxes above **0****Rating of Value** If score is: ☐ 2 - 4 = H ☐ 1 = M ☒ 0 = L Record the rating on the first page

These questions apply to wetlands of all HGM classes.**HABITAT FUNCTIONS** - Indicators that site functions to provide important habitat**H 1.0.** Does the site have the potential to provide habitat?

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

- | | | |
|--|----------------------------------|---|
| <input type="checkbox"/> Aquatic bed | 4 structures or more: points = 4 | 1 |
| <input type="checkbox"/> Emergent | 3 structures: points = 2 | |
| <input type="checkbox"/> Scrub-shrub (areas where shrubs have > 30% cover) | 2 structures: points = 1 | |
| <input checked="" type="checkbox"/> Forested (areas where trees have > 30% cover) | 1 structure: points = 0 | |
| <i>If the unit has a Forested class, check if:</i> | | |
| <input checked="" type="checkbox"/> The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon | | |

H 1.2. Hydroperiods

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

- | | | |
|--|-------------------------------------|---|
| <input type="checkbox"/> Permanently flooded or inundated | 4 or more types present: points = 3 | 1 |
| <input checked="" type="checkbox"/> Seasonally flooded or inundated | 3 types present: points = 2 | |
| <input type="checkbox"/> Occasionally flooded or inundated | 2 types present: points = 1 | |
| <input checked="" type="checkbox"/> Saturated only | 1 types present: points = 0 | |
| <input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland | | |
| <input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland | | |
| <input type="checkbox"/> Lake Fringe wetland | 2 points | |
| <input type="checkbox"/> Freshwater tidal wetland | 2 points | |

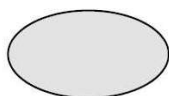
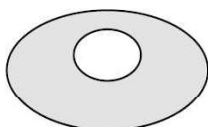
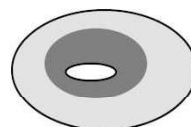
H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft². *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. **Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

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

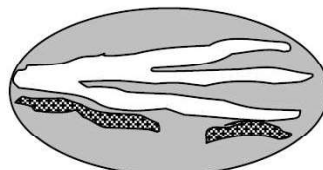
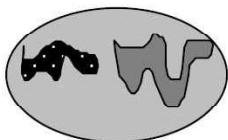
H 1.4. Interspersion of habitats

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

**None** = 0 points**Low** = 1 point**Moderate** = 2 points

1

All three diagrams in this row are
HIGH = 3 points



| | | |
|---|--|---|
| H 1.5. Special habitat features: Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i> | | 3 |
| <input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) <input checked="" type="checkbox"/> Standing snags (dbh > 4 in) within the wetland <input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) <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 (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>) <input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>) <input checked="" 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) | | |
| Total for H 1 | | |
| Add the points in the boxes above | | |
| 8 | | |

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

| | | |
|--|--|----|
| H 2.0. Does the landscape have the potential to support the habitat function of the site? | | |
| H 2.1 Accessible habitat (include only habitat that directly abuts wetland unit). Calculate: 1 % undisturbed habitat + (1 % moderate & low intensity land uses / 2) = 1.5% | | |
| If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0 | | 0 |
| H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. Calculate: 21 % undisturbed habitat + (11 % moderate & low intensity land uses / 2) = 26.5% | | |
| Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0 | | 2 |
| H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0 | | -2 |
| Total for H 2 | | |
| Add the points in the boxes above | | 0 |

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

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

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

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.

<http://wdfw.wa.gov/publications/00165/wdfw00165.pdf> or access the list from here:

<http://wdfw.wa.gov/conservation/phs/list/>

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

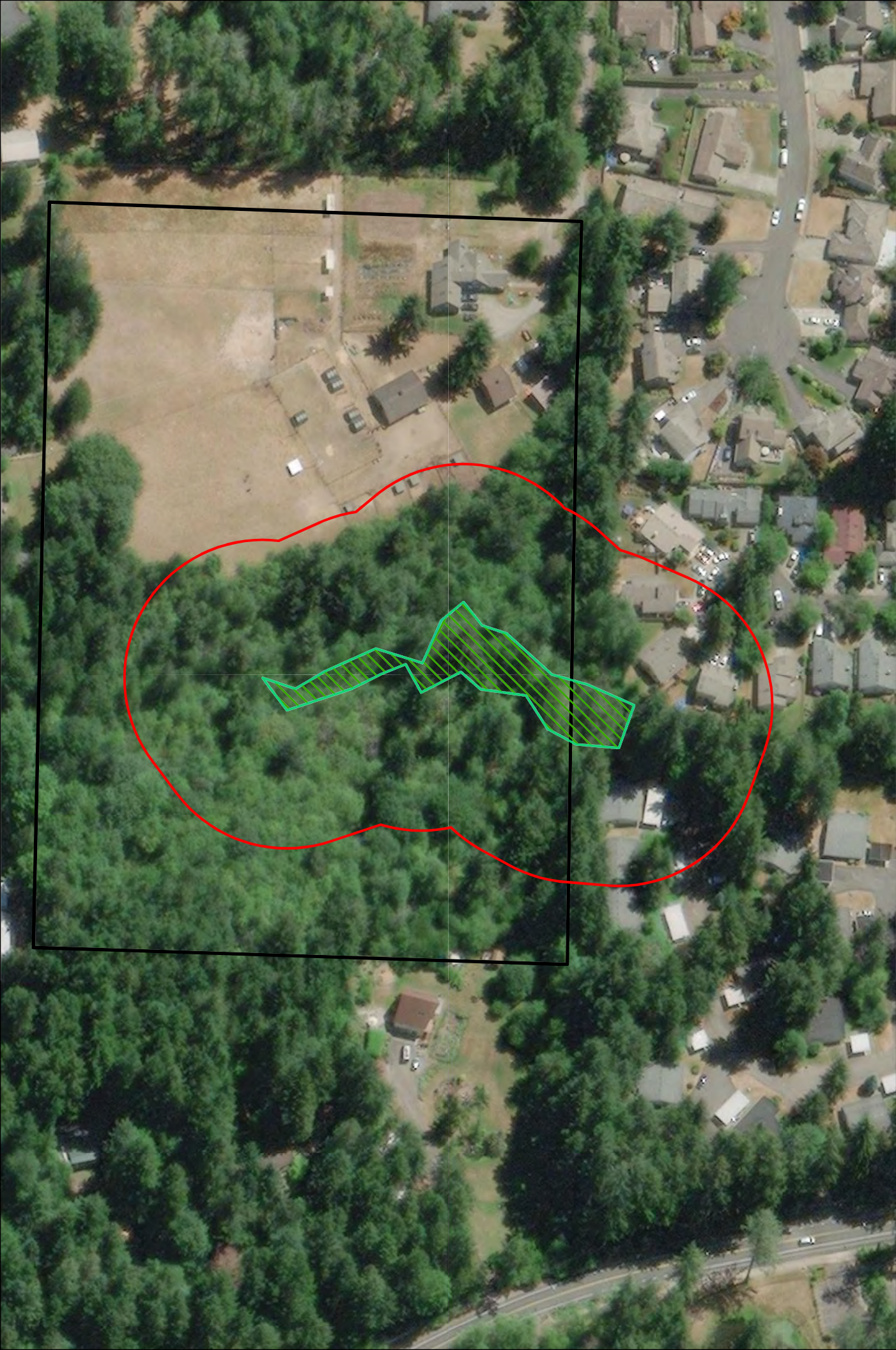
- ☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☐ **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☐ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☐ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

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

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

| | |
|--|--|
| <p>SC 4.0. Forested Wetlands</p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i></p> <p><input type="checkbox"/> Old-growth forests (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.</p> <p><input type="checkbox"/> Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).</p> <p><input type="checkbox"/> Yes = Category I <input checked="" type="checkbox"/> No = Not a forested wetland for this section</p> | |
| <p>SC 5.0. Wetlands in Coastal Lagoons</p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <p><input type="checkbox"/> The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks</p> <p><input type="checkbox"/> The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>)</p> <p><input type="checkbox"/> Yes - Go to SC 5.1 <input checked="" type="checkbox"/> No = Not a wetland in a coastal lagoon</p> <p>SC 5.1. Does the wetland meet all of the following three conditions?</p> <p><input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).</p> <p><input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.</p> <p><input type="checkbox"/> The wetland is larger than 1/10 ac (4350 ft²)</p> <p><input type="checkbox"/> Yes = Category I <input type="checkbox"/> No = Category II</p> | |
| <p>SC 6.0. Interdunal Wetlands</p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <p><input type="checkbox"/> Long Beach Peninsula: Lands west of SR 103</p> <p><input type="checkbox"/> Grayland-Westport: Lands west of SR 105</p> <p><input type="checkbox"/> Ocean Shores-Copalis: Lands west of SR 115 and SR 109</p> <p><input type="checkbox"/> Yes - Go to SC 6.1 <input checked="" type="checkbox"/> No = Not an interdunal wetland for rating</p> <p>SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?</p> <p><input type="checkbox"/> Yes = Category I <input type="checkbox"/> No - Go to SC 6.2</p> <p>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?</p> <p><input type="checkbox"/> Yes = Category II <input type="checkbox"/> No - Go to SC 6.3</p> <p>SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?</p> <p><input type="checkbox"/> Yes = Category III <input type="checkbox"/> No = Category IV</p> | |
| <p>Category of wetland based on Special Characteristics</p> <p>If you answered No for all types, enter "Not Applicable" on Summary Form</p> | |



