CONFLUENCE
ENVIRONMENTAL COMPANY

2000 24th Avenue NW
# REVISED CRITICAL AREAS STUDY AND MITIGATION PLAN

*Prepared for:*

**RJ Development**
April 2024

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# 2000 24th Avenue NW
# REVISED CRITICAL AREAS STUDY AND MITIGATION PLAN

Prepared for:

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April 2024

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## APPENDICES

# 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).

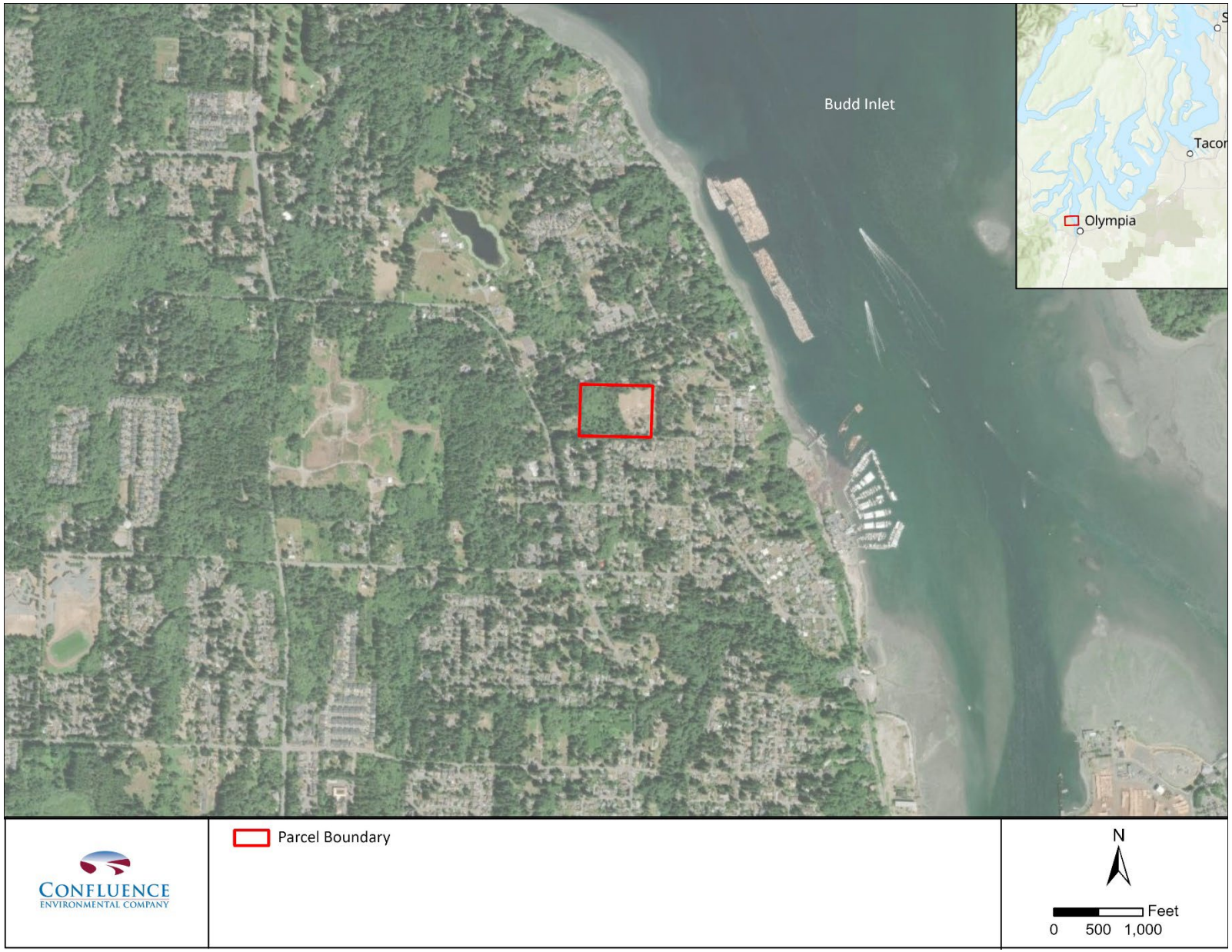



**Figure 1. Subject property**

# 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.

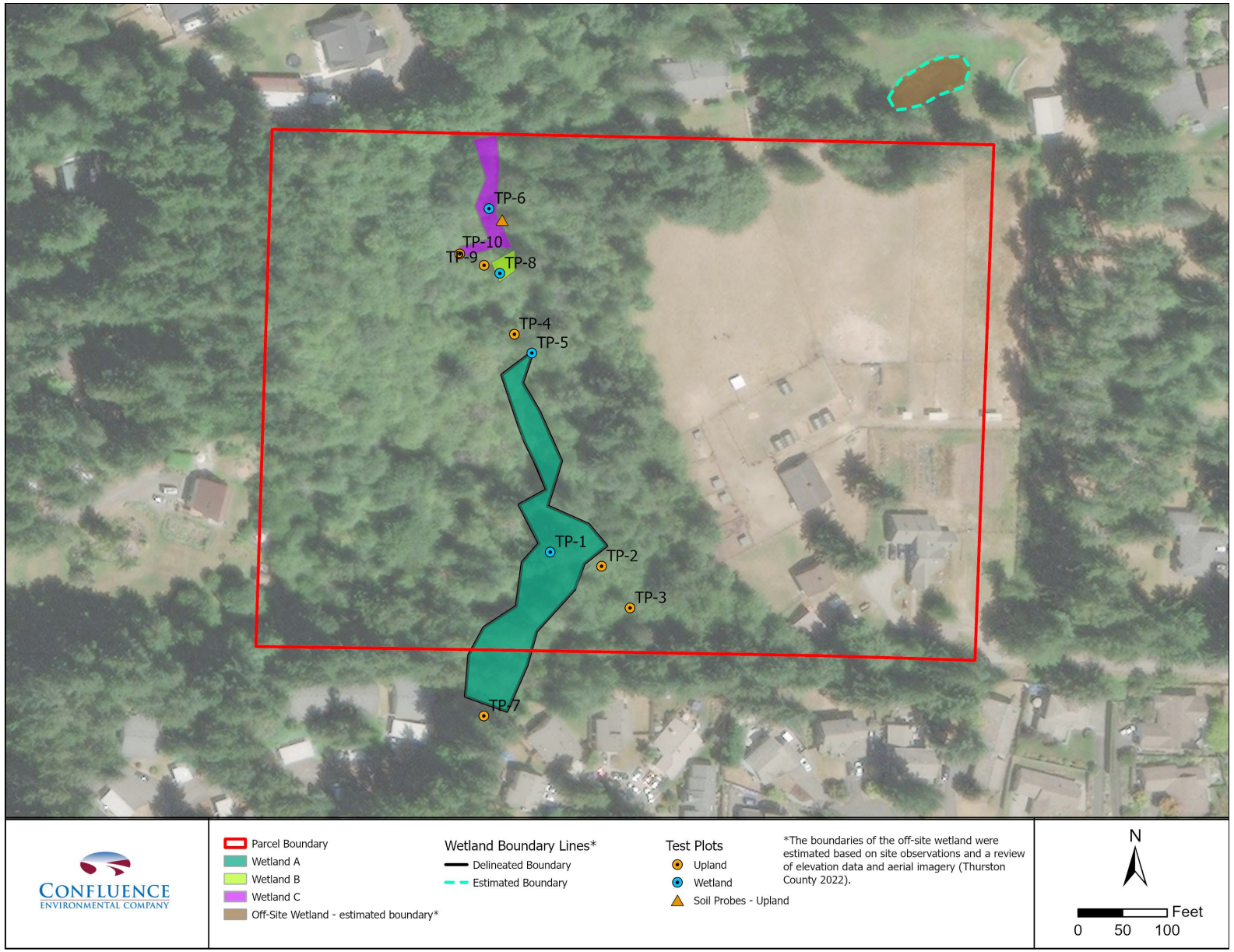



**Figure 2. Location of test plots, soil probes, and wetlands**

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.yY 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. One way to confirm the presence of hydric soils would be to conduct an alpha-alpha dipyridyl test in the spring. Therefore, without having conducted the alpha-alpha dipyridyl test, we will conservatively assume the area represented by TP-6 is wetland, identified as Wetland C.

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 a 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. One way to confirm the presence of hydric soils would be to conduct an alpha-alpha dipyridyl test in the spring. Therefore, without having conducted the alpha-alpha dipyridyl test, we will conservatively assume the area represented by TP-8 is wetland, identified as Wetland BC.

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-5represented 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.

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 or 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.

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; therefore, the habitat buffer width of 140 feet applies.

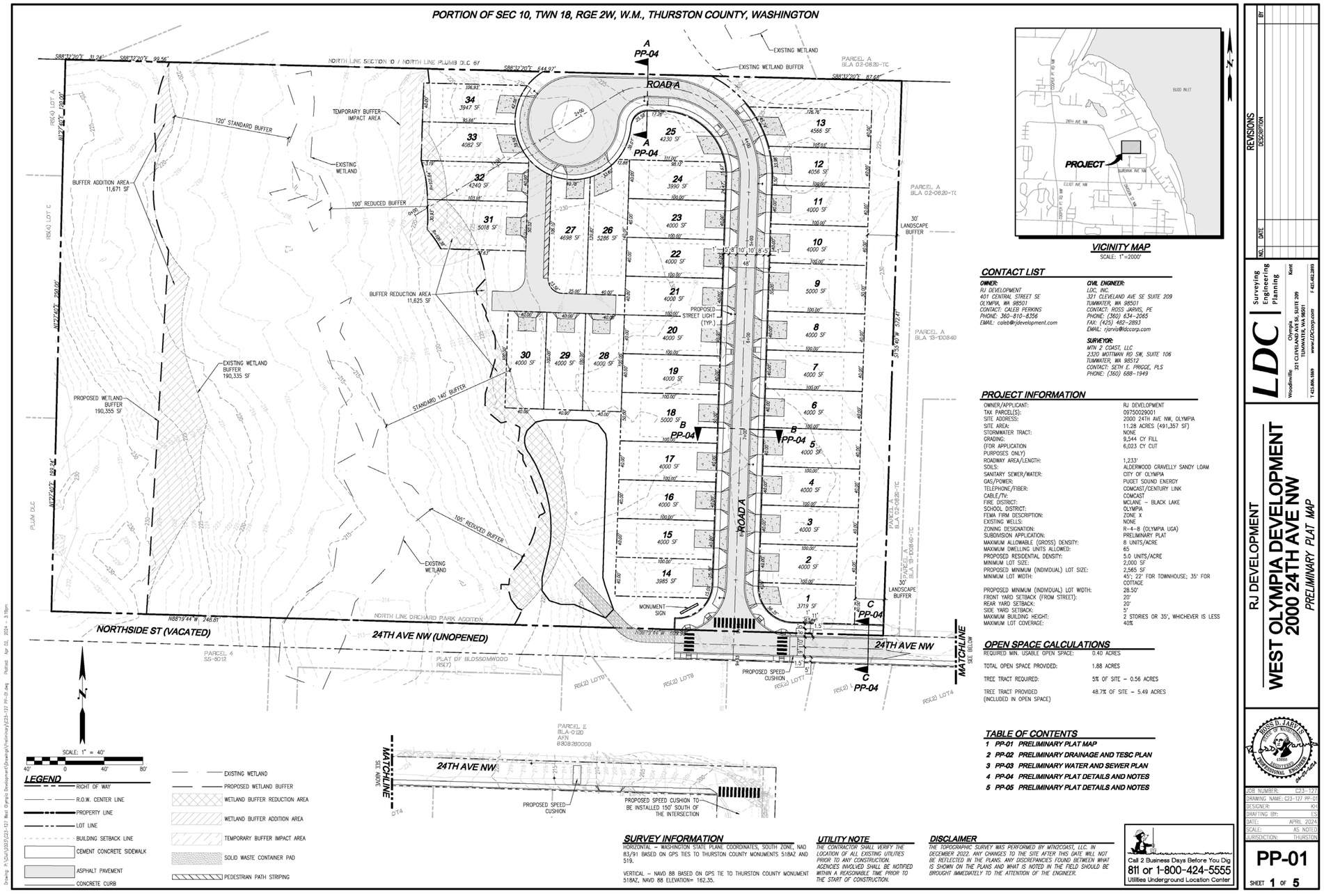
- Wetland B has a habitat score of 3 and a water quality score of 8. According to TCC 20.30.015, wetlands less than 1,000 square feet are exempt from 24.30.045 if certain criteria are met. However, Wetland B is located entirely within a critical area buffer (i.e., the buffers associated with Wetlands A and C); thus, Wetland B is not exempt from TCC. The wetland does not meet the criteria associated with the water quality buffers; 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; 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 PROPOSED PROJECT

The proposed project is to subdivide the property into 34 single family residential lots (Figure 3).




## CONTACT LIST

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PHONE: 360-810-8356
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**SURVEYOR:**
MTN 2 COAST, LLC
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TUMWATER, WA 98512
CONTACT: SETH E. PRIGGE, PLS
PHONE: (360) 688-1949

## PROJECT INFORMATION

| | |
|---|---|
| OWNER/APPLICANT: | RJ DEVELOPMENT |
| TAX PARCEL(S): | 09750029001 |
| SITE ADDRESS: | 2000 24TH AVE NW, OLYMPIA |
| SITE AREA: | 11.28 ACRES (491,357 SF) |
| STORMWATER TRACT: | NONE |
| GRADING: | 9,544 CY FILL |
| (FOR APPLICATION PURPOSES ONLY) | 6,023 CY CUT |
| ROADWAY AREA/LENGTH: | 1,233' |
| SOILS: | ALDERWOOD GRAVELLY SANDY LOAM |
| SANITARY SEWER/WATER: | CITY OF OLYMPIA |
| GAS/POWER: | PUGET SOUND ENERGY |
| TELEPHONE/FIBER: | COMCAST/CENTURY LINK |
| CABLE/TV: | COMCAST |
| FIRE DISTRICT: | MCLANE – BLACK LAKE |
| SCHOOL DISTRICT: | OLYMPIA |
| FEMA FIRM DESCRIPTION: | ZONE X |
| EXISTING WELLS: | NONE |
| ZONING DESIGNATION: | R-4-8 (OLYMPIA UGA) |
| SUBDIVISION APPLICATION: | PRELIMINARY PLAT |
| MAXIMUM ALLOWABLE (GROSS) DENSITY: | 8 UNITS/ACRE |
| MAXIMUM DWELLING UNITS ALLOWED: | 65 |
| PROPOSED RESIDENTIAL DENSITY: | 5.0 UNITS/ACRE |
| MINIMUM LOT SIZE: | 2,000 SF |
| PROPOSED MINIMUM (INDIVIDUAL) LOT SIZE: | 2,565 SF |
| MINIMUM LOT WIDTH: | 45'; 22' FOR TOWNHOUSE; 35' FOR COTTAGE |
| PROPOSED MINIMUM (INDIVIDUAL) LOT WIDTH: | 28.50' |
| FRONT YARD SETBACK (FROM STREET): | 20' |
| REAR YARD SETBACK: | 20' |
| SIDE YARD SETBACK: | 5' |
| MAXIMUM BUILDING HEIGHT: | 2 STORIES OR 35', WHICHEVER IS LESS |
| MAXIMUM LOT COVERAGE: | 40% |

## OPEN SPACE CALCULATIONS

| | |
|---|---|
| REQUIRED MIN. USABLE OPEN SPACE: | 0.40 ACRES |
| TOTAL OPEN SPACE PROVIDED: | 1.88 ACRES |
| TREE TRACT REQUIRED: | 5% OF SITE – 0.56 ACRES |
| TREE TRACT PROVIDED (INCLUDED IN OPEN SPACE) | 48.7% OF SITE – 5.49 ACRES |

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## SURVEY INFORMATION

HORIZONTAL – WASHINGTON STATE PLANE COORDINATES, SOUTH ZONE, NAD 83/91 BASED ON GPS TIES TO THURSTON COUNTY MONUMENTS 518AZ AND 519.

VERTICAL – NAVD 88 BASED ON GPS TIE TO THURSTON COUNTY MONUMENT 518AZ, NAVD 88 ELEVATION= 162.35.

## UTILITY NOTE

THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO ANY CONSTRUCTION. AGENCIES INVOLVED SHALL BE NOTIFIED WITHIN A REASONABLE TIME PRIOR TO THE START OF CONSTRUCTION.

## DISCLAIMER

THE TOPOGRAPHIC SURVEY WAS PERFORMED BY MTN2COAST, LLC. IN DECEMBER 2022. ANY CHANGES TO THE SITE AFTER THIS DATE WILL NOT BE REFLECTED IN THE PLANS. ANY DISCREPANCIES FOUND BETWEEN WHAT IS SHOWN ON THE PLANS AND WHAT IS NOTED IN THE FIELD SHOULD BE BROUGHT IMMEDIATELY TO THE ATTENTION OF THE ENGINEER.

Call 2 Business Days Before You Dig
811 or 1-800-424-5555
Utilities Underground Location Center

REVISIONS
NO. | DATE | DESCRIPTION | BY

LDC Surveying Engineering Planning
Woodinville | Olympia 321 CLEVELAND AVE SE, SUITE 209 TUMWATER, WA 98501 | Kent
T 425.806.1869 | www.LDCcorp.com | F 425.482.2893

RJ DEVELOPMENT
WEST OLYMPIA DEVELOPMENT
2000 24TH AVE NW
PRELIMINARY PLAT MAP

ROSS D. JARVIS – STATE OF WASHINGTON – 22866 – REGISTERED PROFESSIONAL ENGINEER – 04-02-2024

JOB NUMBER: C23-127
DRAWING NAME: C23-127 PP-01
DESIGNER: KH
DRAFTING BY: ES
DATE: APRIL 2024
SCALE: AS NOTED
JURISDICTION: THURSTON

PP-01
SHEET 1 OF 5

**Figure 3. Wetlands and proposed buffer reconfiguration**

# 6.0 MITIGATION SEQUENCING AND IMPACT ANALYSIS

The first step in mitigation sequencing is to avoid impacts to critical areas (i.e., the wetlands and wetland buffers). If a project cannot avoid impacts, the project needs to be designed to minimize impacts, and impacts that cannot be avoided must be mitigated for.

The proposed project would not impact any wetlands. It would use buffer reconfiguration to avoid permanent wetland buffer impacts but would result in temporary wetland buffer impacts.

## 6.1 Impact Avoidance

The project proposes to use buffer reconfiguration—as allowed under TCC 24.30.060—to avoid permanent wetland buffer impacts. The buffer would be reduced by 11,625 square feet along the eastern buffer edge, and 11,671 square feet of buffer would be added to the western buffer edge (Figure 3).

All of the standard buffers are larger than the 50-foot water quality buffer described in TCC 23.30.045. The buffer addition area does 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.

A portion of the proposed buffer reduction area is currently in agricultural use, and the remainder is 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.

## 6.2 Temporary Impacts

To create Lots 31-34, grading within the outer portion of the wetland buffer would occur (Figure 3). This grading is required to create a stable slope that ties into the existing contours. Therefore, the project would result in temporary impacts to approximately 5,500 square feet of wetland buffer that cannot be avoided. Unavoidable, temporary impacts to the wetland buffer will be mitigated for by planting the disturbed buffer area with native trees and shrubs. Table 2 summarizes the project elements, anticipated impacts, and proposed mitigation.

**Table 2. Summary of proposed impacts and mitigation**

| Project Element | Impact Type | Impact Area (sq ft) | Proposed Mitigation |
|---|---|---|---|
| Lots | None | 0 | No mitigation needed; uses buffer reconfiguration to avoid impacts. |
| Stormwater System | None | 0 | No mitigation needed; uses buffer reconfiguration to avoid impacts. |
| Grading | Temporary | 5,500 | Restore disturbed ground by planting native trees and shrubs. |

# 7.0 PROPOSED MITIGATION

To mitigate for temporary impacts to the wetland buffer, the graded area will be restored by planting native trees and shrubs. This mitigation plan has been prepared to meet the requirements of TCC 24.35.017.B and Ecology et al. (2006).

The planting schedule shown in Table 3 is proposed. The planting schedule is based on the anticipated temporary impact area of 5,500 square feet. If the temporary impact area is different from the anticipated 5,500 square feet, the planting schedule will be adjusted accordingly. A detailed planting plan is not included because the full extent of temporary impacts is not completely known. The temporary impact area may be smaller or slightly larger than anticipated. Therefore, rather than prepare a detailed planting plan, a detailed as-built plan showing the locations where plants were actually installed will be prepared. This will also facilitate the compilation of accurate and detailed plant census data during monitoring.

**Table 3. Proposed planting schedule**

| Common Name | Scientific Name | Size (gallon) | Spacing (feet on-center) | Quantity[1] | Habitat Function[2] |
|---|---|---|---|---|---|
| Douglas-fir | *Pseudotsuga menziesii* | 2 | 12 | 15 | Cones are food source for wildlife. Rodents eat the small, winged seeds found inside Douglas-fir cones. Birds also eat the seeds. Browsers, such as white-tailed deer, will eat the foliage and twigs in the winter. The needles and male cones are an important winter food for blue grouse. Nesting area for western gray squirrel. |
| Big-leaf maple | *Acer macrophyllum* | 2 | 12 | 15 | Numerous insect, bird, and mammal species use this tree. |
| Western hemlock | *Tsuga heterophylla* | 2 | 12 | 14 | Provides important habitat for numerous wildlife species. |
| Salal | *Gaultheria shallon* | 1 | 5 | 85 | Fruits are eaten by various wildlife species, including upland game birds. Leaves, buds, and twigs are browsed by deer and elk. |
| Red-Flowering Currant | *Ribes sanguineum* | 1 | 5 | 85 | Leaves are browsed by herbivores and the fruits are eaten by a wide variety of wildlife species. |
| Vine maple | *Acer circinatum* | 1 | 5 | 85 | Provides nesting habitat for small birds. Twigs, buds, and seeds are eaten by a variety of wildlife and bird species. |
| Kinnikinnick | *Arctostaphylos uva-ursi* | 1 | 3 | 203 | Berries eaten by birds. Bees/butterflies collect nectar. |
| Sword fern | *Polystichum munitum* | 1 | 3 | 204 | Great cover for insects and small birds. |
| **Total** | | | | **706** | |

[1] Based on 5,500 square feet
[2] Sources: SAS 2019, Cooke 1997, Stuart and Sawyer 2001, USDA 2008, WNPS 2022, Stark 2022, Bressette 2022, NRCS 2022b

## 7.1 Fencing and Signage

Once construction is near completion, a split rail fence will be installed along the outer edge of the mitigation area/critical area buffer. Signage, approved by Thurston County, identifying the critical area will be placed at approximately 100-foot intervals along the split rail fence.

## 7.2 Financial Guarantee

A financial guarantee is required by Thurston County. The cost estimate used to determine the financial guarantee is provided in Appendix F.

# 8.0 MITIGATION GOALS, OBJECTIVES, PERFORMANCE STANDARDS AND SUCCESS CRITERIA

The goal of the mitigation plan is to restore wetland buffer that was cleared and graded.

To determine when the goal is met, the following objective is proposed: Create approximately 5,500 square feet area of wetland buffer dominated by native plants.

The mitigation area will be monitored for 10 years to determine whether the goal and objectives have been met, as detailed in Section 9.0. The following performance standards will be monitored, following the methods described in Section 9.2. Interim and final success criteria for each performance standard are shown in Table 4.

**Table 4. Success criteria**

| Performance Standard | Success Criteria | | | | | | |
|---|---|---|---|---|---|---|---|
| | Year 0 | Year 1 | Year 2 | Year 3 | Year 5 | Year 7 | Year 10 |
| Plant Survival (%) | NC | 100 | 80 | 70 | — | — | — |
| Native Species Cover (%) | NC | — | — | 50 | 70 | >70 | 80 |
| Invasive Species Cover* (%) | NC | ≤10 | ≤10 | ≤10 | ≤10 | ≤10 | ≤10 |

* Source Thurston County 2024 (or latest version)
NC No criterion; monitoring data will be used as baseline information
— No monitoring for the year

# 9.0 MONITORING PLAN

The following monitoring plan has been developed to comply with TCC 24.35 and Ecology et al. (2006) guidance. The mitigation area will be monitored for 10 years to ensure it is trending toward meeting the goal and objective described in Section 8.0. If final success criteria are not met, the monitoring plan will be amended in consultation with Thurston County and the monitoring period extended, if necessary.

## 9.1 Monitoring Frequency

To comply with TCC 24.35, the mitigation areas will be monitored and associated reports will be prepared at the following frequency:

- At completion of construction of mitigation project (As-built Survey)
- Year 0 (30-days after completion)
- Year 1
  - Spring (First spring following plant installation)
  - Fall (First fall following plant installation)
- Year 2
  - Spring (Second spring following plant installation)
  - Fall (Second fall following plant installation)
- Years 3, 5, 7, and 10

Performance standards to be monitored during each year are shown in Table 4. An additional survey and extended plant survival monitoring may also be required if replanting is necessary.

### *9.1.1 As-Built Survey*

Once construction and planting of the mitigation area is complete, an as-built survey will be done to ensure the mitigation area was constructed per the design and to document any changes or modifications made during construction. The as-built survey will show where individual plants were installed.

### *9.1.2 Year 0*

The Year 0 monitoring event will occur within 30 days after completion of the plant installation. The Year 0 monitoring will document the locations of transects and photo points and summarize conditions observed.

### *9.1.3 Year 1*

Two monitoring events will occur in the first year post installation. The Year 1 spring monitoring event will occur early in the first growing season after construction. The second monitoring event will occur in the end of the first growing season after construction. If plants are installed in the fall/early winter, the first Year 1 monitoring event would occur the following

spring (i.e., early in the first growing season after construction). If planting occurs in the spring, then the first Year 1 monitoring event would occur the following fall (i.e., end of the first growing season after construction).

Spring monitoring events will include a meander survey to document overall site conditions and identify areas needing attention (e.g., weeding, watering), as described in Section 9.2. Fall monitoring events will include a quantitative study of the mitigation area, as described in Section 9.2.