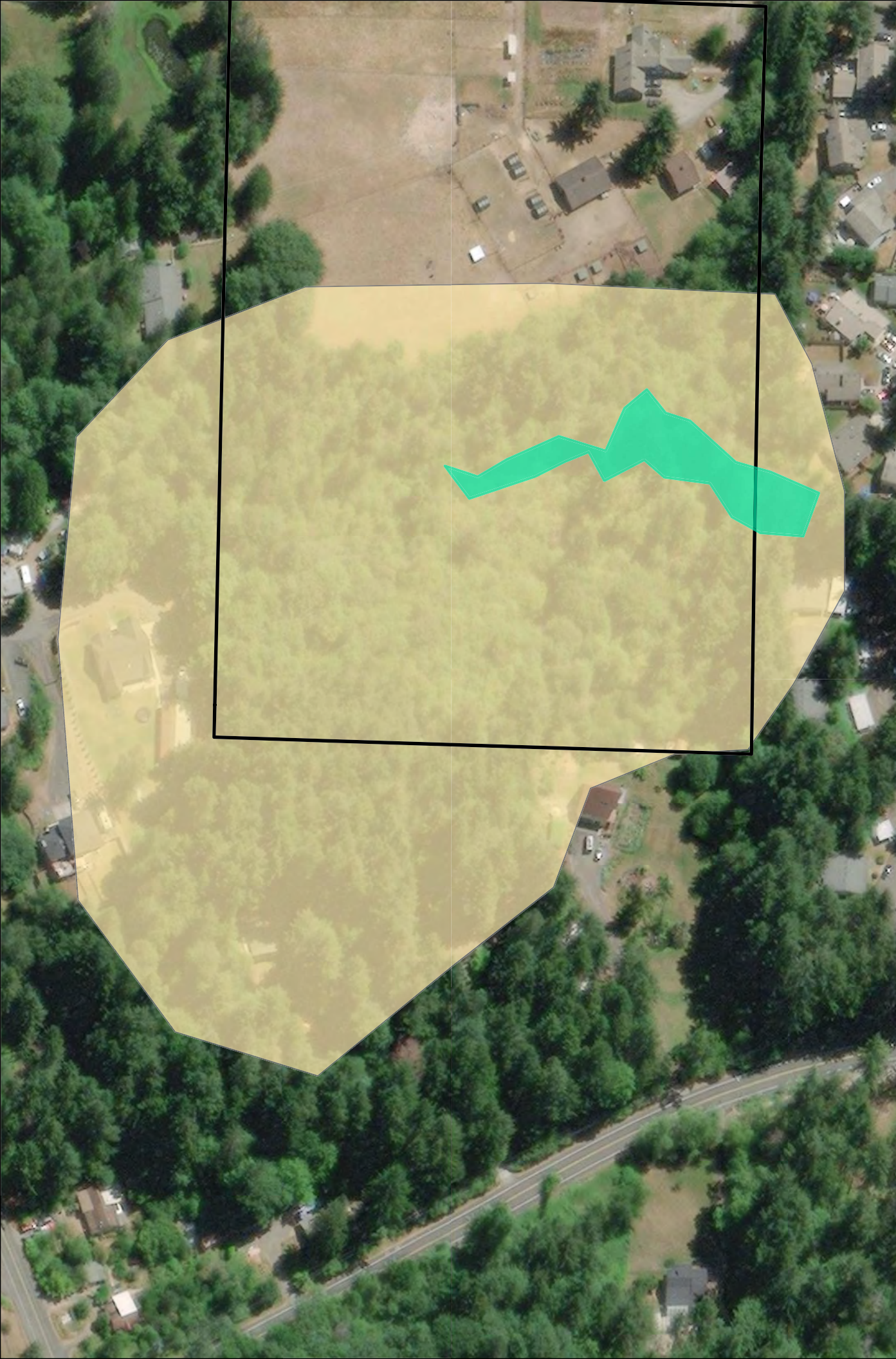
Feet
0 150

- Parcel Boundary
- Wetland A
- Forested
- 150 ft Analysis Area

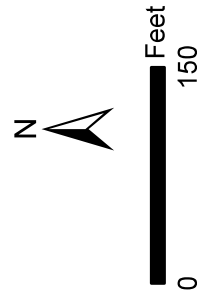


Parcel Boundary
Wetland A

Hydroperiod
Permanently Inundated
Seasonally Inundated





- Parcel Boundary
- Wetland A
- Contributing Basin







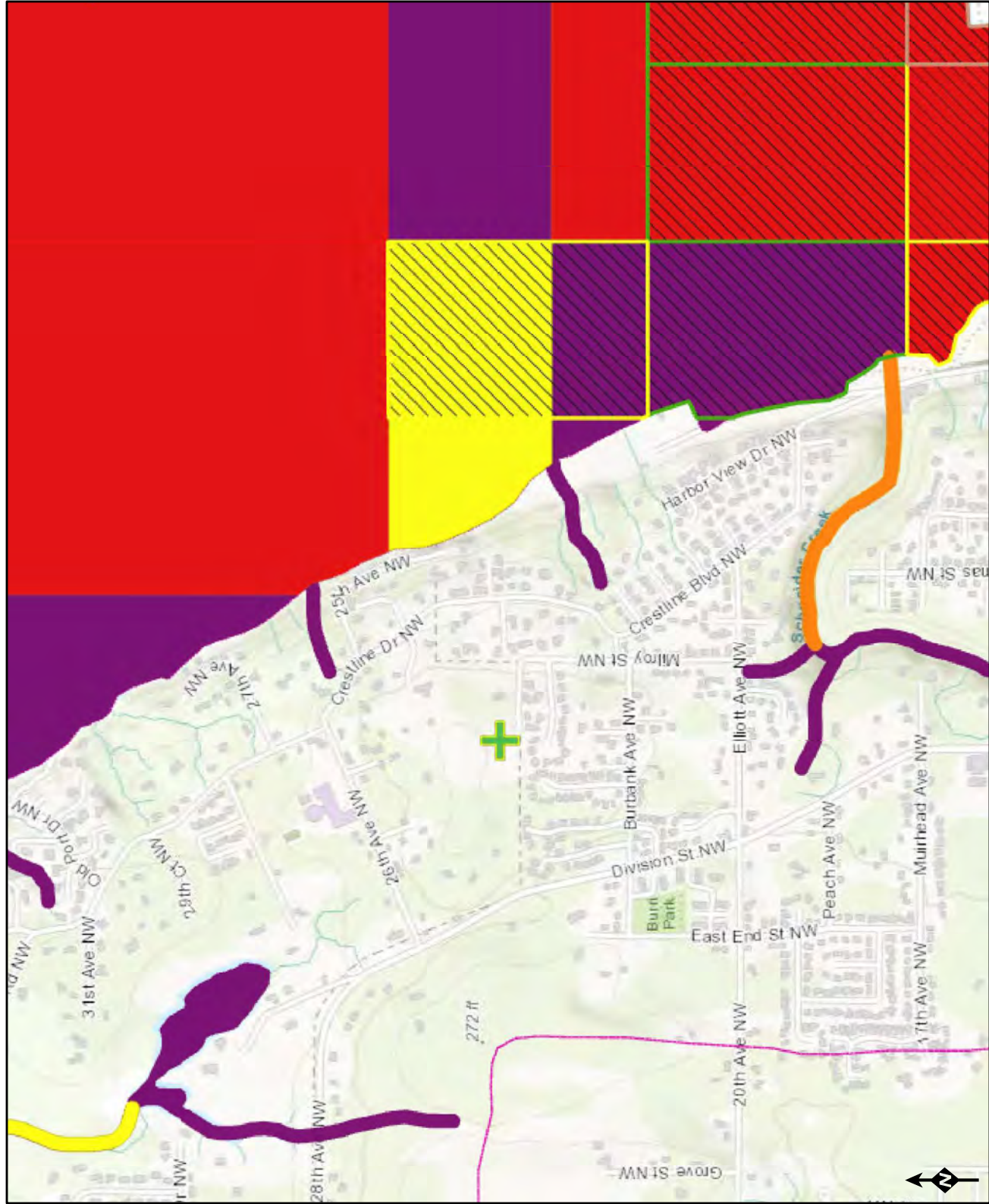
 Wetland A
 1 km Analysis Area

Land Use Intensity**
 Low/moderate
 Relatively Undisturbed

**Uncolored areas represent high intensity land use.

 N
 Feet
0 1,000

WQA 303(d)



Assessed Water/Sediment

Water

- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Sediment

- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Water Quality Standards

- All Standards

Subbasins (12 digit HUCs)

- HUC boundary

Miles 0 0.1 0.2 0.4

Subbasins (12 digit HUCs)
HUC boundary



RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland B Date of site visit: 7/19/2023Rated by A. Michniak & K. McArthur Trained by Ecology? ☒ Yes ☐ No Date of training 3/23 & 6/16HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☐ Yes ☒ No**NOTE: Form is not complete with out the figures requested (figures can be combined).**Source of base aerial photo/map Esri, Maxar, Earthstat GeographicsOVERALL WETLAND CATEGORY III (based on functions ☒ or special characteristics ☐)**1. Category of wetland based on FUNCTIONS**

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

| FUNCTION | Improving Water Quality | Hydrologic | Habitat | |
|--|-------------------------|------------|---------|--------------|
| <i>List appropriate rating (H, M, L)</i> | | | | |
| Site Potential | H | L | L | |
| Landscape Potential | M | M | L | |
| Value | H | L | L | Total |
| Score Based on Ratings | 8 | 4 | 3 | 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

2. Category based on SPECIAL CHARACTERISTICS of wetland

| CHARACTERISTIC | Category |
|------------------------------------|----------|
| Estuarine | |
| Wetland of High Conservation Value | |
| Bog | |
| Mature Forest | |
| Old Growth Forest | |
| Coastal Lagoon | |
| Interdunal | |
| None of the above | X |

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

| Map of: | To answer questions: | Figure # |
|---|----------------------|----------|
| Cowardin plant classes | D 1.3, H 1.1, H 1.4 | 1 |
| Hydroperiods | D 1.4, H 1.2 | 2 |
| Location of outlet (<i>can be added to map of hydroperiods</i>) | D 1.1, D 4.1 | 2 |
| Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>) | D 2.2, D 5.2 | 2 |
| Map of the contributing basin | D 4.3, D 5.3 | 3 |
| 1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat | H 2.1, H 2.2, H 2.3 | 4 |
| Screen capture of map of 303(d) listed waters in basin (from Ecology website) | D 3.1, D 3.2 | 5 |
| Screen capture of list of TMDLs for WRIA in which unit is found (from web) | D 3.3 | 6 |

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 | |
| 1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat | H 2.1, H 2.2, H 2.3 | |
| Screen capture of map of 303(d) listed waters in basin (from Ecology website) | R 3.1 | |
| Screen capture of list of TMDLs for WRIA in which unit is found (from web) | R 3.2, R 3.3 | |

Lake Fringe Wetlands

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

Slope Wetlands

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

HGM Classification of Wetland in Western Washington

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

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

- ☐ NO - go to 2 ☐ YES - the wetland class is **Tidal Fringe** - go to 1.1

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

- ☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

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

- ☐ NO - go to 3 ☐ YES - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

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

- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

- ☐ NO - go to 4 ☐ YES - The wetland class is **Lake Fringe** (Lacustrine Fringe)

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

- ☐ The wetland is on a slope (*slope can be very gradual*),
- ☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☐ The water leaves the wetland **without being impounded**.

- ☐ NO - go to 5 ☐ YES - The wetland class is **Slope**

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

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

- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☐ The overbank flooding occurs at least once every 2 years.

- ☐ NO - go to 6 ☐ YES - The wetland class is **Riverine**

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

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

☐ NO - go to 7

☐ YES - The wetland class is **Depressional**

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

☐ NO - go to 8

☐ YES - The wetland class is **Depressional**

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

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

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

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

NOTES and FIELD OBSERVATIONS:

DEPRESSIONAL AND FLATS WETLANDS**Water Quality Functions - Indicators that the site functions to improve water quality**

| | | |
|--|------------|-----------|
| D 1.0. Does the site have the potential to improve water quality? | | |
| D 1.1. Characteristics of surface water outflows from the wetland: | | |
| Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). | points = 3 | 3 |
| Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. | points = 2 | |
| □ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing | points = 1 | |
| □ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. | points = 1 | |
| D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions). | | |
| Yes = 4 No = 0 | | 0 |
| D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): | | |
| Wetland has persistent, ungrazed, plants > 95% of area | points = 5 | 5 |
| Wetland has persistent, ungrazed, plants > 1/2 of area | points = 3 | |
| Wetland has persistent, ungrazed plants > 1/10 of area | points = 1 | |
| Wetland has persistent, ungrazed plants < 1/10 of area | points = 0 | |
| D 1.4. Characteristics of seasonal ponding or inundation: | | |
| <i>This is the area that is ponded for at least 2 months. See description in manual.</i> | | |
| Area seasonally ponded is > 1/2 total area of wetland | points = 4 | 4 |
| Area seasonally ponded is > 1/4 total area of wetland | points = 2 | |
| Area seasonally ponded is < 1/4 total area of wetland | points = 0 | |
| Total for D 1 | | 12 |

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

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

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

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

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

DEPRESSIONAL AND FLATS WETLANDS**Hydrologic Functions** - Indicators that the site functions to reduce flooding and stream degradation**D 4.0. Does the site have the potential to reduce flooding and erosion?****D 4.1. Characteristics of surface water outflows from the wetland:**

- | | | |
|---|------------|---|
| Wetland is a depression or flat depression with no surface water leaving it (no outlet) | points = 4 | 4 |
| Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet | points = 2 | |
| Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch | points = 1 | |
| Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing | points = 0 | |

D 4.2. Depth of storage during wet periods: Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.

- | | | |
|--|------------|---|
| Marks of ponding are 3 ft or more above the surface or bottom of outlet | points = 7 | 0 |
| Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet | points = 5 | |
| □ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet | points = 3 | |
| □ The wetland is a "headwater" wetland | points = 3 | |
| Wetland is flat but has small depressions on the surface that trap water | points = 1 | |
| Marks of ponding less than 0.5 ft (6 in) | points = 0 | |

D 4.3. Contribution of the wetland to storage in the watershed: Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.

- | | | |
|--|------------|---|
| □ The area of the basin is less than 10 times the area of the unit | points = 5 | 0 |
| The area of the basin is 10 to 100 times the area of the unit | points = 3 | |
| The area of the basin is more than 100 times the area of the unit | points = 0 | |
| □ Entire wetland is in the Flats class | points = 5 | |

Total for D 4

Add the points in the boxes above

4**Rating of Site Potential** If score is: □ **12 - 16 = H** □ **6 - 11 = M** □ **0 - 5 = L** Record the rating on the first page**D 5.0. Does the landscape have the potential to support hydrologic function of the site?****D 5.1. Does the wetland unit receive stormwater discharges?** Yes = 1 No = 0

0

D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff?

Yes = 1 No = 0

1

D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?

Yes = 1 No = 0

0

Total for D 5

Add the points in the boxes above

1**Rating of Landscape Potential** If score is: □ **3 = H** □ **1 or 2 = M** □ **0 = L** Record the rating on the first page**D 6.0. Are the hydrologic functions provided by the site valuable to society?****D 6.1. The unit is in a landscape that has flooding problems. Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.**

- | | | |
|---|------------|---|
| The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redder). | | 0 |
| ● Flooding occurs in a sub-basin that is immediately down-gradient of unit. | points = 2 | |
| □ ● Surface flooding problems are in a sub-basin farther down-gradient. | points = 1 | |
| □ Flooding from groundwater is an issue in the sub-basin. | points = 1 | |
| □ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why | points = 0 | |
| □ There are no problems with flooding downstream of the wetland. | points = 0 | |

D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?

Yes = 2 No = 0

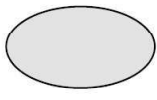
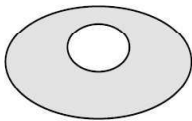
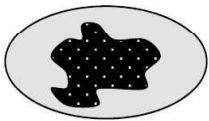
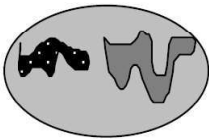
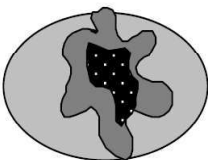
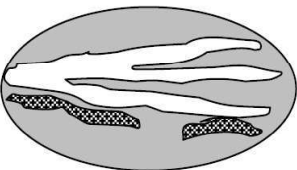
0

Total for D 6

Add the points in the boxes above

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

Record the rating on the first page

| These questions apply to wetlands of all HGM classes. | | | | | | | | | | | |
|---|---|-------------------------------------|------------|--|-----------------------------|--|-----------------------------|--|-----------------------------|------------|--|
| HABITAT FUNCTIONS - Indicators that site functions to provide important habitat | | | | | | | | | | | |
| H 1.0. Does the site have the potential to provide habitat? | | | | | | | | | | | |
| <p>H 1.1. Structure of plant community: <i>Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.</i></p> <table border="0"> <tr> <td><input type="checkbox"/> Aquatic bed</td> <td>4 structures or more: points = 4</td> <td rowspan="4">1</td> </tr> <tr> <td><input type="checkbox"/> Emergent</td> <td>3 structures: points = 2</td> </tr> <tr> <td><input type="checkbox"/> Scrub-shrub (areas where shrubs have > 30% cover)</td> <td>2 structures: points = 1</td> </tr> <tr> <td><input type="checkbox"/> Forested (areas where trees have > 30% cover)</td> <td>1 structure: points = 0</td> </tr> </table> <p><i>If the unit has a Forested class, check if:</i></p> <p><input type="checkbox"/> The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon</p> | <input type="checkbox"/> Aquatic bed | 4 structures or more: points = 4 | 1 | <input type="checkbox"/> Emergent | 3 structures: points = 2 | <input type="checkbox"/> Scrub-shrub (areas where shrubs have > 30% cover) | 2 structures: points = 1 | <input type="checkbox"/> Forested (areas where trees have > 30% cover) | 1 structure: points = 0 | | |
| <input type="checkbox"/> Aquatic bed | 4 structures or more: points = 4 | 1 | | | | | | | | | |
| <input type="checkbox"/> Emergent | 3 structures: points = 2 | | | | | | | | | | |
| <input type="checkbox"/> Scrub-shrub (areas where shrubs have > 30% cover) | 2 structures: points = 1 | | | | | | | | | | |
| <input type="checkbox"/> Forested (areas where trees have > 30% cover) | 1 structure: points = 0 | | | | | | | | | | |
| <p>H 1.2. Hydroperiods</p> <p>Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (<i>see text for descriptions of hydroperiods</i>).</p> <table border="0"> <tr> <td><input type="checkbox"/> Permanently flooded or inundated</td> <td>4 or more types present: points = 3</td> <td rowspan="4">1</td> </tr> <tr> <td><input type="checkbox"/> Seasonally flooded or inundated</td> <td>3 types present: points = 2</td> </tr> <tr> <td><input type="checkbox"/> Occasionally flooded or inundated</td> <td>2 types present: points = 1</td> </tr> <tr> <td><input type="checkbox"/> Saturated only</td> <td>1 types present: points = 0</td> </tr> </table> <p><input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland</p> <p><input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland</p> <p><input type="checkbox"/> Lake Fringe wetland 2 points</p> <p><input type="checkbox"/> Freshwater tidal wetland 2 points</p> | <input type="checkbox"/> Permanently flooded or inundated | 4 or more types present: points = 3 | 1 | <input type="checkbox"/> Seasonally flooded or inundated | 3 types present: points = 2 | <input type="checkbox"/> Occasionally flooded or inundated | 2 types present: points = 1 | <input type="checkbox"/> Saturated only | 1 types present: points = 0 | | |
| <input type="checkbox"/> Permanently flooded or inundated | 4 or more types present: points = 3 | 1 | | | | | | | | | |
| <input type="checkbox"/> Seasonally flooded or inundated | 3 types present: points = 2 | | | | | | | | | | |
| <input type="checkbox"/> Occasionally flooded or inundated | 2 types present: points = 1 | | | | | | | | | | |
| <input type="checkbox"/> Saturated only | 1 types present: points = 0 | | | | | | | | | | |
| <p>H 1.3. Richness of plant species</p> <p>Count the number of plant species in the wetland that cover at least 10 ft². <i>Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle</i></p> <table border="0"> <tr> <td>If you counted:</td> <td>> 19 species</td> <td>points = 2</td> <td rowspan="3">1</td> </tr> <tr> <td></td> <td>5 - 19 species</td> <td>points = 1</td> </tr> <tr> <td></td> <td>< 5 species</td> <td>points = 0</td> </tr> </table> | If you counted: | > 19 species | points = 2 | 1 | | 5 - 19 species | points = 1 | | < 5 species | points = 0 | |
| If you counted: | > 19 species | points = 2 | 1 | | | | | | | | |
| | 5 - 19 species | points = 1 | | | | | | | | | |
| | < 5 species | points = 0 | | | | | | | | | |
| <p>H 1.4. Interspersion of habitats</p> <p>Decide from the diagrams below whether interspersions among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. <i>If you have four or more plant classes or three classes and open water, the rating is always high.</i></p> <div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  <p>None = 0 points</p> </div> <div style="text-align: center;">  <p>Low = 1 point</p> </div> <div style="text-align: center;">  <p>Moderate = 2 points</p> </div> </div> <div style="display: flex; justify-content: space-around; align-items: flex-end; margin-top: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div> <p>All three diagrams in this row are HIGH = 3 points</p> | 0 | | | | | | | | | | |

| | | | |
|--|---|--|----------|
| H 1.5. Special habitat features: Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i> | | | |
| <input type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) <input type="checkbox"/> Standing snags (dbh > 4 in) within the wetland <input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) <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 (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>) <input type="checkbox"/> At least 1/4 ac of unimpaired persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>) <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) | 2 | | |
| Total for H 1 | | Add the points in the boxes above | 5 |
| Rating of Site Potential If Score is: <input type="checkbox"/> 15 - 18 = H <input type="checkbox"/> 7 - 14 = M <input type="checkbox"/> 0 - 6 = L <i>Record the rating on the first page</i> | | | |

| | | | | |
|--|--|--|--|----------|
| H 2.0. Does the landscape have the potential to support the habitat function of the site? | | | | |
| H 2.1 Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>). <i>Calculate:</i> 1 % undisturbed habitat + (1 % moderate & low intensity land uses / 2) = 1.5% If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0 | | | 0 | |
| H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. <i>Calculate:</i> 21 % undisturbed habitat + (11 % moderate & low intensity land uses / 2) = 26.5% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0 | | | 2 | |
| H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1 km Polygon is high intensity points = 0 | | | -2 | |
| Total for H 2 | | | Add the points in the boxes above | 0 |
| Rating of Landscape Potential If Score is: <input type="checkbox"/> 4 - 6 = H <input type="checkbox"/> 1 - 3 = M <input type="checkbox"/> < 1 = L <i>Record the rating on the first page</i> | | | | |

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

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.