#### 9.1.4 Year 2

Two monitoring events will occur in the second year post installation, once in the spring (early growing season) and once in the fall (end of the growing season). As with Year 1 monitoring, spring monitoring events will include a meander survey to document overall site conditions and identify areas needing attention (e.g., weeding, watering), and fall monitoring events will include a quantitative study.

#### 9.1.5 Years 3, 5, 7, and 10

Monitoring will occur in Years 3, 5, 7, and 10. These monitoring events will include a quantitative study of the mitigation area, as described in Section 9.2. Monitoring during these years will occur in the fall before deciduous leaves have dropped.

#### 9.1.6 Replanting Survey and Extended Plant Survival Monitoring

As shown in Table 4, Plant Survival monitoring is not planned after Year 3 because it is expected that growth of natural recruits will make identification of planted vegetation extremely difficult. Should the ecologist determine that any portion of the mitigation area needs to be replanted, however, a survey will be conducted after the replanting has been completed to document the locations of the newly installed plants. This survey will then become the baseline for subsequent Plant Survival monitoring. If a significant area needs to be replanted, it may be recommended that the replanted area be monitored for survival for a total of 3 years; therefore, if replanting is required, Plant Survival monitoring may continue beyond Year 3.

### 9.2 Monitoring Methods

#### 9.2.1 Meander Survey

For spring monitoring events, a meander survey of the mitigation area will be completed to assess progress toward annual monitoring goals. Overall plant health, invasive species colonization, additional maintenance needs, and any other emergent needs will be noted.

### 9.2.2 Photo Points

Permanent photo points will be established within the mitigation area to document conditions of the site over time. At each of the photo points, a fixed-lens digital camera will be used to take photographs, either a panoramic photo or 1 at every 90 degrees of the compass.

### 9.2.3 Plant Survival

Plant survival within the mitigation area will be determined by completing a plant census of native plants within the mitigation area and comparing the number and species of plants recorded on the as-built drawings to site conditions at the time of monitoring. The percent survival will be calculated by dividing the number of native plants identified as alive during the monitoring event by the number of plants identified on the as-built plan. Any native species that naturally recruits into the mitigation area will be included in the plant census and included in the plant survival calculations.

### 9.2.4 Native and Invasive Species Percent Cover

Random transects will be established within the wetland buffer mitigation area for fall monitoring. The actual locations of the transects will be determined in the field each year. Coordinates for the locations of the end points of each transect will be recorded using a global positioning system (GPS) and reported in the monitoring report.

The line-intercept method will be used to determine the percent cover of trees, shrubs, sword fern and invasive species along each of the permanently marked transects (USDA and USDI 1999). After laying a tape measure along a transect, the lengths of tape directly under the branches and foliage of a tree or shrub will be recorded along with the species. The percent cover of each species will then be calculated by dividing the sum of lengths intercepted for that species by the total length of the transect.

## 9.3 Reports

For each monitoring event, the ecologist will prepare a report. One copy of each report will be provided to the County project manager. The sections below document what will be included in each type of monitoring report.

### 9.3.1 As-Built

The As-built report will document the actual construction of the mitigation areas and will include the following:

- Drawing showing final grading
- Actual planting schedule (container size, average offset)
- Description of any changes from the original design

### 9.3.2 Spring Monitoring

Spring monitoring reports (Years 1 and 2) will include a description of overall plant health, invasive species colonization, additional maintenance needs, and any other emergent needs.

### 9.3.3 Fall Monitoring

Fall monitoring reports (Years 1, 2, 3, 5, 7, and 10) will include the following:

- Date of survey
- A narrative description of methods and contingency measures taken
- Data tables
- Identified planted and naturally recruited trees and shrubs
- Summary of results
- Discussion of results in relation to success criteria
- Recommendations for maintenance and contingency measures, as needed
- Color photos from each of the permanent photo points

# 10.0 MAINTENANCE PLAN

## 10.1 Watering

Watering may be necessary depending on the date of planting and the amount of rainfall that year. No plant installation will occur between December and February. Monitoring of rainfall will be used to determine the need for watering.

Watering will occur so that the plants will receive at least 1.5 inches of water (or equivalent of rainfall) twice per month during the first year following planting. Watering may be necessary for several years after plant installation to assist survival and establishment of plantings. Watering may be accomplished using a temporary irrigation system or water truck.

## 10.2 Weeding

Weeding around planted shrubs will be important during the growing seasons to ensure establishment and prevent stress to the plants from competition for resources. Weeding will occur twice a month during the early growing season (typically between March and July) and late growing season (typically September through October). During the remainder of the year, weeding will occur monthly. All invasive species will be weeded. This schedule of weeding will occur until the plants have established themselves and out-compete the invasive species.

Weed whacking will be allowed around plantings with protective tubing. Control of highly invasive species such as Scotch broom (*Cytisus scoparius*), Himalayan blackberry (*Rubus armeniacus*), and reed canarygrass (*Phalaris arundinacea*) is especially important in the Northwest, and emphasis will be given to their removal to prevent invasion into planted areas.

## 10.3 Mowing

Mowing will not occur in the mitigation areas.

## 10.4 Mulching

Mulching may occur around shrub plantings to help retain water. Mulch around plantings will be no thicker than 4 inches. Thick layers of mulch (more than 6 inches) may also be used to control reed canarygrass in areas between plantings. Mulch will be placed when plants are installed, and additional mulch may be placed as needed throughout the monitoring period.

## 10.5 Dead Plant Removal

Dead plant material will only be removed after scheduled monitoring to allow for the accurate assessment of planting success needed for the monitoring program. Replacement planting will be detailed in a section of the report from the monitoring program. This will include species recommendations to maintain the desired diversity in the plant communities of the buffer areas.

# 11.0 CONTINGENCY MEASURES

## 11.1 Percent Survival

Plant survival could be negatively affected by improper installation, diseased or infested plants, inadequate watering, or extreme weather. If more than 25 percent of new plantings die in a single year, the cause of the high losses will be investigated and corrected before dead plants are replaced. Dead plant material will only be removed after that year's scheduled monitoring. If less than 80 percent of the total plants installed have survived during the Year 2 monitoring, additional plants will be installed to bring the planting schedule back into original specifications and yearly monitoring will continue, as indicated in Section 9.1.3.

## 11.2 Native Species Percent Cover

Native plant growth, as determined by percent cover, could be negatively affected by improper installation, diseased or infested plants, inadequate watering, or extreme weather. If the native species cover success criterion is not met, the cause will be investigated and corrected. Correction measures may include increased watering, soil amendments, fertilizing, or revision of planting palate and additional plantings.

## 11.3 Invasive Species Percent Cover

Dominance by invasive species could result from disturbance of the soil, a high mortality rate of the native planted vegetation, or colonization by windborne seeds. To reduce colonization by invasive species, a site maintenance plan is described in Section 5.3. If more than 25 percent of the restored area is covered by invasive species, the cause of infestation will be investigated and corrective actions will be taken before weeds are removed. Contingency measures could include increasing the frequency of weeding until native vegetation can grow and dominate the area or increasing the density of native vegetation with additional plantings.

# 12.0 COMPLIANCE WITH CODE

This section discusses how the proposed development and mitigation plan complies with TCC 24.30.

## 12.1 Compliance with TCC 24.30.060

Relevant sections of the code are below in italics, followed by a discussion of how the project complies with the code.

*A. Preservation of High Quality Habitat.*

*1. If the wetland or buffer contains variations in sensitivity or habitat quality the approval authority, in consultation with WDFW or Ecology, may require reconfiguration of the buffer to preserve the higher quality/sensitive habitat.*

> The existing wetlands and buffer do not contain sensitive or high quality habitat, as defined by WDFW and shown on PHS maps (Appendix A); therefore, this criterion is met.

*2. If necessary to maintain connectivity to areas that provide important associated wildlife habitat, or if the area abutting the standard buffer contains habitat sustaining species listed under the federal Endangered Species Act (64 FR 14307), state priority wildlife species, or species of local importance (see TCC 24.25.065©, the approval authority may, in consultation with WDFW, require reconfiguration of buffers to provide connection to the adjacent habitat.*

> The existing wetlands and buffer do not contain sensitive or high quality habitat, as defined by WDFW and shown on PHS maps (Appendix A); therefore, there is no need to require buffer reconfiguration by Thurston County. This criterion is not applicable.

*3. Reconfigured buffers authorized by this section shall be no less than the width specified in Table 24.30-1 to maintain water quality, or no less than seventy-five percent of the standard buffer, whichever is greater, and shall contain the same square footage as the standard buffer. The reconfigured buffer shall not exceed one hundred percent of the square footage of the standard buffer, as modified pursuant to TCC 24.30.050(B) or 24.30.055, without the landowner's consent.*

> The proposed buffers are no less than 75% of the standard buffer (Figure 3); therefore, this criterion is met.

*B. Development Consistent with Preservation of Wetland and Buffer Functions.*

*1. The proposed use cannot be accommodated on the site without reconfiguration of the buffer (see Section 24.30.050).*

*2. The scale, design, or orientation of the proposed land use has been adjusted to the extent practical to minimize buffer alteration.*

The location of the wetlands and buffers effectively separates the developable land into two distinct areas. The project has gone through several site designs to avoid impacts to wetlands. Other site designs included 40 units and a roadway crossing Wetland C to access the western portion of buildable land. This previous site design also had significant wetland buffer impacts. The proposed site plan has been adjusted to the extent practical to minimize buffer alteration. The proposed site plan has reconfigured the road network to avoid crossing wetlands and reduces the number of units to minimize wetland buffer alteration. Criteria B.1 and B.2 are met.

*3. Demonstration that the wetland and/or buffer contains variations in sensitivity due to existing physical characteristics (e.g., variations in topography, soils, vegetation, or wildlife usage), and that the wetland functions would benefit from a wider buffer in places, and would not be adversely impacted by a narrower buffer in other places.*

A portion of the proposed buffer reduction area is currently in agricultural use, and the remainder is in a forested condition. Reducing the buffer in places that are currently in agricultural use would not adversely impact the wetland.

The buffer addition area is entirely forested with a thick, multilayered, diverse, and healthy understory with 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.

Ecology (2022) recommends buffer widths that are adequate to protect wetland functions based on a combination of habitat score and proposed land use. The recommended buffer width for Category III wetlands with a habitat score of 4 points is 80 feet and for Category IV wetlands with a habitat score of 3 points is 50 feet. The smallest buffer proposed is 90 feet. Thus, the proposed 90-foot buffer is more than adequate to protect wetland functions. Thus, this criterion is met.

*4. If the wetland has a wildlife habitat score of five or more points under Ecology's Washington State Wetland Rating System for Western Washington, the applicant shall submit a habitat assessment*

*demonstrating that wildlife habitat will not be significantly diminished and that documented habitat-sustaining priority or locally important wildlife species (see Section 24.25.065) will not be affected.*

This criterion is not applicable.

*5. The reduction in buffer width will occur where it will have the least potential impact on the wetland and buffer functions. Area will be added to portions of the buffer where it would most benefit wetland and buffer functions. The reconfigured buffer shall maintain all wetland functions.*

As stated above, a portion of the proposed buffer reduction area is currently in agricultural use, and therefore its reduction would have the least potential impact on wetland buffer and functions. The buffer addition area is entirely forested with a thick, multilayered, diverse, and healthy understory with 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, the proposed reconfigured buffer, even at its narrowest, is sufficient to maintain wetland functions (Ecology 2018). Thus, this criterion is met.

*6. Any landscaped area shall extend no more than fifteen feet from the edge of the structure's footprint (outside wall at the foundation) toward the wetland if the buffer width reduction allows the landscaped area to intrude into the area that was formerly buffer.*

This criterion is not applicable.

*7. The reconfigured buffer shall be no less than one hundred feet wide at any point, or no less than seventy-five percent of the standard buffer, whichever is more. The reconfigured buffer shall contain the same square footage as the standard buffer. It shall not exceed one hundred percent of square footage of the standard buffer, as modified pursuant to TCC 24.30.050(B) or 24.30.055, without the landowner's consent.*

The reconfigured buffer is greater than 100 feet and is no less than 75% of the standard buffer. The existing standard buffer area on-site is 190,335 square feet, and the reconfigured buffer is 190,355 square feet. Thus, this criterion is met.

*8. The reconfiguration is accomplished within the project site boundaries or in an abutting conservation easement or tract approved by the county that protects the buffer from alteration, except as provided for in this section.*

The reconfigured buffer is within the project site boundaries. Thus, this criterion is met.

## 12.2 Compliance with TCC 24.30.065

TCC 24.30.065 identifies several protection measures for trees located within wetland buffers whose drip lines extend beyond the upland edge (furthest from the wetland) of buffers with a

wildlife habitat rating of 5 points or more under the wetland rating system for western Washington (Hruby 2014). None of the wetlands has a habitat score of 5 points or more (Table 1); therefore, this section of code is not applicable to the project.

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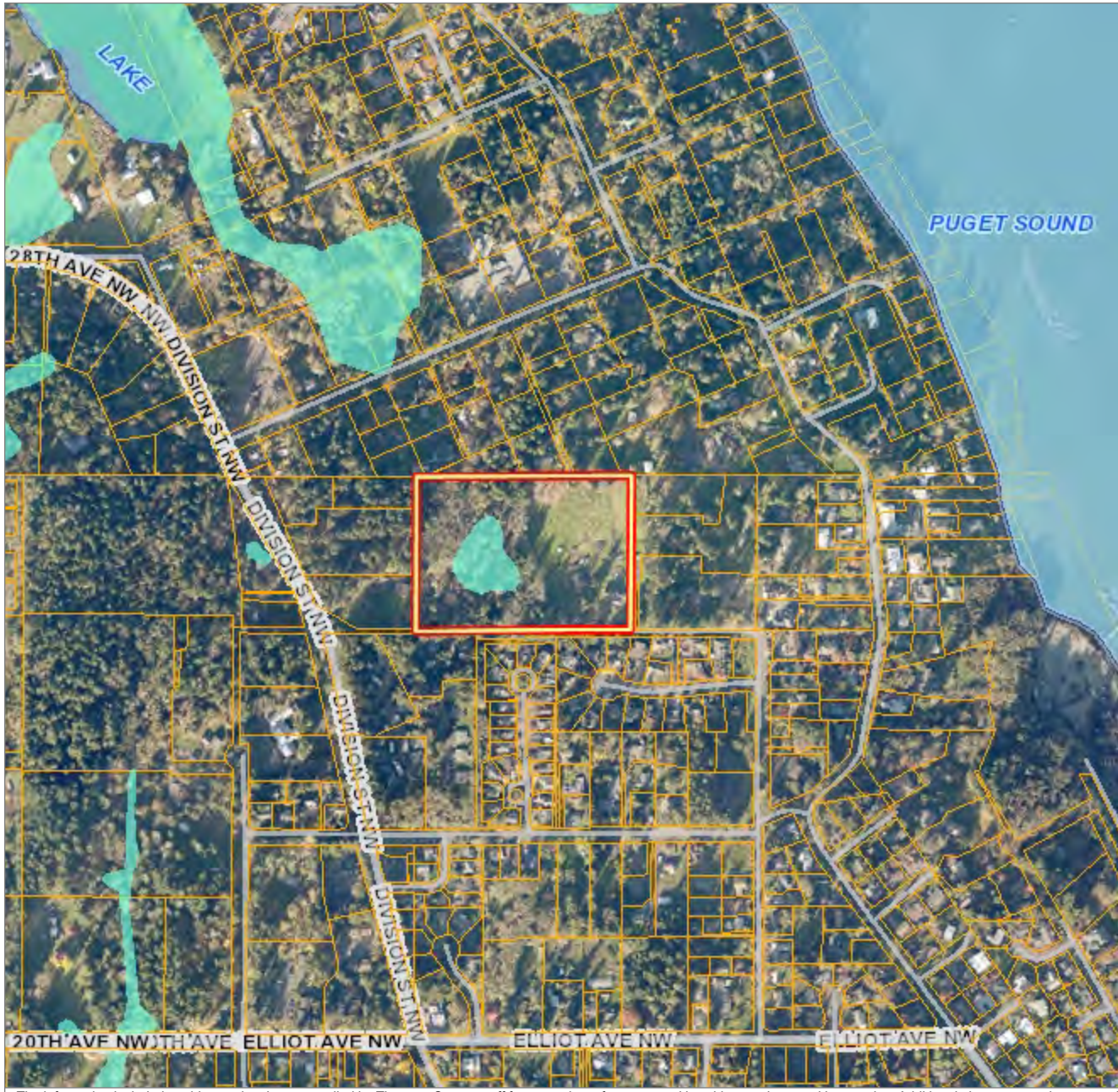
# Appendix A
## GIS Database Search Results




# 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

0 500 1000

Feet

Map Created Using GeoData Public Website

Published: 11/7/2022

Note:

THURSTON COUNTY
WASHINGTON
SINCE 1852

Thurston County GeoData Center

U.S. Fish and Wildlife Service
National Wetlands Inventory

# NWI


November 7, 2022

**Wetlands**

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

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


Map Scale: 1:1,560 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 20 40 80 120

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

## 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.

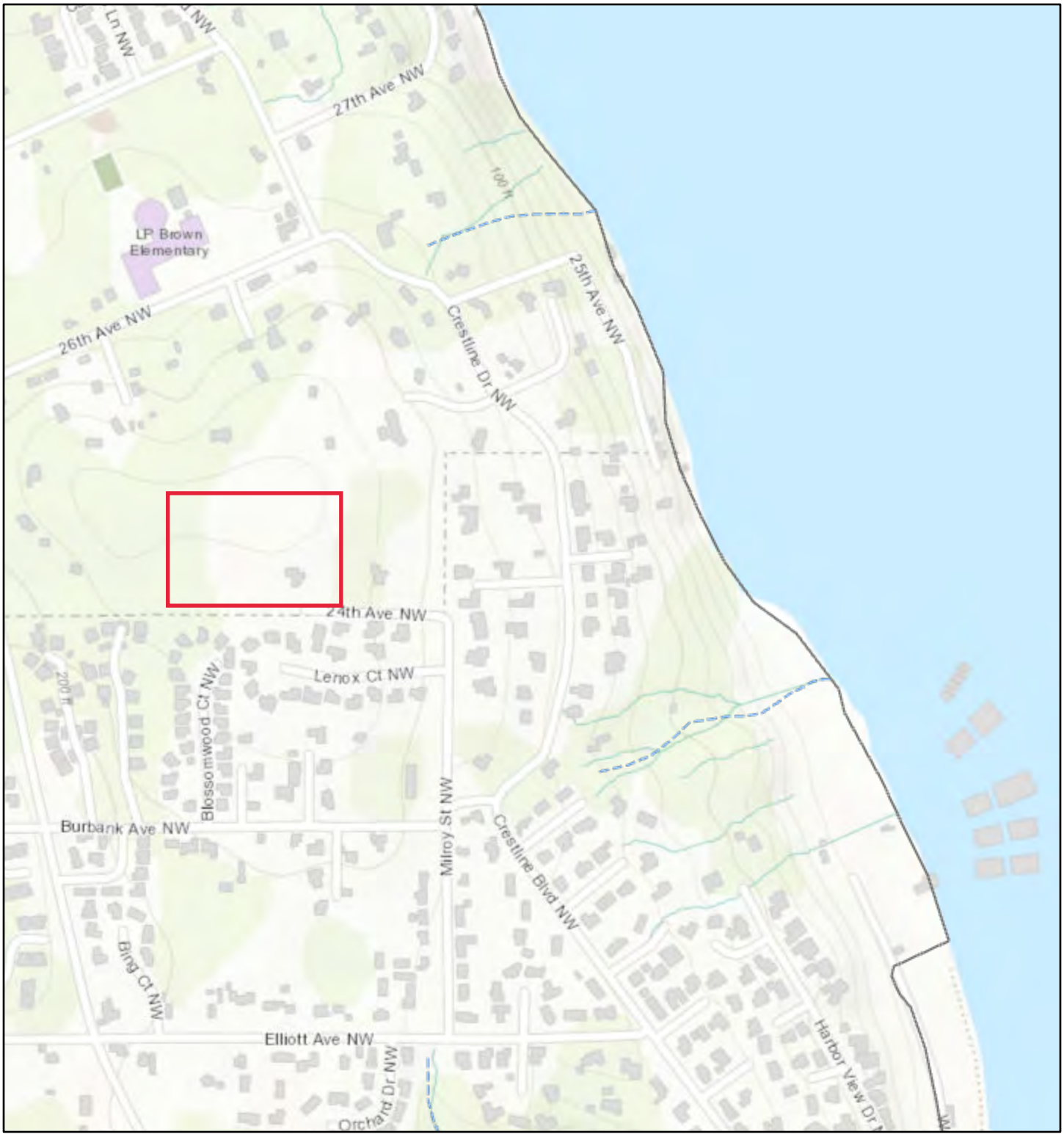
Date(s) aerial images were photographed: Jul 18, 2020—Jul 30, 2020

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

0 0.05 0.1 0.2 mi

0 0.07 0.15 0.3 km

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

# 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 |

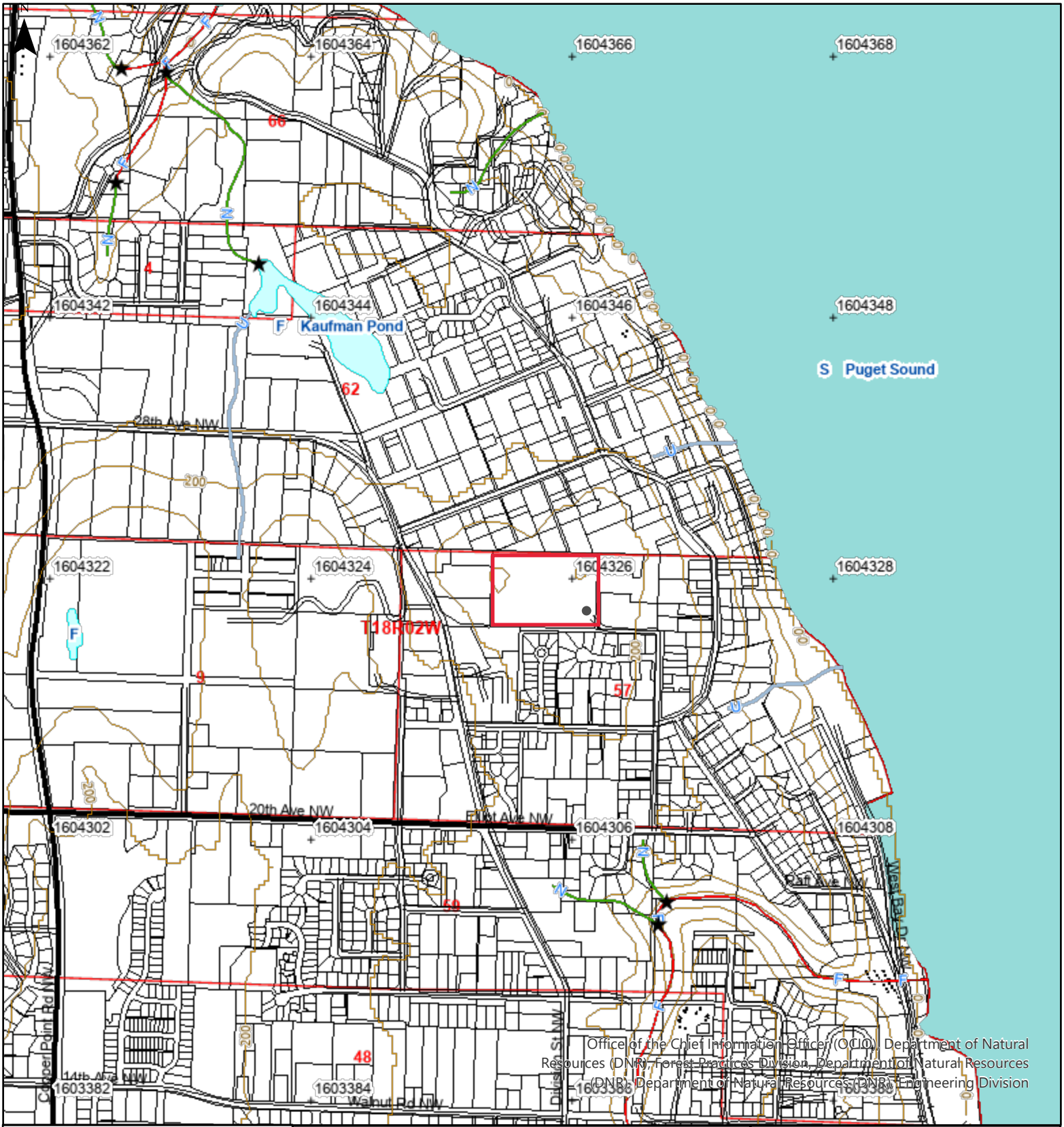
PHS Species/Habitats Details:

| Yuma myotis | |
|---|---|
| Scientific Name | *Myotis yumanensis* |
| 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 | *Myotis lucifugus* |
| 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 | *Eptesicus fuscus* |
| 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 |

# Forest Practices Activity Map - Application #_____




**Map Symbols**

- Harvest Boundary
- Road Construction
- Stream
- RMZ / WMZ Buffers
- Rock Pit
- Landing
- Waste Area
- Clumped WRTS/GRTS
- Existing Structure

**Additional Information**

**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**

WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES



Approximate Scale : 1:12,000

0 500 1,000 2,000 Feet

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

# Legend

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

# WA Wetlands of High Conservation Value

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

Counties

1:9,028

0 0.05 0.1 0.2 mi

0 0.07 0.15 0.3 km

Maxar

Washington Natural Heritage Program

Washington State Department of Natural Resources | Washington Natural Heritage Program http://www.dnr.wa.gov/natural-heritage-program | Maxar |

# 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

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, ≥2% distinct or prominent redoximorphic features
- Value of 4, chroma =1, ≥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

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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.

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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).

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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).