<http://wdfw.wa.gov/publications/00165/wdfw00165.pdf> or access the list from here:

<http://wdfw.wa.gov/conservation/phs/list/>

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

- ❑ **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ❑ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ❑ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
- ❑ **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ❑ **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ❑ **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ❑ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ❑ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ❑ **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ❑ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ❑ **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ❑ **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ❑ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

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

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

| | |
|---|--|
| <p>SC 4.0. Forested Wetlands</p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Old-growth forests (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. <input type="checkbox"/> Mature forests (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). <p style="text-align: center;"><input type="checkbox"/> Yes = Category I <input type="checkbox"/> No = Not a forested wetland for this section</p> | |
| <p>SC 5.0. Wetlands in Coastal Lagoons</p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <ul style="list-style-type: none"> <input type="checkbox"/> The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks <input type="checkbox"/> The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>) <p style="text-align: center;"><input type="checkbox"/> Yes - Go to SC 5.1 <input type="checkbox"/> No = Not a wetland in a coastal lagoon</p> <p>SC 5.1. Does the wetland meet all of the following three conditions?</p> <ul style="list-style-type: none"> <input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). <input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. <input type="checkbox"/> The wetland is larger than 1/10 ac (4350 ft²) <p style="text-align: center;"><input type="checkbox"/> Yes = Category I <input type="checkbox"/> No = Category II</p> | |
| <p>SC 6.0. Interdunal Wetlands</p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Long Beach Peninsula: Lands west of SR 103 <input type="checkbox"/> Grayland-Westport: Lands west of SR 105 <input type="checkbox"/> Ocean Shores-Copalis: Lands west of SR 115 and SR 109 <p style="text-align: center;"><input type="checkbox"/> Yes - Go to SC 6.1 <input type="checkbox"/> No = Not an interdunal wetland for rating</p> <p>SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?</p> <p style="text-align: center;"><input type="checkbox"/> Yes = Category I <input type="checkbox"/> No - Go to SC 6.2</p> <p>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?</p> <p style="text-align: center;"><input type="checkbox"/> Yes = Category II <input type="checkbox"/> No - Go to SC 6.3</p> <p>SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?</p> <p style="text-align: center;"><input type="checkbox"/> Yes = Category III <input type="checkbox"/> No = Category IV</p> | |
| <p>Category of wetland based on Special Characteristics</p> <p>If you answered No for all types, enter "Not Applicable" on Summary Form</p> | |



Cowardin Class





Forested

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

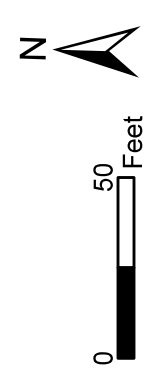




Hydroperiod

-  Saturated Only
-  Seasonally Flooded
-  150 ft Analysis Area

Note: Wetland has no outlet



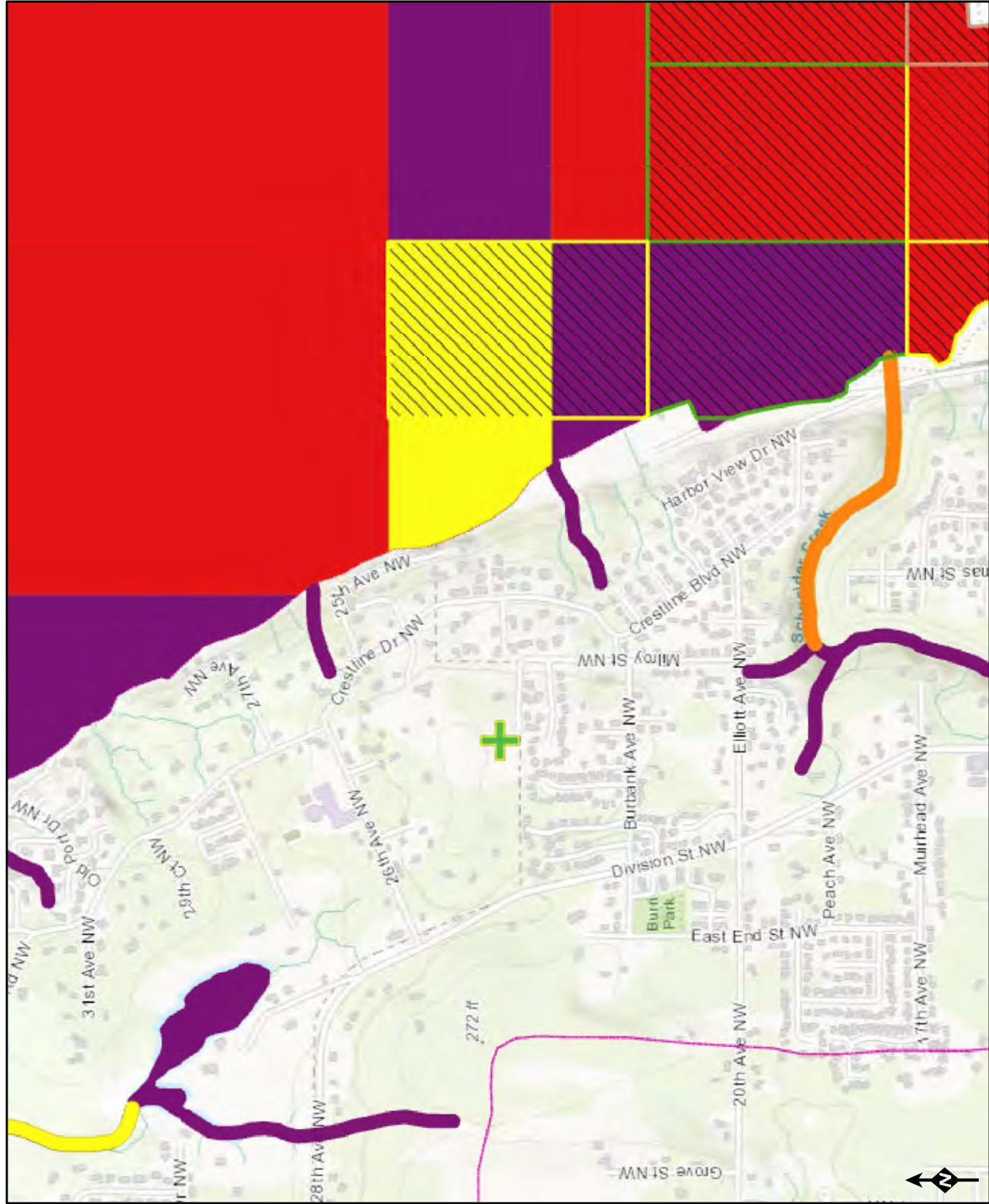


-  Wetland B
-  Contributing Basin





WQA 303(d)

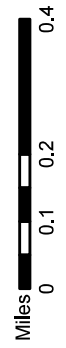


Miles 0 0.1 0.2 0.4

Esri, NASA, NGA, USGS, FEMA
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS,
FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri



HUC boundary



RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland C Date of site visit: 7/19/2023Rated by A. Michniak & K. McArthur Trained by Ecology? ☒ Yes ☐ No Date of training 3/23 & 6/16HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☐ Yes ☒ No**NOTE: Form is not complete with out the figures requested (figures can be combined).**Source of base aerial photo/map Esri, Maxar, Earthstat GeographicsOVERALL WETLAND CATEGORY IV (based on functions ☒ or special characteristics ☐)**1. Category of wetland based on FUNCTIONS**

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

| FUNCTION | Improving Water Quality | Hydrologic | Habitat | |
|--|-------------------------|------------|---------|--------------|
| <i>List appropriate rating (H, M, L)</i> | | | | |
| Site Potential | M | L | L | |
| Landscape Potential | M | M | L | |
| Value | H | L | L | Total |
| Score Based on Ratings | 7 | 4 | 3 | 14 |

Score for each function based on three ratings

(order of ratings is not important)

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

| CHARACTERISTIC | Category |
|------------------------------------|----------|
| Estuarine | |
| Wetland of High Conservation Value | |
| Bog | |
| Mature Forest | |
| Old Growth Forest | |
| Coastal Lagoon | |
| Interdunal | |
| None of the above | X |

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

| Map of: | To answer questions: | Figure # |
|---|----------------------|----------|
| Cowardin plant classes | D 1.3, H 1.1, H 1.4 | 1 |
| Hydroperiods | D 1.4, H 1.2 | 2 |
| Location of outlet (<i>can be added to map of hydroperiods</i>) | D 1.1, D 4.1 | 2 |
| Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>) | D 2.2, D 5.2 | 2 |
| Map of the contributing basin | D 4.3, D 5.3 | 3 |
| 1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat | H 2.1, H 2.2, H 2.3 | 4 |
| Screen capture of map of 303(d) listed waters in basin (from Ecology website) | D 3.1, D 3.2 | 5 |
| Screen capture of list of TMDLs for WRIA in which unit is found (from web) | D 3.3 | 6 |

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 | |
| 1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat | H 2.1, H 2.2, H 2.3 | |
| Screen capture of map of 303(d) listed waters in basin (from Ecology website) | R 3.1 | |
| Screen capture of list of TMDLs for WRIA in which unit is found (from web) | R 3.2, R 3.3 | |

Lake Fringe Wetlands

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

Slope Wetlands

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

HGM Classification of Wetland in Western Washington

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

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

- ☐ NO - go to 2 ☐ YES - the wetland class is **Tidal Fringe** - go to 1.1

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

- ☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method cannot be used to score functions for estuarine wetlands.*

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

- ☐ NO - go to 3 ☐ **YES - The wetland class is **Flats****
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

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

- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

- ☐ NO - go to 4 ☐ **YES - The wetland class is **Lake Fringe** (Lacustrine Fringe)**

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

- ☐ The wetland is on a slope (*slope can be very gradual*),
☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
☐ The water leaves the wetland **without being impounded**.

- ☐ NO - go to 5 ☐ **YES - The wetland class is **Slope****

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

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

- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
☐ The overbank flooding occurs at least once every 2 years.

- ☐ NO - go to 6 ☐ **YES - The wetland class is **Riverine****

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

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

☐ NO - go to 7

☐ YES - The wetland class is **Depressional**

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

☐ NO - go to 8

☐ YES - The wetland class is **Depressional**

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

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

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

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

NOTES and FIELD OBSERVATIONS:

DEPRESSIONAL AND FLATS WETLANDS**Water Quality Functions - Indicators that the site functions to improve water quality**

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

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

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

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

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

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

DEPRESSIONAL AND FLATS WETLANDS**Hydrologic Functions** - Indicators that the site functions to reduce flooding and stream degradation**D 4.0. Does the site have the potential to reduce flooding and erosion?****D 4.1. Characteristics of surface water outflows from the wetland:**

- | | | |
|---|------------|---|
| Wetland is a depression or flat depression with no surface water leaving it (no outlet) | points = 4 | 4 |
| Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet | points = 2 | |
| Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch | points = 1 | |
| Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing | points = 0 | |

D 4.2. Depth of storage during wet periods: Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.

- | | | |
|--|------------|---|
| Marks of ponding are 3 ft or more above the surface or bottom of outlet | points = 7 | 0 |
| Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet | points = 5 | |
| □ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet | points = 3 | |
| □ The wetland is a "headwater" wetland | points = 3 | |
| Wetland is flat but has small depressions on the surface that trap water | points = 1 | |
| Marks of ponding less than 0.5 ft (6 in) | points = 0 | |

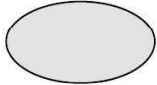
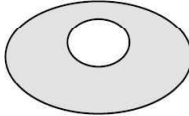
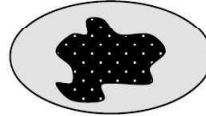
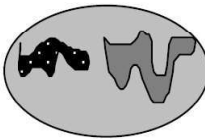

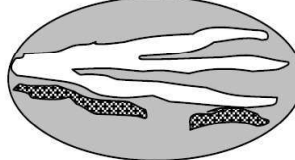
D 4.3. Contribution of the wetland to storage in the watershed: Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.

- | | | |
|--|------------|---|
| □ The area of the basin is less than 10 times the area of the unit | points = 5 | 0 |
| The area of the basin is 10 to 100 times the area of the unit | points = 3 | |
| The area of the basin is more than 100 times the area of the unit | points = 0 | |
| □ Entire wetland is in the Flats class | points = 5 | |

Total for D 4 Add the points in the boxes above **4****Rating of Site Potential** If score is: □ **12 - 16 = H** □ **6 - 11 = M** □ **0 - 5 = L** Record the rating on the first page**D 5.0. Does the landscape have the potential to support hydrologic function of the site?****D 5.1. Does the wetland unit receive stormwater discharges?** Yes = 1 No = 0 **0****D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff?** Yes = 1 No = 0 **1****D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?** Yes = 1 No = 0 **0****Total for D 5** Add the points in the boxes above **1****Rating of Landscape Potential** If score is: □ **3 = H** □ **1 or 2 = M** □ **0 = L** Record the rating on the first page**D 6.0. Are the hydrologic functions provided by the site valuable to society?****D 6.1. The unit is in a landscape that has flooding problems. Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.**

- | | | |
|---|------------|------------|
| The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redder). | 0 | |
| ● Flooding occurs in a sub-basin that is immediately down-gradient of unit. | | points = 2 |
| □ ● Surface flooding problems are in a sub-basin farther down-gradient. | | points = 1 |
| □ Flooding from groundwater is an issue in the sub-basin. | | points = 1 |
| □ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why | points = 0 | |
| □ There are no problems with flooding downstream of the wetland. | points = 0 | |

D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0 **0****Total for D 6** Add the points in the boxes above **0****Rating of Value** If score is: □ **2 - 4 = H** □ **1 = M** □ **0 = L** Record the rating on the first page

| These questions apply to wetlands of all HGM classes. | | | | | | | | | | | |
|---|---|-------------------------------------|------------|--|-----------------------------|--|-----------------------------|--|-----------------------------|------------|--|
| HABITAT FUNCTIONS - Indicators that site functions to provide important habitat | | | | | | | | | | | |
| H 1.0. Does the site have the potential to provide habitat? | | | | | | | | | | | |
| <p>H 1.1. Structure of plant community: <i>Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.</i></p> <table border="0"> <tr> <td><input type="checkbox"/> Aquatic bed</td> <td>4 structures or more: points = 4</td> <td rowspan="4">1</td> </tr> <tr> <td><input type="checkbox"/> Emergent</td> <td>3 structures: points = 2</td> </tr> <tr> <td><input type="checkbox"/> Scrub-shrub (areas where shrubs have > 30% cover)</td> <td>2 structures: points = 1</td> </tr> <tr> <td><input type="checkbox"/> Forested (areas where trees have > 30% cover)</td> <td>1 structure: points = 0</td> </tr> </table> <p><i>If the unit has a Forested class, check if:</i></p> <p><input type="checkbox"/> The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon</p> | <input type="checkbox"/> Aquatic bed | 4 structures or more: points = 4 | 1 | <input type="checkbox"/> Emergent | 3 structures: points = 2 | <input type="checkbox"/> Scrub-shrub (areas where shrubs have > 30% cover) | 2 structures: points = 1 | <input type="checkbox"/> Forested (areas where trees have > 30% cover) | 1 structure: points = 0 | | |
| <input type="checkbox"/> Aquatic bed | 4 structures or more: points = 4 | 1 | | | | | | | | | |
| <input type="checkbox"/> Emergent | 3 structures: points = 2 | | | | | | | | | | |
| <input type="checkbox"/> Scrub-shrub (areas where shrubs have > 30% cover) | 2 structures: points = 1 | | | | | | | | | | |
| <input type="checkbox"/> Forested (areas where trees have > 30% cover) | 1 structure: points = 0 | | | | | | | | | | |
| <p>H 1.2. Hydroperiods</p> <p>Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (<i>see text for descriptions of hydroperiods</i>).</p> <table border="0"> <tr> <td><input type="checkbox"/> Permanently flooded or inundated</td> <td>4 or more types present: points = 3</td> <td rowspan="4">1</td> </tr> <tr> <td><input type="checkbox"/> Seasonally flooded or inundated</td> <td>3 types present: points = 2</td> </tr> <tr> <td><input type="checkbox"/> Occasionally flooded or inundated</td> <td>2 types present: points = 1</td> </tr> <tr> <td><input type="checkbox"/> Saturated only</td> <td>1 types present: points = 0</td> </tr> </table> <p><input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland</p> <p><input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland</p> <p><input type="checkbox"/> Lake Fringe wetland 2 points</p> <p><input type="checkbox"/> Freshwater tidal wetland 2 points</p> | <input type="checkbox"/> Permanently flooded or inundated | 4 or more types present: points = 3 | 1 | <input type="checkbox"/> Seasonally flooded or inundated | 3 types present: points = 2 | <input type="checkbox"/> Occasionally flooded or inundated | 2 types present: points = 1 | <input type="checkbox"/> Saturated only | 1 types present: points = 0 | | |
| <input type="checkbox"/> Permanently flooded or inundated | 4 or more types present: points = 3 | 1 | | | | | | | | | |
| <input type="checkbox"/> Seasonally flooded or inundated | 3 types present: points = 2 | | | | | | | | | | |
| <input type="checkbox"/> Occasionally flooded or inundated | 2 types present: points = 1 | | | | | | | | | | |
| <input type="checkbox"/> Saturated only | 1 types present: points = 0 | | | | | | | | | | |
| <p>H 1.3. Richness of plant species</p> <p>Count the number of plant species in the wetland that cover at least 10 ft². <i>Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle</i></p> <table border="0"> <tr> <td>If you counted:</td> <td>> 19 species</td> <td>points = 2</td> <td rowspan="3">1</td> </tr> <tr> <td></td> <td>5 - 19 species</td> <td>points = 1</td> </tr> <tr> <td></td> <td>< 5 species</td> <td>points = 0</td> </tr> </table> | If you counted: | > 19 species | points = 2 | 1 | | 5 - 19 species | points = 1 | | < 5 species | points = 0 | |
| If you counted: | > 19 species | points = 2 | 1 | | | | | | | | |
| | 5 - 19 species | points = 1 | | | | | | | | | |
| | < 5 species | points = 0 | | | | | | | | | |
| <p>H 1.4. Interspersion of habitats</p> <p>Decide from the diagrams below whether interspersions among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. <i>If you have four or more plant classes or three classes and open water, the rating is always high.</i></p> <div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  <p>None = 0 points</p> </div> <div style="text-align: center;">  <p>Low = 1 point</p> </div> <div style="text-align: center;">  <p>Moderate = 2 points</p> </div> </div> <div style="display: flex; justify-content: space-around; align-items: flex-end; margin-top: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div> <p>All three diagrams in this row are HIGH = 3 points</p> | 0 | | | | | | | | | | |

| | | | |
|--|---|--|----------|
| H 1.5. Special habitat features: Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i> | | | |
| <input type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) <input type="checkbox"/> Standing snags (dbh > 4 in) within the wetland <input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) <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 (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>) <input type="checkbox"/> At least 1/4 ac of unimpaired persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>) <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) | 2 | | |
| Total for H 1 | | Add the points in the boxes above | 5 |
| Rating of Site Potential If Score is: <input type="checkbox"/> 15 - 18 = H <input type="checkbox"/> 7 - 14 = M <input type="checkbox"/> 0 - 6 = L <i>Record the rating on the first page</i> | | | |

| | | | |
|--|---|--|----------|
| H 2.0. Does the landscape have the potential to support the habitat function of the site? | | | |
| H 2.1 Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>). <i>Calculate:</i> 1 % undisturbed habitat + (1 % moderate & low intensity land uses / 2) = 1.5% | | | |
| If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0 | 0 | | |
| H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. <i>Calculate:</i> 21 % undisturbed habitat + (11 % moderate & low intensity land uses / 2) = 26.5% | | | |
| Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0 | 2 | | |
| H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0 | | | |
| Total for H 2 | | Add the points in the boxes above | 0 |
| Rating of Landscape Potential If Score is: <input type="checkbox"/> 4 - 6 = H <input type="checkbox"/> 1 - 3 = M <input type="checkbox"/> < 1 = L <i>Record the rating on the first page</i> | | | |

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

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.

<http://wdfw.wa.gov/publications/00165/wdfw00165.pdf> or access the list from here:

<http://wdfw.wa.gov/conservation/phs/list/>

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

- ❑ **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ❑ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ❑ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
- ❑ **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ❑ **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ❑ **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ❑ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ❑ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ❑ **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ❑ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ❑ **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ❑ **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ❑ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

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

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

| | |
|---|--|
| <p>SC 4.0. Forested Wetlands</p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Old-growth forests (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. <input type="checkbox"/> Mature forests (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). <p><input type="checkbox"/> Yes = Category I <input type="checkbox"/> No = Not a forested wetland for this section</p> | |
| <p>SC 5.0. Wetlands in Coastal Lagoons</p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <ul style="list-style-type: none"> <input type="checkbox"/> The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks <input type="checkbox"/> The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>) <p><input type="checkbox"/> Yes - Go to SC 5.1 <input type="checkbox"/> No = Not a wetland in a coastal lagoon</p> <p>SC 5.1. Does the wetland meet all of the following three conditions?</p> <ul style="list-style-type: none"> <input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). <input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. <input type="checkbox"/> The wetland is larger than $\frac{1}{10}$ ac (4350 ft²) <p><input type="checkbox"/> Yes = Category I <input type="checkbox"/> No = Category II</p> | |
| <p>SC 6.0. Interdunal Wetlands</p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Long Beach Peninsula: Lands west of SR 103 <input type="checkbox"/> Grayland-Westport: Lands west of SR 105 <input type="checkbox"/> Ocean Shores-Copalis: Lands west of SR 115 and SR 109 <p><input type="checkbox"/> Yes - Go to SC 6.1 <input type="checkbox"/> No = Not an interdunal wetland for rating</p> <p>SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?</p> <p><input type="checkbox"/> Yes = Category I <input type="checkbox"/> No - Go to SC 6.2</p> <p>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?</p> <p><input type="checkbox"/> Yes = Category II <input type="checkbox"/> No - Go to SC 6.3</p> <p>SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?</p> <p><input type="checkbox"/> Yes = Category III <input type="checkbox"/> No = Category IV</p> | |
| <p>Category of wetland based on Special Characteristics</p> <p>If you answered No for all types, enter "Not Applicable" on Summary Form</p> | |