# 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: 10/25/22
Applicant/Owner: RJ Development State: WA Sampling Point: TP-1
Investigator(s): KAM / NAD Section, Township, Range: S57 T18N R2W
Landform (hillslope, terrace, etc.): — Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): A Lat: 47.06756°N Long: 122.9691°W Datum: WGS84
Soil Map Unit Name: Alderwood gravelly sandy loam NWI classification: PSSC
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 ✓ | No ____ | Is the Sampled Area within a Wetland? Yes ✓ No ____ |
| Hydric Soil Present? | Yes ____ | No ____ | |
| Wetland Hydrology Present? | Yes ____ | No ____ | |

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: 30') | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. red alder | 95 | ✓ | FAC |
| 2. w. red cedar | 5 | | FAC |
| 3. | | | |
| 4. | | | |
| | 100 | = Total Cover | |

| Sapling/Shrub Stratum (Plot size: 15') | | | |
|---|---|---|---|
| 1. Salmonberry | 15 | ✓ | FAC |
| 2. Him. blackberry | 15 | ✓ | FAC |
| 3. D. Spirea | 15 | ✓ | FACW |
| 4. | | | |
| 5. | | | |
| | 45 | = Total Cover | |

| Herb Stratum (Plot size: 5') | | | |
|---|---|---|---|
| 1. Nettle - cody hedge | 3 | | FACW |
| 2. Slough sedge | 40 | ✓ | OBL |
| 3. Skunk cabbage | 25 | ✓ | OBL |
| 4. ladyfern | 25 | ✓ | FAC |
| 5. horsetail | 1 | | FAC |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 100 | = Total Cover | |

| Woody Vine Stratum (Plot size: 5') | | | |
|---|---|---|---|
| 1. | | | |
| 2. | 0 | | |
| | | = Total Cover | |

% Bare Ground in Herb Stratum 0

**Dominance Test worksheet:**
Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)
Total Number of Dominant Species Across All Strata: 7 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (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 ≤3.0[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.

**Hydrophytic Vegetation Present?** Yes ✓ No ____

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 Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 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 | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

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

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

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

Water Table Present? Yes ___ No ✓ Depth (inches): _____

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

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

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: RJ Development State: WA Sampling Point: TP-2
Investigator(s): KAM / NAD Section, Township, Range: S 5 T 18N R 2W
Landform (hillslope, terrace, etc.): — Local relief (concave, convex, none): — Slope (%): —
Subregion (LRR): A Lat: 47.06755°N Long: 122.92681°W Datum: WGS 84
Soil Map Unit Name: Alderwood 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 ✓ | No ____ | Is the Sampled Area within a Wetland? Yes ____ No ✓ |
| Hydric Soil Present? | Yes ✓ | No ____ | |
| Wetland Hydrology Present? | Yes ____ | No ✓ | |

Remarks: Unusually dry/warm October. Rain just started a couple days prior to site visit. transition zone

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 30') | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. Red alder | 100 | ✓ | FAC |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 100 = Total Cover | | |

| Sapling/Shrub Stratum (Plot size: 15') | | | |
|---|---|---|---|
| 1. Salmonberry | 10 | ✓ | FAC |
| 2. Evergreen huckleberry | 20 | ✓ | FACU |
| 3. red elderberry | 5 | | FACU |
| 4. | | | |
| 5. | | | |
| | 35 = Total Cover | | |

| Herb Stratum (Plot size: 5') | | | |
|---|---|---|---|
| 1. Sword fern | 40 | ✓ | FACU |
| 2. horsetail | 40 | ✓ | FAC |
| 3. lady fern | 5 | | FAC |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 80 = Total Cover | | |

| Woody Vine Stratum (Plot size: 15') | | | |
|---|---|---|---|
| 1. trailing blackberry | 20 | ✓ | FAC |
| 2. E. ivy | 10 | | FACU |
| | 30 = Total Cover | | |

% Bare Ground in Herb Stratum 0

**Dominance Test worksheet:**
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 7 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 57% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | — | x 1 = | — |
| FACW species | — | x 2 = | — |
| FAC species | 175 | x 3 = | 525 |
| FACU species | 75 | x 4 = | 300 |
| UPL species | — | x 5 = | — |
| Column Totals: | 250 (A) | | 825 (B) |

Prevalence Index = B/A = 3.3

**Hydrophytic Vegetation Indicators:**
__ 1 - Rapid Test for Hydrophytic Vegetation
✓ 2 - Dominance Test is >50%
__ 3 - Prevalence Index is ≤3.0[1]
__ 4 - Morphological 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.

**Hydrophytic Vegetation Present?** Yes ✓ No ____

Remarks: loss of FACW/OBL spp. & dominance of FACU spp. met dominance test but failed Prev. Index & wetland vg. but transitional veg.

## 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 Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-9 | 10YR 2/2 | 100 | | | | | silt loam | |
| 9-14+ | 2.5Y 5/1 | 75 | 10YR 4/6 | 5 | C | M | silt loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** Yes ✓ No ___

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

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

Water Table Present? Yes ___ No ✓ Depth (inches): _____

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

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

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: 10/25/22
Applicant/Owner: KT Development State: WA Sampling Point: TP-3
Investigator(s): KAM & MAD Section, Township, Range: S5 T18N R2W
Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): A Lat: 47.061744 °N Long: 122.921667 Datum: WGS 84
Soil Map Unit Name: Alderwood gravelly sandy loam (AgC) 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 ✓ | No ____ | Is the Sampled Area within a Wetland? Yes ____ No ✓ |
| Hydric Soil Present? | Yes ____ | No ✓ | |
| Wetland Hydrology Present? | Yes ____ | No ✓ | |

Remarks: Unusually dry / warm October. Rain just started a couple days prior to site visit.

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 30') | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. W. red cedar | 30 | ✓ | FAC |
| 2. red alder | 100 | ✓ | FAC |
| 3. | | | |
| 4. | | | |
| | 130 | = Total Cover | |

| Sapling/Shrub Stratum (Plot size: 15') | | | |
|---|---|---|---|
| 1. E. huckleberry | 30 | ✓ | FACU |
| 2. Salmonberry | 10 | ✓ | FAC |
| 3. Indian plum | 5 | | FACU |
| 4. | | | |
| 5. | | | |
| | 45 | = Total Cover | |

| Herb Stratum (Plot size: 5') | | | |
|---|---|---|---|
| 1. Slough sedge | 25 | ✓ | OBL |
| 2. lady fern | 5 | | FAC |
| 3. Swordfern | 60 | ✓ | FACU |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 90 | = Total Cover | |

| Woody Vine Stratum (Plot size: ____) | | | |
|---|---|---|---|
| 1. trailing blackberry | 10 | ✓ | FACU |
| 2. | | | |
| | 10 | = Total Cover | |

% Bare Ground in Herb Stratum 0

**Dominance Test worksheet:**
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 7 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 57 (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 ≤3.0[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.

**Hydrophytic Vegetation Present?** Yes ✓ No ____

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 Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-10 | 10YR 2/2 | 100 | | | | | Silt loam | |
| 10-12+ | 10YR 4/4 | 100 | | | | | Silt loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

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

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

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

Water Table Present? Yes _____ No ✓ Depth (inches): _____

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

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

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: RJ 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: 47.068525°N Long: 122.92721°W Datum: WGS 84
Soil Map Unit Name: Alderwood 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 ✓ | No ____ | Is the Sampled Area within a Wetland? Yes ____ No ✓ |
| Hydric Soil Present? | Yes ____ | No ✓ | |
| Wetland Hydrology Present? | Yes ____ | No ✓ | |

Remarks: Unusually warm/dry October. Rains just started a couple days prior to site visit.

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 30') | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. red alder | 80 | ✓ | FAC |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 80 = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: 15') | | | |
| 1. Salmonberry | 20 | ✓ | FAC |
| 2. Salal | 25 | ✓ | FACU |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 45 = Total Cover | | |
| **Herb Stratum** (Plot size: 5') | | | |
| 1. slough sedge | 50 | ✓ | OBL |
| 2. sword fern | 10 | | FACU |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 60 = Total Cover | | |
| **Woody Vine Stratum** (Plot size: 5') | | | |
| 1. | | | |
| 2. | | | |
| | 0 = Total Cover | | |

% Bare Ground in Herb Stratum 5

**Dominance Test worksheet:**
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (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 ≤3.0[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.

**Hydrophytic Vegetation Present?** Yes ✓ No ____

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 Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-9 | 10YR 2/2 | 100 | | | | | silt loam | |
| 9-24 | 10YR 3/2 | 80 | | | | | silt loam | |
| | 10YR 4/3 | 20 | | | | | silt loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

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

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

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

Water Table Present? Yes _____ No ✓ Depth (inches): _____

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

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

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-5

Investigator(s): KAM / IKS Section, Township, Range: T 18N 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 ✓ | No _____ | **Is the Sampled Area within a Wetland?** Yes ✓ No _____ |
| Hydric Soil Present? | Yes ✓ | No _____ | |
| Wetland Hydrology Present? | Yes ✓ | No _____ | |

Remarks: Continuation of wetland A. Hung flags WA-7A through WA-7C. Overcast. Flag WA-1 connects to WA-7A → WA-7B → WA-7C → DDA-8 located near TP-4 - btwn TP-4 & A-7

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 30) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. red alder | 90 | ✓ | FAC |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 90 | = Total Cover | |
| **Sapling/Shrub Stratum** (Plot size: 10') | | | |
| 1. D. spirea | 5 | ✓ | FACW |
| 2. Evergreen huckleberry | 3 | | FACU |
| 3. Salal | 3 | | FACU |
| 4. HBB | 3 | | FAC |
| 5. | | | |
| | 14 | = Total Cover | |
| **Herb Stratum** (Plot size: 10') | | | |
| 1. lady fern | 3 | | FAC |
| 2. Soft rush | 10 | ✓ | FACW |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 13 | = Total Cover | |
| **Woody Vine Stratum** (Plot size: 10') | | | |
| 1. | | | |
| 2. | 0 | | |
| | | = Total Cover | |

% Bare Ground in Herb Stratum 80

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by: |
|---|---|
| OBL species _____ | 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 ≤3.0[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.

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

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 Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 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 | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** Yes ✓ No ___

Remarks:

Charcoal @ 8"

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

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

Water Table Present? Yes ___ No ✓ Depth (inches): _____

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

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

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 74th Ave NW City/County: Olympia/Thurston Sampling Date: 5/30/23
Applicant/Owner: RJ Development State: WA Sampling Point: TP-6
Investigator(s): KAM & IKS Section, Township, Range: T18N R2W S57
Landform (hillslope, terrace, etc.): hillside Local relief (concave, convex, none): _____ Slope (%): _____
Subregion (LRR): A Lat: 47.068°N Long: 122.92734°W Datum: WGS 84
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 ✓ | No _____ | **Is the Sampled Area within a Wetland?** Yes _____ No ✓ |
| Hydric Soil Present? | Yes _____ | No ✓ | |
| Wetland Hydrology Present? | Yes ✓ | No _____ | |

Remarks:
Located N. of TP-4 in small depression w/ slough sedge

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 30') | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. red alder | 70 | ✓ | FAC |
| 2. W. red cedar | 30 | ✓ | FAC |
| 3. | | | |
| 4. | | | |
| | 100 | = Total Cover | |
| **Sapling/Shrub Stratum** (Plot size: _____) | | | |
| 1. Salmonberry | 40 | ✓ | FAC |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 40 | = Total Cover | |
| **Herb Stratum** (Plot size: _____) | | | |
| 1. Slough Sedge | 30 | ✓ | OBL |
| 2. Soft rush | 5 | | FACW |
| 3. lady fern | 10 | | FAC |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 45 | = Total Cover | |
| **Woody Vine Stratum** (Plot size: 10') | | | |
| 1. English ivy | 5 | ✓ | UPL |
| 2. | | | |
| | 5 | = Total Cover | |

% Bare Ground in Herb Stratum 20

**Dominance Test worksheet:**
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (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 ≤3.0[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.