Cowardin Class

 Forested


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



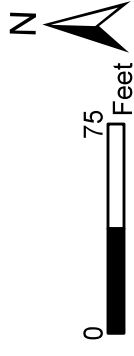
Hydroperiod

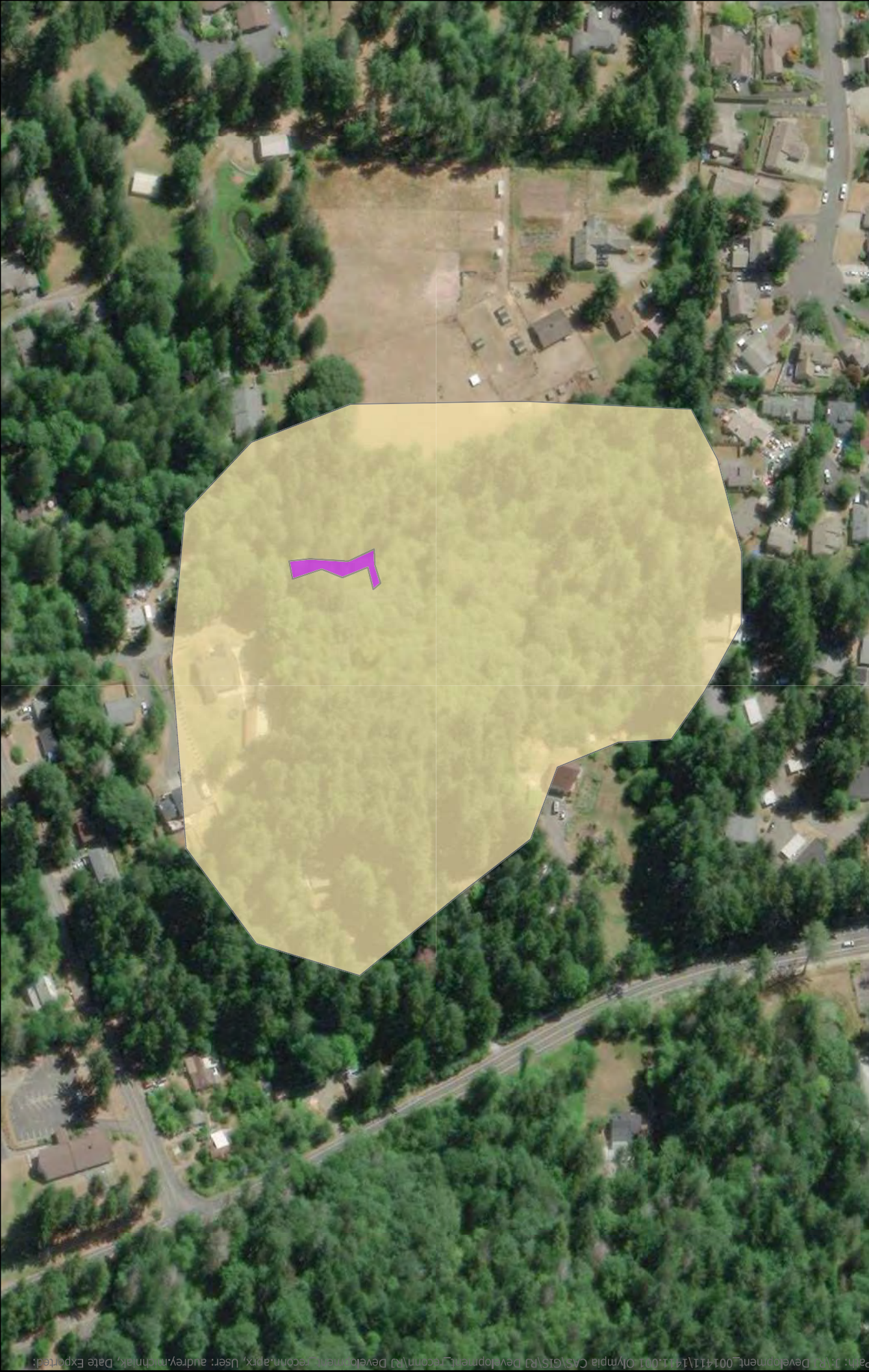
 Saturated

 Seasonally Flooded

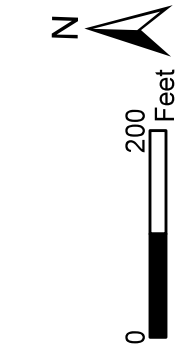
 150 ft Analysis Area

Note: Wetland has no outlet





Wetland C
Contributing Basin





Land Use Intensity*

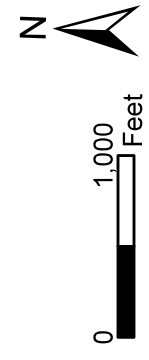
Low/moderate

Relatively Undisturbed

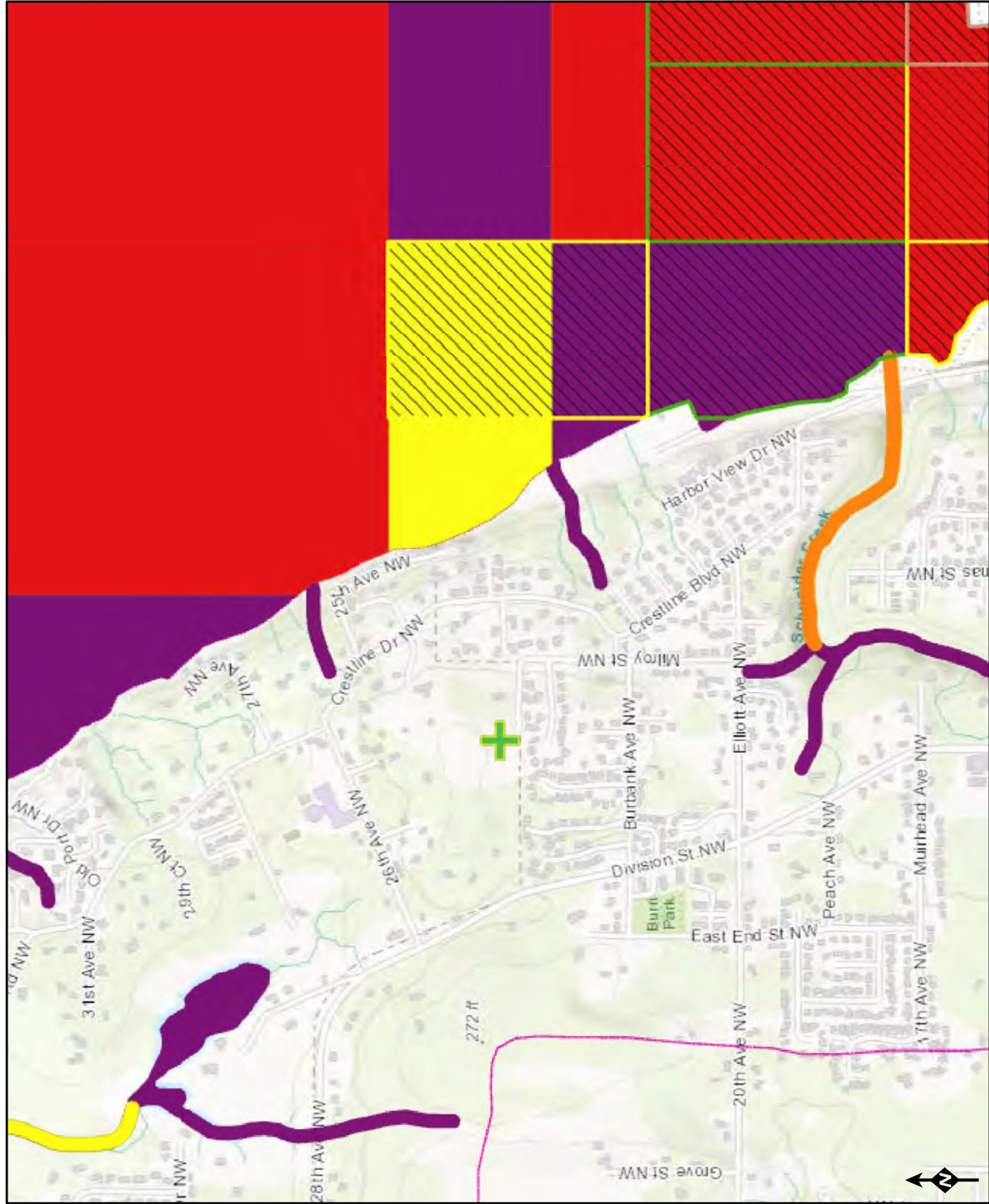
*Uncolored areas represent high intensity land use.

Wetland C

1 km Analysis Area



WQA 303(d)

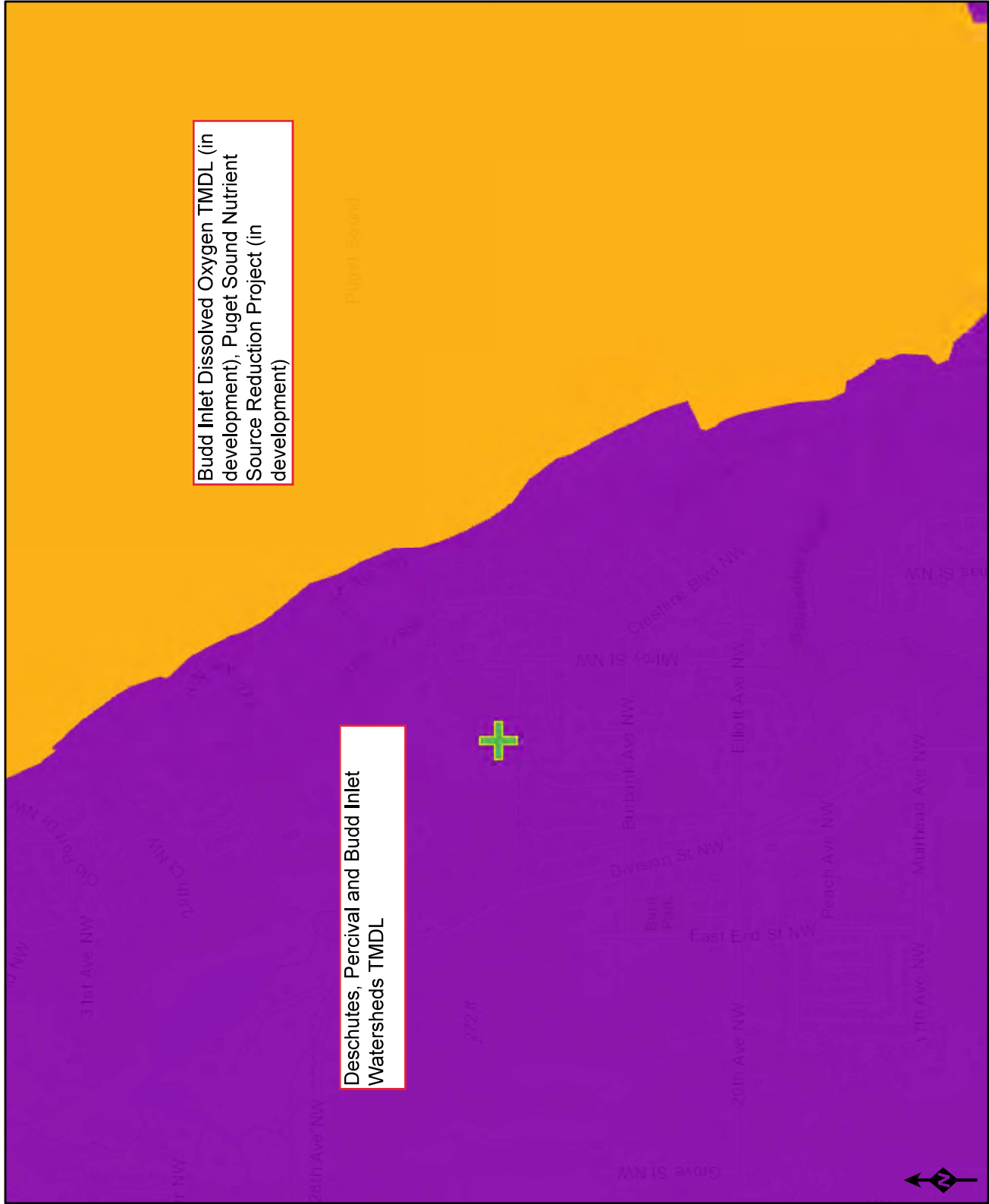


Miles 0 0.1 0.2 0.4

Esri, NASA, NGA, USGS, FEMA
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS,
FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri

WQA TMDLs

- WQ Improvement Projects**
- Approved
 - In Development
- Subbasins (12 digit HUCs)**
- HUC boundary



RATING SUMMARY – Western Washington

Name of wetland (or ID #): Off-Site Wetland Date of site visit: 10/25/2022Rated by K. McArthur and N. Dietsch Trained by Ecology? ☒ Yes ☐ No Date of training Mar-21HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☐ Yes ☒ No**NOTE: Form is not complete with out the figures requested (figures can be combined).**

Source of base aerial photo/map _____

OVERALL WETLAND CATEGORY IV (based on functions ☒ or special characteristics ☐)**1. Category of wetland based on FUNCTIONS**

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

| FUNCTION | Improving Water Quality | Hydrologic | Habitat | |
|--|-------------------------|------------|---------|-----------|
| <i>List appropriate rating (H, M, L)</i> | | | | |
| Site Potential | M | M | L | |
| Landscape Potential | M | L | L | |
| Value | H | L | L | |
| Score Based on Ratings | 7 | 4 | 3 | 14 |

Score for each function based on three ratings

(order of ratings is not important)

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

| CHARACTERISTIC | Category |
|------------------------------------|----------|
| Estuarine | |
| Wetland of High Conservation Value | |
| Bog | |
| Mature Forest | |
| Old Growth Forest | |
| Coastal Lagoon | |
| Interdunal | |
| None of the above | X |

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

| Map of: | To answer questions: | Figure # |
|---|----------------------|----------|
| Cowardin plant classes | D 1.3, H 1.1, H 1.4 | 1 |
| Hydroperiods | D 1.4, H 1.2 | 2 |
| Location of outlet (<i>can be added to map of hydroperiods</i>) | D 1.1, D 4.1 | N/A |
| Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>) | D 2.2, D 5.2 | 1 |
| Map of the contributing basin | D 4.3, D 5.3 | 3 |
| 1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat | H 2.1, H 2.2, H 2.3 | 4 |
| Screen capture of map of 303(d) listed waters in basin (from Ecology website) | D 3.1, D 3.2 | 5 |
| Screen capture of list of TMDLs for WRIA in which unit is found (from web) | D 3.3 | 6 |

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 | |
| 1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat | H 2.1, H 2.2, H 2.3 | |
| Screen capture of map of 303(d) listed waters in basin (from Ecology website) | R 3.1 | |
| Screen capture of list of TMDLs for WRIA in which unit is found (from web) | R 3.2, R 3.3 | |

Lake Fringe Wetlands

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

Slope Wetlands

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

HGM Classification of Wetland in Western Washington

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

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

☒ NO - go to 2

☐ YES - the wetland class is **Tidal Fringe** - go to 1.1

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

☐ NO - **Saltwater Tidal Fringe (Estuarine)**

☐ YES - **Freshwater Tidal Fringe**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands.*

*If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it.

Groundwater and surface water runoff are NOT sources of water to the unit.

☒ NO - go to 3

☐ YES - The wetland class is **Flats**

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

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

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

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

☒ NO - go to 4

☐ YES - The wetland class is **Lake Fringe** (Lacustrine Fringe)

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

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

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

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

☒ NO - go to 5

☐ YES - The wetland class is **Slope**

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

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

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

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

☒ NO - go to 6

☐ YES - The wetland class is **Riverine**

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

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

☐ NO - go to 7

☒ YES - The wetland class is **Depressional**

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

☐ NO - go to 8

☐ YES - The wetland class is **Depressional**

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

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

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

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

NOTES and FIELD OBSERVATIONS:

DEPRESSIONAL AND FLATS WETLANDS**Water Quality Functions** - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?

D 1.1. Characteristics of surface water outflows from the wetland:Wetland is a depression or flat depression (QUESTION 7 on key)
with no surface water leaving it (no outlet).

points = 3

Wetland has an intermittently flowing stream or ditch, OR highly
constricted permanently flowing outlet.

points = 2

☐ Wetland has an unconstricted, or slightly constricted, surface outlet
that is permanently flowing

points = 1

☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is
a permanently flowing ditch.

points = 1

3

D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic
(use NRCS definitions).

Yes = 4 No = 0

0

D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or
Forested Cowardin classes):

Wetland has persistent, ungrazed, plants > 95% of area

points = 5

Wetland has persistent, ungrazed, plants > 1/2 of area

points = 3

Wetland has persistent, ungrazed plants > 1/10 of area

points = 1

Wetland has persistent, ungrazed plants < 1/10 of area

points = 0

1

D 1.4. Characteristics of seasonal ponding or inundation:*This is the area that is ponded for at least 2 months. See description in manual.*

Area seasonally ponded is > 1/2 total area of wetland

points = 4

Area seasonally ponded is > 1/4 total area of wetland

points = 2

Area seasonally ponded is < 1/4 total area of wetland

points = 0

4

Total for D 1

Add the points in the boxes above

8

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

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

D 2.1. Does the wetland unit receive stormwater discharges?

Yes = 1 No = 0

0

D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that
generate pollutants?

Yes = 1 No = 0

0

D 2.3. Are there septic systems within 250 ft of the wetland?

Yes = 1 No = 0

1

D 2.4. Are there other sources of pollutants coming into the wetland that are
not listed in questions D 2.1 - D 2.3?

Source

Yes = 1 No = 0

0

Total for D 2

Add the points in the boxes above

1

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

D 3.0. Is the water quality improvement provided by the site valuable to society?

D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river,
lake, or marine water that is on the 303(d) list?

Yes = 1 No = 0

0

D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?

Yes = 1 No = 0

1

D 3.3. Has the site been identified in a watershed or local plan as important for
maintaining water quality (answer YES if there is a TMDL for the basin in
which the unit is found)?

Yes = 2 No = 0

2

Total for D 3

Add the points in the boxes above

3

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

DEPRESSIONAL AND FLATS WETLANDS**Hydrologic Functions** - Indicators that the site functions to reduce flooding and stream degradation**D 4.0. Does the site have the potential to reduce flooding and erosion?****D 4.1. Characteristics of surface water outflows from the wetland:**

- Wetland is a depression or flat depression with no surface water leaving it (no outlet) points = 4
- Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet points = 2
- Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch points = 1
- Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 0

4

D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*

- Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7
- Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5
- ☐ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3
- ☐ The wetland is a "headwater" wetland points = 3
- Wetland is flat but has small depressions on the surface that trap water points = 1
- Marks of ponding less than 0.5 ft (6 in) points = 0

3

D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*

- ☐ The area of the basin is less than 10 times the area of the unit points = 5
- The area of the basin is 10 to 100 times the area of the unit points = 3
- The area of the basin is more than 100 times the area of the unit points = 0
- ☐ Entire wetland is in the Flats class points = 5

3

Total for D 4

Add the points in the boxes above

10**Rating of Site Potential** If score is: ☐ 12 - 16 = H ☒ 6 - 11 = M ☐ 0 - 5 = L Record the rating on the first page**D 5.0. Does the landscape have the potential to support hydrologic function of the site?****D 5.1. Does the wetland unit receive stormwater discharges?** Yes = 1 No = 0

0

D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff? Yes = 1 No = 0

0

D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)? Yes = 1 No = 0

0

Total for D 5

Add the points in the boxes above

0**Rating of Landscape Potential** If score is: ☐ 3 = H ☐ 1 or 2 = M ☒ 0 = L Record the rating on the first page**D 6.0. Are the hydrologic functions provided by the site valuable to society?****D 6.1. The unit is in a landscape that has flooding problems.** *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*

- The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):
- ☐ • Flooding occurs in a sub-basin that is immediately down-gradient of unit. points = 2
 - ☐ • Surface flooding problems are in a sub-basin farther down-gradient. points = 1
 - ☐ Flooding from groundwater is an issue in the sub-basin. points = 1
 - ☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why points = 0
 - ☐ There are no problems with flooding downstream of the wetland. points = 0

0

D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0

0

Total for D 6

Add the points in the boxes above

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

These questions apply to wetlands of all HGM classes.**HABITAT FUNCTIONS** - Indicators that site functions to provide important habitat**H 1.0. Does the site have the potential to provide habitat?**

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

- | | | |
|---|----------------------------------|---|
| <input type="checkbox"/> Aquatic bed | 4 structures or more: points = 4 | 0 |
| <input checked="" type="checkbox"/> Emergent | 3 structures: points = 2 | |
| <input type="checkbox"/> Scrub-shrub (areas where shrubs have > 30% cover) | 2 structures: points = 1 | |
| <input type="checkbox"/> Forested (areas where trees have > 30% cover) | 1 structure: points = 0 | |
| <i>If the unit has a Forested class, check if:</i> | | |
| <input type="checkbox"/> The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon | | |

H 1.2. Hydroperiods

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

- | | | |
|--|-------------------------------------|-----------------|
| <input checked="" type="checkbox"/> Permanently flooded or inundated | 4 or more types present: points = 3 | 1 |
| <input checked="" type="checkbox"/> Seasonally flooded or inundated | 3 types present: points = 2 | |
| <input type="checkbox"/> Occasionally flooded or inundated | 2 types present: points = 1 | |
| <input type="checkbox"/> Saturated only | 1 types present: points = 0 | |
| <input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland | | |
| <input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland | | |
| <input type="checkbox"/> Lake Fringe wetland | | 2 points |
| <input type="checkbox"/> Freshwater tidal wetland | | 2 points |