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

Remarks:

## SOIL

Sampling Point: _____

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-7 | 10YR 3/1 | 100 | | | | | | |
| 7-11 | 10YR 4/2 | 99 | 10YR 5/6 | 1 | C | M | | |
| 11-16+ | 10YR 5/3 | 100 | 10YR 5/6 | 10 | C | M | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

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

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

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

Water Table Present? Yes _____ No ✓ Depth (inches): _____

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

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

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~~ May '23 - indicates hydrology not present long enough to create hydric soils. ~~Sat~~ water stained leaves can be created in winter (out side 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 indicates ↳ 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: RJ Development State: WA Sampling Point: TP-7

Investigator(s): KAM & IKS Section, Township, Range: T18N R2W S57

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: 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 ✓ | No ____ | **Is the Sampled Area within a Wetland?** Yes ____ No ✓ |
| Hydric Soil Present? | Yes ____ | No ✓ | |
| Wetland Hydrology Present? | Yes ____ | No ✓ | |

Remarks: TP located S. of wetland A & N. of ditch

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 30') | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. Big leaf maple | 15 | ✓ | FACU |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 15 | = Total Cover | |
| **Sapling/Shrub Stratum** (Plot size: 10') | | | |
| 1. willow | 20 | ✓ | FAC |
| 2. Indian Plum | 5 | | FACU |
| 3. H. Blackberry | 75 | ✓ | FAC |
| 4. | | | |
| 5. | | | |
| | 100 | = Total Cover | |
| **Herb Stratum** (Plot size: 10') | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 0 | = Total Cover | |
| **Woody Vine Stratum** (Plot size: 10') | | | |
| 1. | | | |
| 2. | | | |
| | 0 | = Total Cover | |

% Bare Ground in Herb Stratum 0

**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 ≤3.0[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.

**Hydrophytic Vegetation Present?** Yes ____ No ____

Remarks:

## 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 Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 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 | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

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

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

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

Water Table Present? Yes _____ No ✓ Depth (inches): _____

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

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

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): KMM Section, Township, Range: T18N R2W S57

Landform (hillslope, terrace, etc.): — Local relief (concave, convex, none): Concave Slope (%): 0

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 ✓ No ____ | **Is the Sampled Area within a Wetland?** Yes ✓ No ____ |
| Hydric Soil Present? | Yes ✓ No ____ | |
| Wetland Hydrology Present? | Yes ✓ No ____ | |

Remarks:

wetland edge top of bank break

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 30') | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. red alder | 95 | ✓ | FAC |
| 2. W red cedar | 5 | | FAC |
| 3. | | | |
| 4. | | | |
| | 100 = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: 10') | | | |
| 1. D. spirea | 25 | ✓ | FACW |
| 2. H Blackberry | 5 | | FAC |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 30 = Total Cover | | |
| **Herb Stratum** (Plot size: 5') | | | |
| 1. lady fern | 15 | ✓ | FAC |
| 2. Slough sedge | 5 | ✓ | OBL |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 20 = Total Cover | | |
| **Woody Vine Stratum** (Plot size: 10') | | | |
| 1. | | | |
| 2. | | | |
| | 0 = Total Cover | | |

% Bare Ground in Herb Stratum 80

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (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 ≤3.0[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.

**Hydrophytic Vegetation Present?** Yes ____ No ____

Remarks:

## SOIL

Sampling Point: TP-8

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

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Redox Features Type[1] | Redox Features Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-5 | 10YR 3/2 | 100 | | | | | loam | |
| 5-16 | 10YR 4/3 | 95 | 10YR 5/6 | 5 | C | M | silt loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** Yes ✓ No ___

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

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

Water Table Present? Yes ___ No ___ Depth (inches): _____

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

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

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: 7/19/23
Applicant/Owner: RJ 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: WGS84
Soil Map Unit Name: Aldervood 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 ✓ | No ____ | **Is the Sampled Area within a Wetland?** Yes ____ No ✓ |
| Hydric Soil Present? | Yes ____ | No ✓ | |
| Wetland Hydrology Present? | Yes ____ | No ✓ | |

Remarks:

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 30) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. red alder | 60 | ✓ | FAC |
| 2. W. red cedar | 30 | ✓ | FAC |
| 3. | | | |
| 4. | | | |
| | 90 | = Total Cover | |

| Sapling/Shrub Stratum (Plot size: ____) | | | |
|---|---|---|---|
| 1. Salal | 75 | ✓ | FACU |
| 2. Salmonberry | 5 | | FAC |
| 3. A. Blackberry | 5 | | FAC |
| 4. | | | |
| 5. | | | |
| | 85 | = Total Cover | |

| Herb Stratum (Plot size: ____) | | | |
|---|---|---|---|
| 1. lady fern | 10 | ✓ | FAC |
| 2. Slough sedge | 3 | | OBL |
| 3. Sword fern | 10 | ✓ | FACU |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 23 | = Total Cover | |

| Woody Vine Stratum (Plot size: 10') | | | |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| | 0 | = Total Cover | |

% Bare Ground in Herb Stratum 0

**Dominance Test worksheet:**
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (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 ≤3.0[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.

**Hydrophytic Vegetation Present?** Yes ✓ No ____

Remarks:

## SOIL

Sampling Point: _____

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 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 | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

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

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)

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

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

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

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

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

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 R2W 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: WGS 84

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 ✓ No ____ | **Is the Sampled Area within a Wetland?** Yes ____ No ✓ |
| Hydric Soil Present? | Yes ____ No ✓ | |
| Wetland Hydrology Present? | Yes ____ No ✓ | |

Remarks:

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: 30') | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. red alder | 30 | ✓ | FAC |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 30 = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: 10') | | | |
| 1. red alder | 10 | | FAC |
| 2. beaked hazelnut | 70 | ✓ | FACU |
| 3. salmonberry | 10 | | FAC |
| 4. salal | 10 | | FACU |
| 5. D. spirea | 10 | | FAC |
| | 110 = Total Cover | | |
| **Herb Stratum** (Plot size: ____) | | | |
| 1. lady fern | 10 | | FAC |
| 2. deer fern | 60 | ✓ | FAC |
| 3. sword fern | 5 | | FACU |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 75 = Total Cover | | |
| **Woody Vine Stratum** (Plot size: 10') | | | |
| 1. | | | |
| 2. | | | |
| | 0 = Total Cover | | |

% Bare Ground in Herb Stratum 0

**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 ≤3.0[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.

**Hydrophytic Vegetation Present?** Yes ✓ No ____

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 Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-11 | 10YR 3/2 | 100 | | | | | Silt loam | |
| 11-15+ | 10YR 4/2 | 100 | | | | | Silt loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

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

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

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

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

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

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

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

Remarks:

No indicators observed

# Appendix D
## Wetland Rating Forms

Wetland name or number A

# 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, 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** |

Wetland name or number A

# Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

| Map of: | To answer questions: | Figure # |
|---|---|---|
| Cowardin plant classes | D 1.3, H 1.1, H 1.4 | 1 |
| Hydroperiods | D 1.4, H 1.2 | 2 |
| Location of outlet (*can be added to map of hydroperiods*) | D 1.1, D 4.1 | N/A |
| Boundary of area within 150 ft of the wetland (*can be added to another figure*) | 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 (*can be added to another figure*) | R 2.4 | |
| Plant cover of trees, shrubs, and herbaceous plants | R 1.2, R 4.2 | |
| Width of unit vs. width of stream (*can be added to another figure*) | R 4.1 | |
| Map of the contributing basin | R 2.2, R 2.3, R 5.2 | |
| 1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat | H 2.1, H 2.2, H 2.3 | |
| Screen capture of map of 303(d) listed waters in basin (from Ecology website) | R 3.1 | |
| Screen capture of list of TMDLs for WRIA in which unit is found (from web) | R 3.2, R 3.3 | |

Lake Fringe Wetlands

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

Slope Wetlands

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

# 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:

Wetland name or number A

# DEPRESSIONAL AND FLATS WETLANDS

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

| | | |
|---|---|---|
| D 1.0. Does the site have the potential to improve water quality? | | |
| D 1.1. Characteristics of surface water outflows from the wetland:<br>Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet).<br>Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet.<br>☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing<br>☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. | points = 3<br>points = 2<br>points = 1<br>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):<br>Wetland has persistent, ungrazed, plants > 95% of area<br>Wetland has persistent, ungrazed, plants > ½ of area<br>Wetland has persistent, ungrazed plants > $^1/_{10}$ of area<br>Wetland has persistent, ungrazed plants < $^1/_{10}$ of area | points = 5<br>points = 3<br>points = 1<br>points = 0 | 5 |
| D 1.4. Characteristics of seasonal ponding or inundation:<br>*This is the area that is ponded for at least 2 months. See description in manual.*<br>Area seasonally ponded is > ½ total area of wetland<br>Area seasonally ponded is > ¼ total area of wetland<br>Area seasonally ponded is < ¼ total area of wetland | points = 4<br>points = 2<br>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?<br>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*

Wetland name or number A

# DEPRESSIONAL AND FLATS WETLANDS

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

| D 4.0. Does the site have the potential to reduce flooding and erosion? | |
|---|---|
| D 4.1. Characteristics of surface water outflows from the wetland:<br>Wetland is a depression or flat depression with no surface water leaving it (no outlet) points = 4<br>Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet points = 2<br>Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch points = 1<br>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.*<br>Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7<br>Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5<br>☐ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3<br>☐ The wetland is a "headwater" wetland points = 3<br>Wetland is flat but has small depressions on the surface that trap water points = 1<br>Marks of ponding less than 0.5 ft (6 in) points = 0 | 0 |
| D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*<br>☐ The area of the basin is less than 10 times the area of the unit points = 5<br>The area of the basin is 10 to 100 times the area of the unit points = 3<br>The area of the basin is more than 100 times the area of the unit points = 0<br>☐ Entire wetland is in the Flats class points = 5 | 3 |
| 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.*<br>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):<br>• Flooding occurs in a sub-basin that is immediately down-gradient of unit. points = 2<br>☐ • Surface flooding problems are in a sub-basin farther down-gradient. points = 1<br>☐ Flooding from groundwater is an issue in the sub-basin. points = 1<br>☐ 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<br>☐ There are no problems with flooding downstream of the wetland. points = 0 | 0 |
| D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0 | 0 |
| Total for D 6 Add the points in the boxes above | **0** |

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

Wetland name or number A

**These questions apply to wetlands of all HGM classes.**

**HABITAT FUNCTIONS** - Indicators that site functions to provide important habitat

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

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

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

*If the unit has a Forested class, check if*:

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

1

H 1.2. Hydroperiods

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

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

1

H 1.3. Richness of plant species

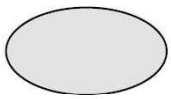
Count the number of plant species in the wetland that cover at least 10 $ft^2$.
*Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

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

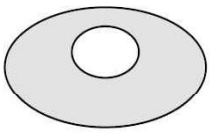
2

H 1.4. Interspersion of habitats

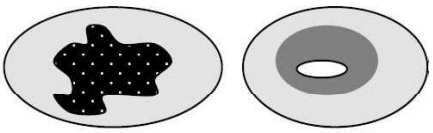
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always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



**None** = 0 points

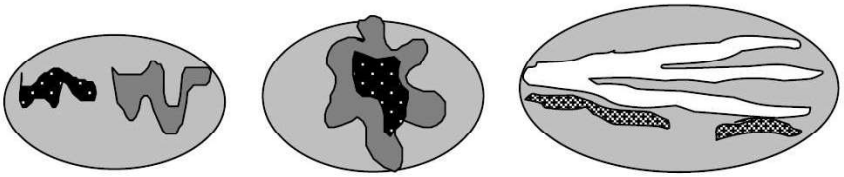


**Low** = 1 point



**Moderate** = 2 points

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



1

Wetland name or number A

| | |
|---|---|
| H 1.5. Special habitat features:<br>Check the habitat features that are present in the wetland. *The number of checks is the number of points.*<br>☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long)<br>☑ Standing snags (dbh > 4 in) within the wetland<br>☐ 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)<br>☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*)<br>☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*)<br>☑ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*) | 3 |
| 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*).<br>*Calculate:*<br>1 % undisturbed habitat + ( 1 % moderate & low intensity land uses / 2 ) = 1.5%<br><br>If total accessible habitat is:<br>> 1/3 (33.3%) of 1 km Polygon points = 3<br>20 - 33% of 1 km Polygon points = 2<br>10 - 19% of 1 km Polygon points = 1<br>< 10 % of 1 km Polygon points = 0 | 0 |
| H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.<br>*Calculate:*<br>21 % undisturbed habitat + ( 11 % moderate & low intensity land uses / 2 ) = 26.5%<br><br>Undisturbed habitat > 50% of Polygon points = 3<br>Undisturbed habitat 10 - 50% and in 1-3 patches points = 2<br>Undisturbed habitat 10 - 50% and > 3 patches points = 1<br>Undisturbed habitat < 10% of 1 km Polygon points = 0 | 2 |
| H 2.3 Land use intensity in 1 km Polygon: If<br>> 50% of 1 km Polygon is high intensity land use points = (-2)<br>≤ 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*.<br>Site meets ANY of the following criteria: points = 2<br>☐ It has 3 or more priority habitats within 100 m (see next page)<br>☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)<br>☐ It is mapped as a location for an individual WDFW priority species<br>☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources<br>☐ 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<br>Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1<br>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.

Wetland name or number A

# CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

| **Wetland Type**<br><br>*Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.* | **Category** |
|---|---|
| **SC 1.0. Estuarine Wetlands**<br>Does the wetland meet the following criteria for Estuarine wetlands?<br>☐ The dominant water regime is tidal,<br>☐ Vegetated, and<br>☐ With a salinity greater than 0.5 ppt<br>☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland** | |
| SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?<br>☐ Yes = **Category I** ☐ 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?<br>☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25)<br>☐ 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.<br>☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.<br>☐ Yes = **Category I** ☐ No = **Category II** | |
| **SC 2.0. Wetlands of High Conservation Value (WHCV)**<br>SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value?<br>☑ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3**<br>SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?<br>☐ Yes = **Category I** ☑ No = **Not WHCV**<br>SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?<br>http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf<br>☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV**<br>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?<br>☐ Yes = **Category I** ☐ No = **Not WHCV** | |
| **SC 3.0. Bogs**<br>Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions***.<br>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?<br>☐ Yes - Go to **SC 3.3** ☑ No - Go to **SC 3.2**<br>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?<br>☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog**<br>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?<br>☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4**<br>**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.<br>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?<br>☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog** | |

**SC 4.0. Forested Wetlands**

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

- ☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.
- ☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

**SC 5.0. Wetlands in Coastal Lagoons**

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

- ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks
- ☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

- ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).
- ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.
- ☐ The wetland is larger than $^{1}/_{10}$ ac (4350 $ft^2$)

☐ Yes = **Category I** ☐ No = **Category II**

**SC 6.0. Interdunal Wetlands**

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

- ☐ Long Beach Peninsula: Lands west of SR 103
- ☐ Grayland-Westport: Lands west of SR 105
- ☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

**Category of wetland based on Special Characteristics**

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

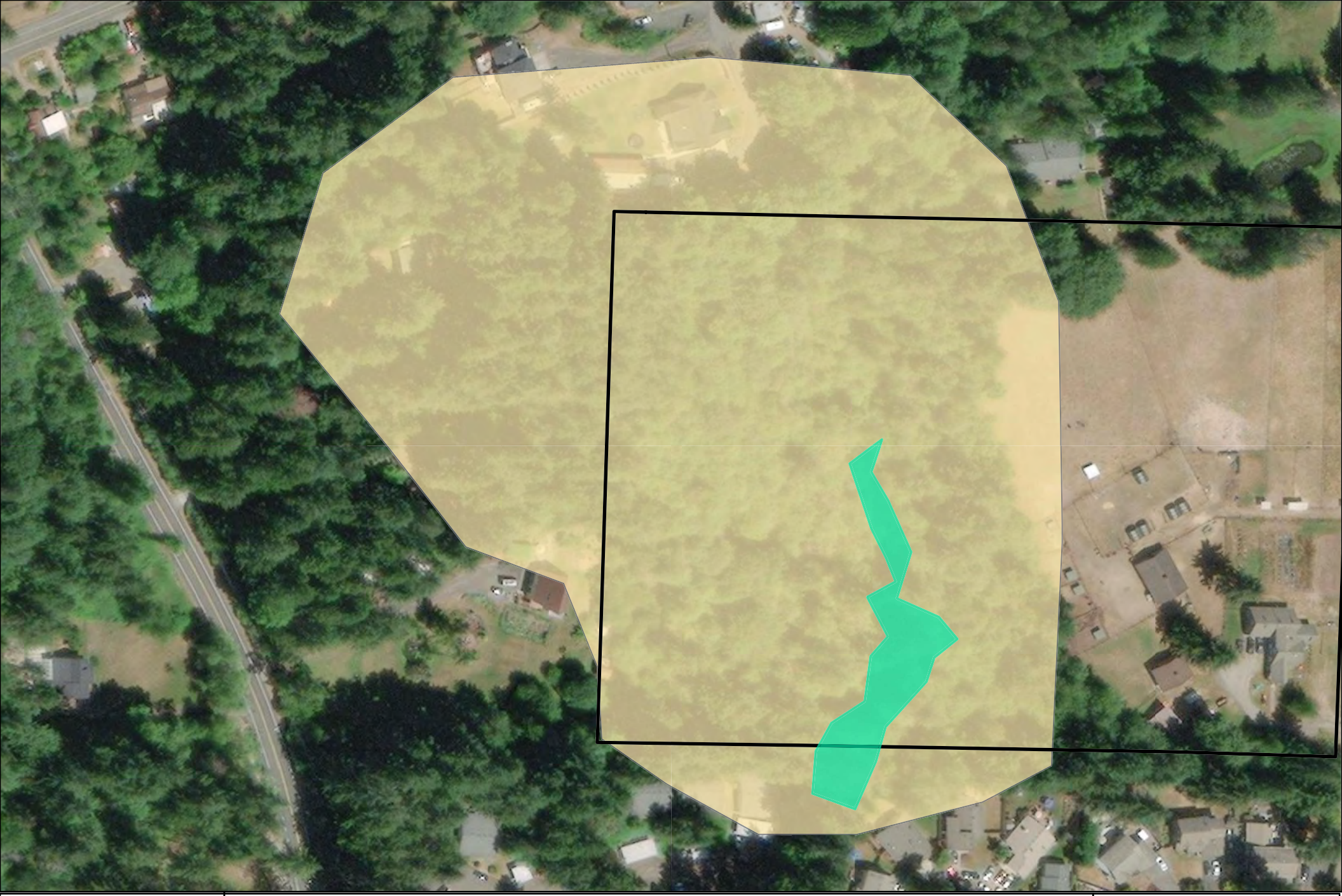
CONFLUENCE
ENVIRONMENTAL COMPANY

Parcel Boundary
Wetland A
Forested
150 ft Analysis Area

N

0 150 Feet

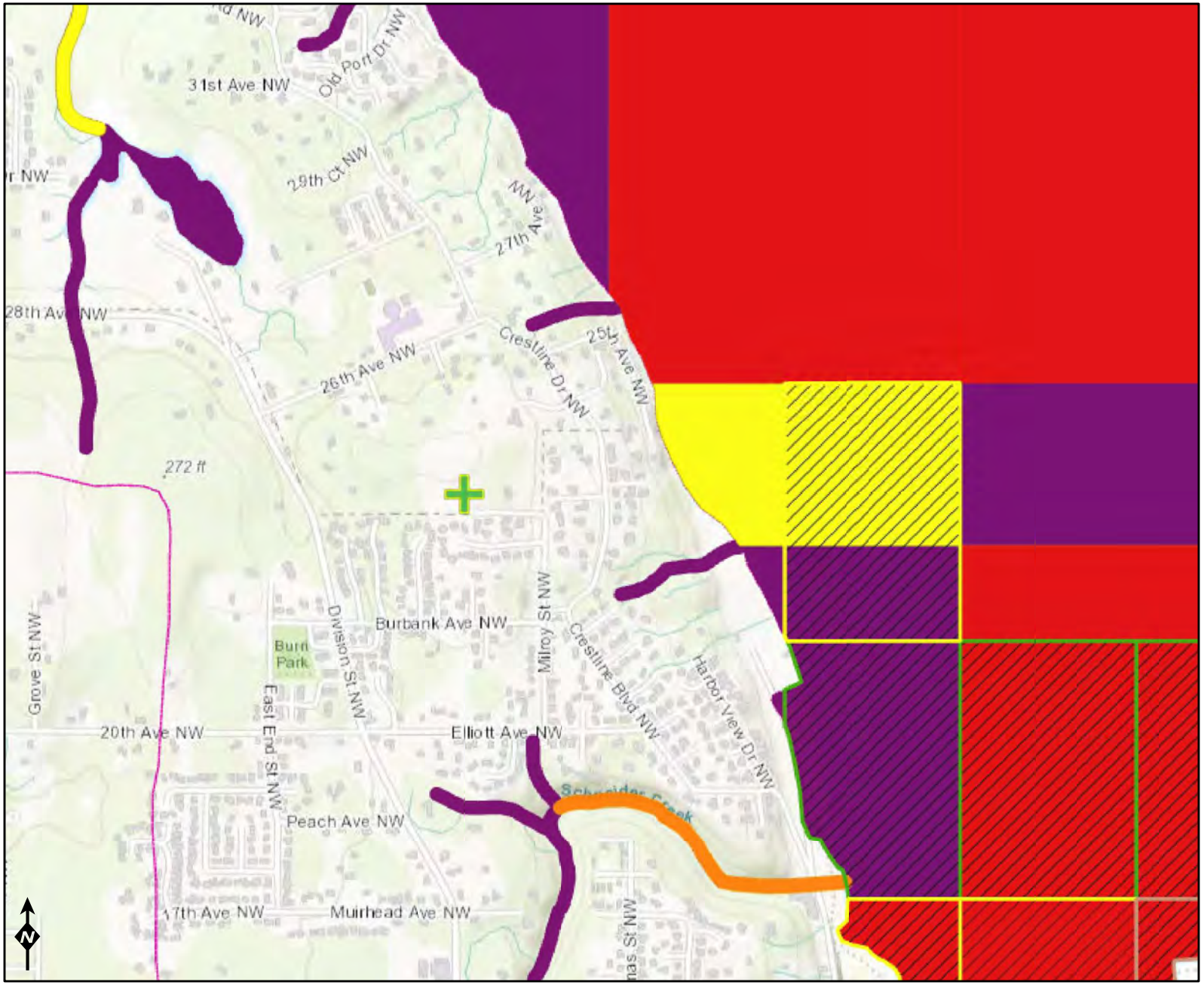

Parcel Boundary
Wetland A
Hydroperiod
Permanently Inundated
Seasonally Inundated
CONFLUENCE
ENVIRONMENTAL COMPANY
N
Feet
0
100


Parcel Boundary
Wetland A
Contributing Basin
CONFLUENCE
ENVIRONMENTAL COMPANY
N
Feet
0
150


CONFLUENCE
ENVIRONMENTAL COMPANY

November 7, 2022

# 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

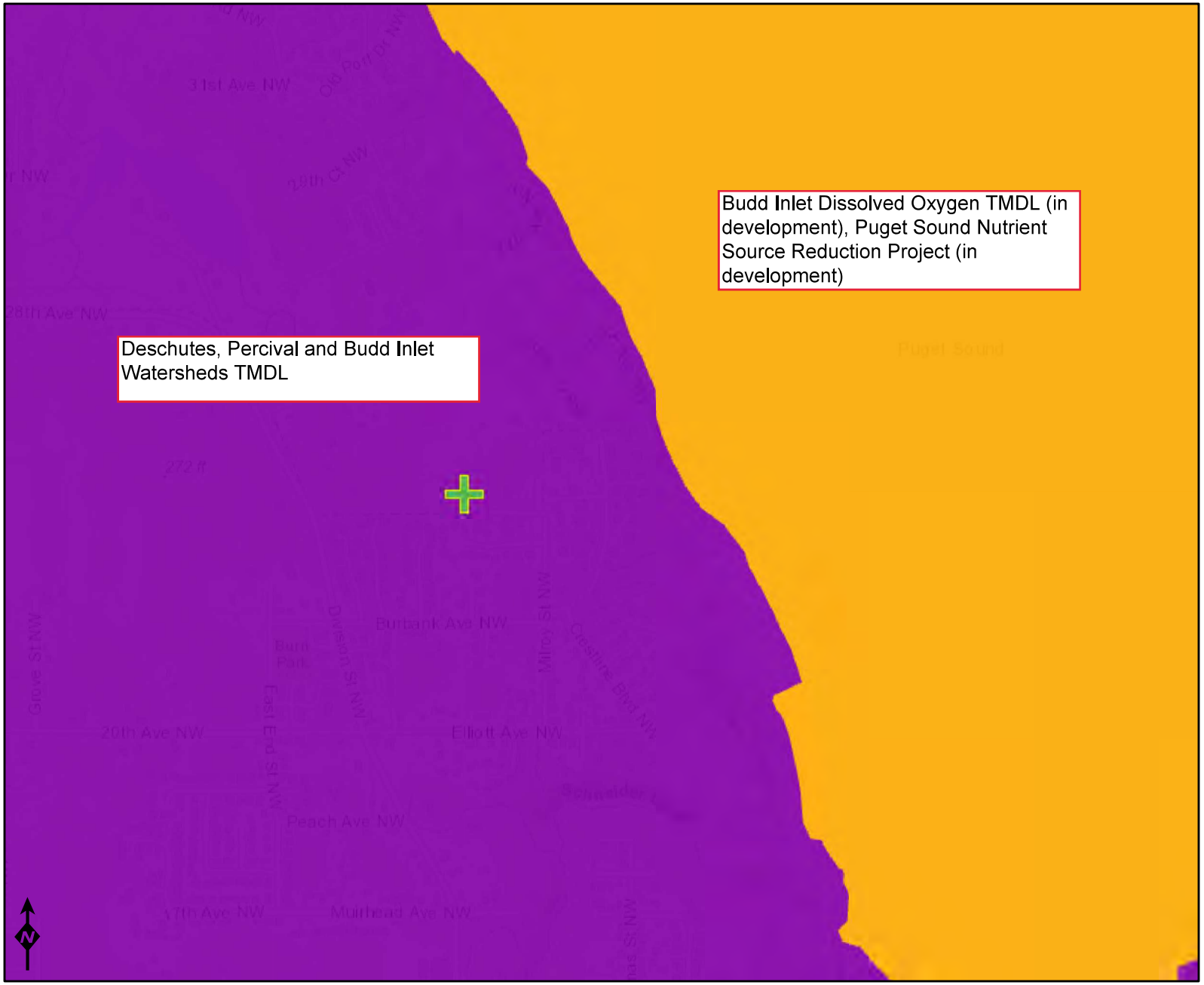
Miles
0 0.1 0.2 0.4



DEPARTMENT OF ECOLOGY
State of Washington

November 7, 2022

# WQA TMDLs




**WQ Improvement Projects**
- Approved
- In Development

**Subbasins (12 digit HUCs)**
- HUC boundary

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

DEPARTMENT OF ECOLOGY
State of Washington

Wetland name or number B

# RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland B Date of site visit: 7/19/2023

Rated by A. Michniak & K. McArthur Trained by Ecology? ☑ Yes ☐ No Date of training 3/23 & 6/16

**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 Esri, Maxar, Earthstat Geographics

**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
_____ **Category III** - Total score = 16 - 19
X **Category IV** - Total score = 9 - 15

| FUNCTION | Improving Water Quality | Hydrologic | Habitat | |
|---|---|---|---|---|
| | *List appropriate rating (H, M, L)* | | | |
| 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** |