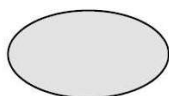
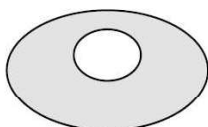
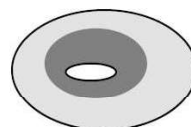
H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft². *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. **Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

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

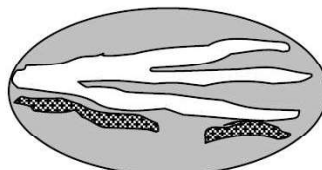
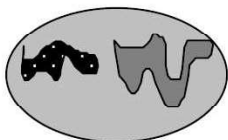
H 1.4. Interspersion of habitats

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

**None = 0 points****Low = 1 point****Moderate = 2 points**

0

All three diagrams in this row are
HIGH = 3 points



| | | |
|---|--|---|
| H 1.5. Special habitat features: Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i> | | 1 |
| <input type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) <input type="checkbox"/> Standing snags (dbh > 4 in) within the wetland <input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) <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 (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>) <input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>) <input checked="" 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) | | |
| Total for H 1 Add the points in the boxes above | | |
| Rating of Site Potential If Score is: <input type="checkbox"/> 15 - 18 = H <input type="checkbox"/> 7 - 14 = M <input checked="" type="checkbox"/> 0 - 6 = L Record the rating on the first page | | |
| | | |

| | | |
|--|--|----|
| H 2.0. Does the landscape have the potential to support the habitat function of the site? | | |
| H 2.1 Accessible habitat (include only habitat that directly abuts wetland unit). Calculate: 1 % undisturbed habitat + (1 % moderate & low intensity land uses / 2) = 1.5% | | |
| If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0 | | 0 |
| H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. Calculate: 19 % undisturbed habitat + (8 % moderate & low intensity land uses / 2) = 23% | | |
| Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0 | | 2 |
| H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0 | | -2 |
| Total for H 2 Add the points in the boxes above | | 0 |
| Rating of Landscape Potential If Score is: <input type="checkbox"/> 4 - 6 = H <input type="checkbox"/> 1 - 3 = M <input checked="" type="checkbox"/> < 1 = L Record the rating on the first page | | |

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

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.

<http://wdfw.wa.gov/publications/00165/wdfw00165.pdf> or access the list from here:

<http://wdfw.wa.gov/conservation/phs/list/>

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

- ☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☐ **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☐ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☐ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

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

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

| | |
|--|--|
| <p>SC 4.0. Forested Wetlands</p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i></p> <p><input type="checkbox"/> Old-growth forests (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.</p> <p><input type="checkbox"/> Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).</p> <p><input type="checkbox"/> Yes = Category I <input checked="" type="checkbox"/> No = Not a forested wetland for this section</p> | |
| <p>SC 5.0. Wetlands in Coastal Lagoons</p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <p><input type="checkbox"/> The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks</p> <p><input type="checkbox"/> The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>)</p> <p><input type="checkbox"/> Yes - Go to SC 5.1 <input checked="" type="checkbox"/> No = Not a wetland in a coastal lagoon</p> <p>SC 5.1. Does the wetland meet all of the following three conditions?</p> <p><input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).</p> <p><input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.</p> <p><input type="checkbox"/> The wetland is larger than 1/10 ac (4350 ft²)</p> <p><input type="checkbox"/> Yes = Category I <input type="checkbox"/> No = Category II</p> | |
| <p>SC 6.0. Interdunal Wetlands</p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <p><input type="checkbox"/> Long Beach Peninsula: Lands west of SR 103</p> <p><input type="checkbox"/> Grayland-Westport: Lands west of SR 105</p> <p><input type="checkbox"/> Ocean Shores-Copalis: Lands west of SR 115 and SR 109</p> <p><input type="checkbox"/> Yes - Go to SC 6.1 <input checked="" type="checkbox"/> No = Not an interdunal wetland for rating</p> <p>SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?</p> <p><input type="checkbox"/> Yes = Category I <input type="checkbox"/> No - Go to SC 6.2</p> <p>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?</p> <p><input type="checkbox"/> Yes = Category II <input type="checkbox"/> No - Go to SC 6.3</p> <p>SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?</p> <p><input type="checkbox"/> Yes = Category III <input type="checkbox"/> No = Category IV</p> | |
| <p>Category of wetland based on Special Characteristics</p> <p>If you answered No for all types, enter "Not Applicable" on Summary Form</p> | |



Parcel Boundary

Off-Site Wetland (estimated boundary)*

150 ft Analysis Area

Cowardin Class

Emergent (PEM)

Open Water



*The boundary of the off-site wetland was estimated based on site observations, elevation data, and aerial imagery (Thurston County 2022).





Parcel Boundary
Off-Site Wetland (estimated boundary)*

Hydroperiod

Permanently Inundated
Seasonally Inundated




*The boundary of the off-site wetland was estimated based on site observations, elevation data, and aerial imagery (Thurston County 2022).

Note - Confluence did not observe an outlet from the property boundary but could not confirm due to lack of access.



0 25 50 Feet



-  Parcel Boundary
-  Off-Site Wetland (estimated boundary)*
-  Contributing Basin

*The boundary of the off-site wetland was estimated based on site observations, elevation data, and aerial imagery (Thurston County 2022).





Off-Site Wetland (estimated boundary)

1 km Analysis Area

Land Use Intensity*

Low/moderate

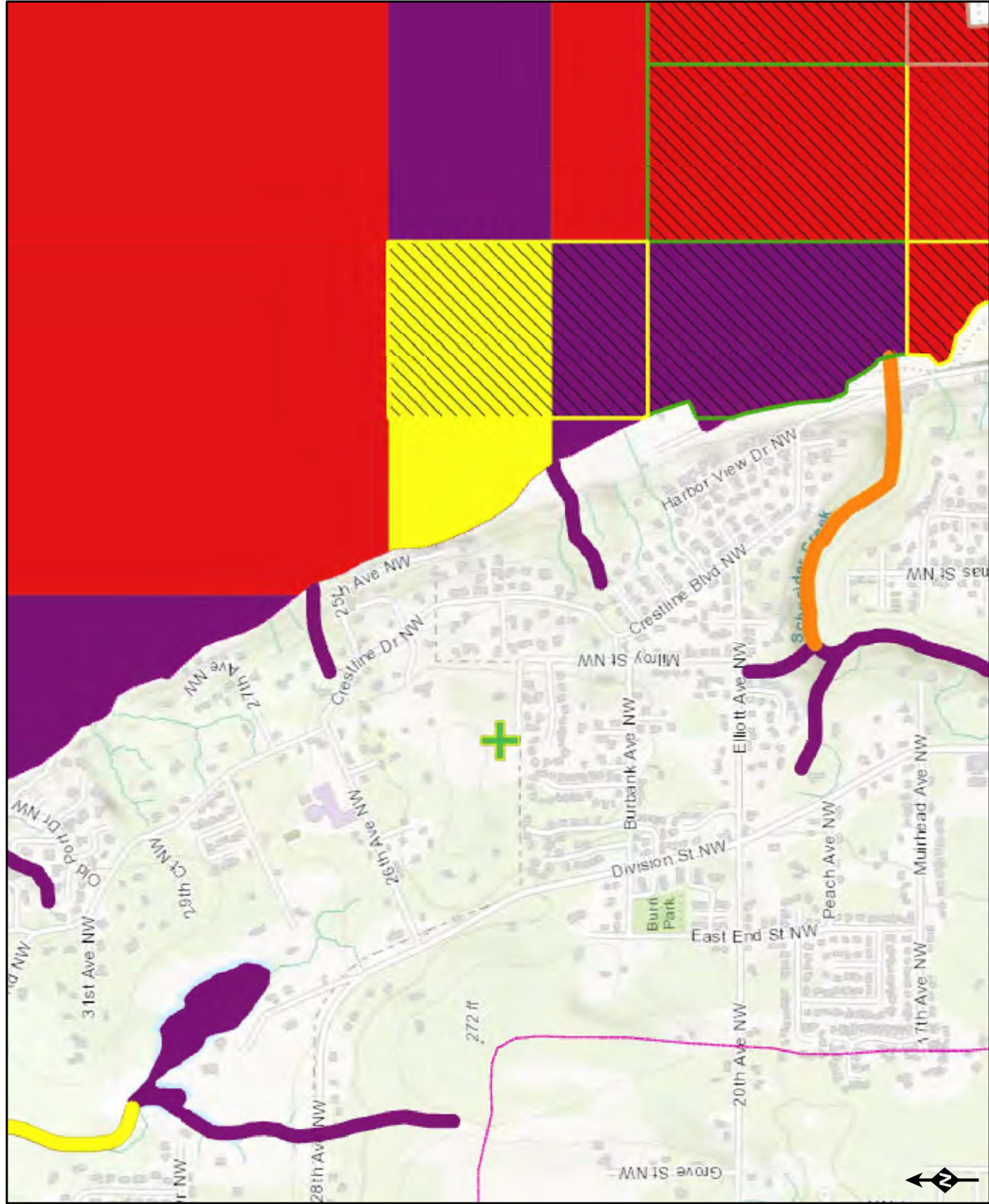
Relatively Undisturbed



0 500 1,000 Feet

*Uncolored areas represent high intensity land use.

WQA 303(d)



Subbasins (12 digit HUCs)
HUC boundary





Appendix E

Site Photographs



Photo 1. Soil profile at TP-1



Photo 2. View to north from TP-1



Photo 3. View to east from TP-1



Photo 4. View to south from TP-1



Photo 5. View to west from TP-1



Photo 6. Soil profile at TP-2



Photo 7. View to west from TP-2



Photo 8. View to north from TP-2



Photo 9. View to west from TP-2



Photo 10. View to south from TP-2



Photo 11. Soil profile at TP-3



Photo 12. View to south from TP-3



Photo 13. View to north from TP-3



Photo 14. View to east from TP-3



Photo 15. Soil profile at TP-4



Photo 16. View to north from TP-4



Photo 17. View to south from TP-4



Photo 18. View to west from TP-4



Photo 19. View to east from TP-4



Photo 20. Soil profile at TP-5



Photo 21. View to north from TP-5



Photo 22. View to east from TP-5



Photo 23. View to south from TP-5



Photo 24. Soil profile at TP-6



Photo 25. View to north from TP-6



Photo 26. View to south from TP-6



Photo 27. View to east from TP-6



Photo 28. Soil profile at TP-7



Photo 29. View to south from TP-7



Photo 30. View to north from TP-7



Photo 31. Soil profile at TP-8



Photo 32. View to south from TP-8



Photo 33. View to east from TP-8



Photo 34. Soil profile at TP-9



Photo 35. View to south from TP-9 (Note TP-8 flag in center of picture)



Photo 36. View to north from TP-9



Photo 37. Soil profile at TP-10



Photo 38. View to east from TP-10 (Note Wetland C boundary flag in center of picture)



Photo 39. View to south from TP-10



Photo 40. View of property facing east. Much of the property is currently in agricultural uses.



Photo 41. View of off-site wetland from northern property boundary