Wetland name or number B

# Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

| Map of: | To answer questions: | Figure # |
|---|---|---|
| Cowardin plant classes | D 1.3, H 1.1, H 1.4 | 1 |
| Hydroperiods | D 1.4, H 1.2 | 2 |
| Location of outlet (*can be added to map of hydroperiods*) | D 1.1, D 4.1 | 2 |
| Boundary of area within 150 ft of the wetland (*can be added to another figure*) | 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 (*can be added to another figure*) | R 2.4 | |
| Plant cover of trees, shrubs, and herbaceous plants | R 1.2, R 4.2 | |
| Width of unit vs. width of stream (*can be added to another figure*) | R 4.1 | |
| Map of the contributing basin | R 2.2, R 2.3, R 5.2 | |
| 1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat | H 2.1, H 2.2, H 2.3 | |
| Screen capture of map of 303(d) listed waters in basin (from Ecology website) | R 3.1 | |
| Screen capture of list of TMDLs for WRIA in which unit is found (from web) | R 3.2, R 3.3 | |

Lake Fringe Wetlands

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

Slope Wetlands

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

# 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:

Wetland name or number B

## DEPRESSIONAL AND FLATS WETLANDS

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

| | | |
|---|---|---|
| D 1.0. Does the site have the potential to improve water quality? | | |
| D 1.1. Characteristics of surface water outflows from the wetland: | | 3 |
| 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 | |
| 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): | | 5 |
| Wetland has persistent, ungrazed, plants > 95% of area | points = 5 | |
| Wetland has persistent, ungrazed, plants > ½ of area | points = 3 | |
| Wetland has persistent, ungrazed plants > $^1/_{10}$ of area | points = 1 | |
| Wetland has persistent, ungrazed plants < $^1/_{10}$ of area | points = 0 | |
| D 1.4. Characteristics of seasonal ponding or inundation: | | 4 |
| *This is the area that is ponded for at least 2 months. See description in manual.* | | |
| Area seasonally ponded is > ½ total area of wetland | points = 4 | |
| Area seasonally ponded is > ¼ total area of wetland | points = 2 | |
| Area seasonally ponded is < ¼ total area of wetland | points = 0 | |
| 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? | | 0 |
| Source | Yes = 1 No = 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*

Wetland name or number B

## DEPRESSIONAL AND FLATS WETLANDS

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

| | | |
|---|---|---|
| D 4.0. Does the site have the potential to reduce flooding and erosion? | | |
| D 4.1. Characteristics of surface water outflows from the wetland: | | |
| Wetland is a depression or flat depression with no surface water leaving it (no outlet) | points = 4 | |
| Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet | points = 2 | 4 |
| 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 | |
| Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet | points = 5 | 0 |
| ☐ 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*

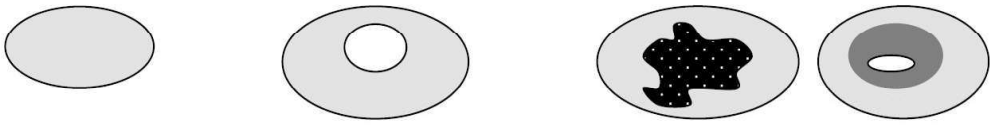
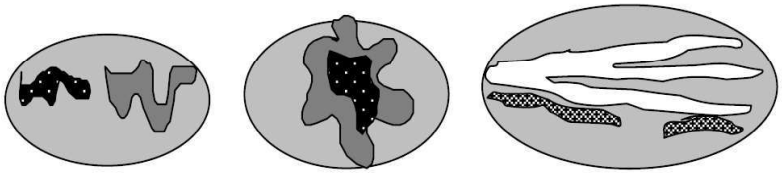
| | | |
|---|---|---|
| D 5.0. Does the landscape have the potential to support hydrologic function of the site? | | |
| D 5.1. Does the wetland unit receive stormwater discharges? | Yes = 1 No = 0 | 0 |
| D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff? | 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 redds): | | |
| • Flooding occurs in a sub-basin that is immediately down-gradient of unit. | points = 2 | 0 |
| ☐ • 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*

Wetland name or number B

| These questions apply to wetlands of all HGM classes. | |
|---|---|
| **HABITAT FUNCTIONS** - Indicators that site functions to provide important habitat | |
| H 1.0. Does the site have the potential to provide habitat? | |
| H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*<br><br>☐ Aquatic bed — 4 structures or more: points = 4<br>☐ Emergent — 3 structures: points = 2<br>☐ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1<br>☑ Forested (areas where trees have > 30% cover) — 1 structure: points = 0<br>*If the unit has a Forested class, check if*:<br>☑ 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 | 1 |
| H 1.2. Hydroperiods<br>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*).<br><br>☐ Permanently flooded or inundated — 4 or more types present: points = 3<br>☑ Seasonally flooded or inundated — 3 types present: points = 2<br>☐ Occasionally flooded or inundated — 2 types present: points = 1<br>☑ Saturated only — 1 types present: points = 0<br>☐ Permanently flowing stream or river in, or adjacent to, the wetland<br>☐ Seasonally flowing stream in, or adjacent to, the wetland<br>☐ **Lake Fringe wetland** — **2 points**<br>☐ **Freshwater tidal wetland** — **2 points** | 1 |
| H 1.3. Richness of plant species<br>Count the number of plant species in the wetland that cover at least 10 $ft^2$.<br>*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***<br><br>If you counted: > 19 species — points = 2<br>5 - 19 species — points = 1<br>< 5 species — points = 0 | 1 |
| H 1.4. Interspersion of habitats<br>Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*<br><br>  <br>**None** = 0 points — **Low** = 1 point — **Moderate** = 2 points<br><br>All three diagrams in this row are **HIGH** = 3 points<br>  | 0 |

| H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* | |
|---|---|
| ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long)<br>☐ Standing snags (dbh > 4 in) within the wetland<br>☐ 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)<br>☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*)<br>☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*)<br>☑ 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: ☐ **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%<br>If total accessible habitat is:<br>> 1/3 (33.3%) of 1 km Polygon — points = 3<br>20 - 33% of 1 km Polygon — points = 2<br>10 - 19% of 1 km Polygon — points = 1<br>< 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%<br>Undisturbed habitat > 50% of Polygon — points = 3<br>Undisturbed habitat 10 - 50% and in 1-3 patches — points = 2<br>Undisturbed habitat 10 - 50% and > 3 patches — points = 1<br>Undisturbed habitat < 10% of 1 km Polygon — points = 0 | 2 |
| H 2.3 Land use intensity in 1 km Polygon: If<br>> 50% of 1 km Polygon is high intensity land use — points = (-2)<br>≤ 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*.<br>Site meets ANY of the following criteria: — points = 2<br>☐ It has 3 or more priority habitats within 100 m (see next page)<br>☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)<br>☐ It is mapped as a location for an individual WDFW priority species<br>☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources<br>☐ 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<br>Site has 1 or 2 priority habitats (listed on next page) with in 100m — points = 1<br>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<br>*Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.* | Category |
|---|---|
| **SC 1.0. Estuarine Wetlands**<br>Does the wetland meet the following criteria for Estuarine wetlands?<br>☐ The dominant water regime is tidal,<br>☐ Vegetated, and<br>☐ With a salinity greater than 0.5 ppt<br>☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland** | |
| SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?<br>☐ Yes = **Category I** ☐ 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?<br>☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25)<br>☐ 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.<br>☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.<br>☐ Yes = **Category I** ☐ No = **Category II** | |
| **SC 2.0. Wetlands of High Conservation Value (WHCV)**<br>SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value?<br>☑ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3**<br>SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?<br>☐ Yes = **Category I** ☑ No = **Not WHCV**<br>SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?<br>http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf<br>☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV**<br>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?<br>☐ Yes = **Category I** ☐ No = **Not WHCV** | |
| **SC 3.0. Bogs**<br>Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions***.<br>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?<br>☐ Yes - Go to **SC 3.3** ☑ No - Go to **SC 3.2**<br>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?<br>☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog**<br>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?<br>☐ Yes = **Is a Category I bog** ☑ No - Go to **SC 3.4**<br>**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.<br>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?<br>☐ Yes = **Is a Category I bog** ☑ No = **Is not a bog** | |

**SC 4.0. Forested Wetlands**

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

- ☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.
- ☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

**SC 5.0. Wetlands in Coastal Lagoons**

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

- ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks
- ☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

- ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).
- ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.
- ☐ The wetland is larger than $^{1}/_{10}$ ac (4350 $ft^2$)

☐ Yes = **Category I** ☑ No = **Category II**

**SC 6.0. Interdunal Wetlands**

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

- ☐ Long Beach Peninsula: Lands west of SR 103
- ☐ Grayland-Westport: Lands west of SR 105
- ☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☑ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☑ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☑ No = **Category IV**

**Category of wetland based on Special Characteristics**

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

CONFLUENCE
ENVIRONMENTAL COMPANY

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

0 50 Feet

N


CONFLUENCE
ENVIRONMENTAL COMPANY

Hydroperiod
- Saturated Only
- Seasonally Flooded
- 150 ft Analysis Area

Note: Wetland has no outlet

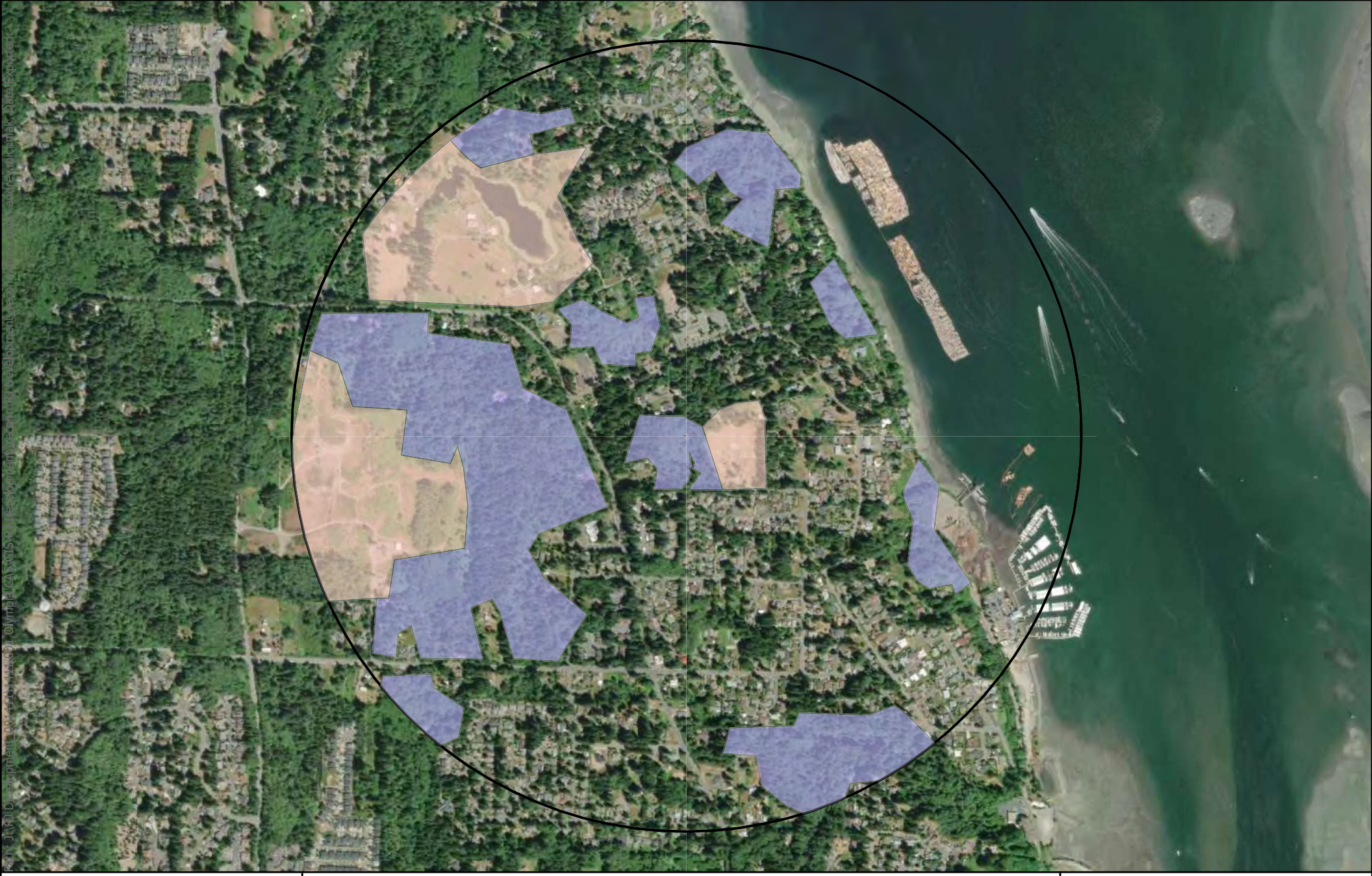
0 50 Feet

N

CONFLUENCE
ENVIRONMENTAL COMPANY

Wetland B
Contributing Basin

N
0 150 Feet



CONFLUENCE
ENVIRONMENTAL COMPANY

Wetland B

1 km Analysis Area

Land Use Intensity*

Low/moderate

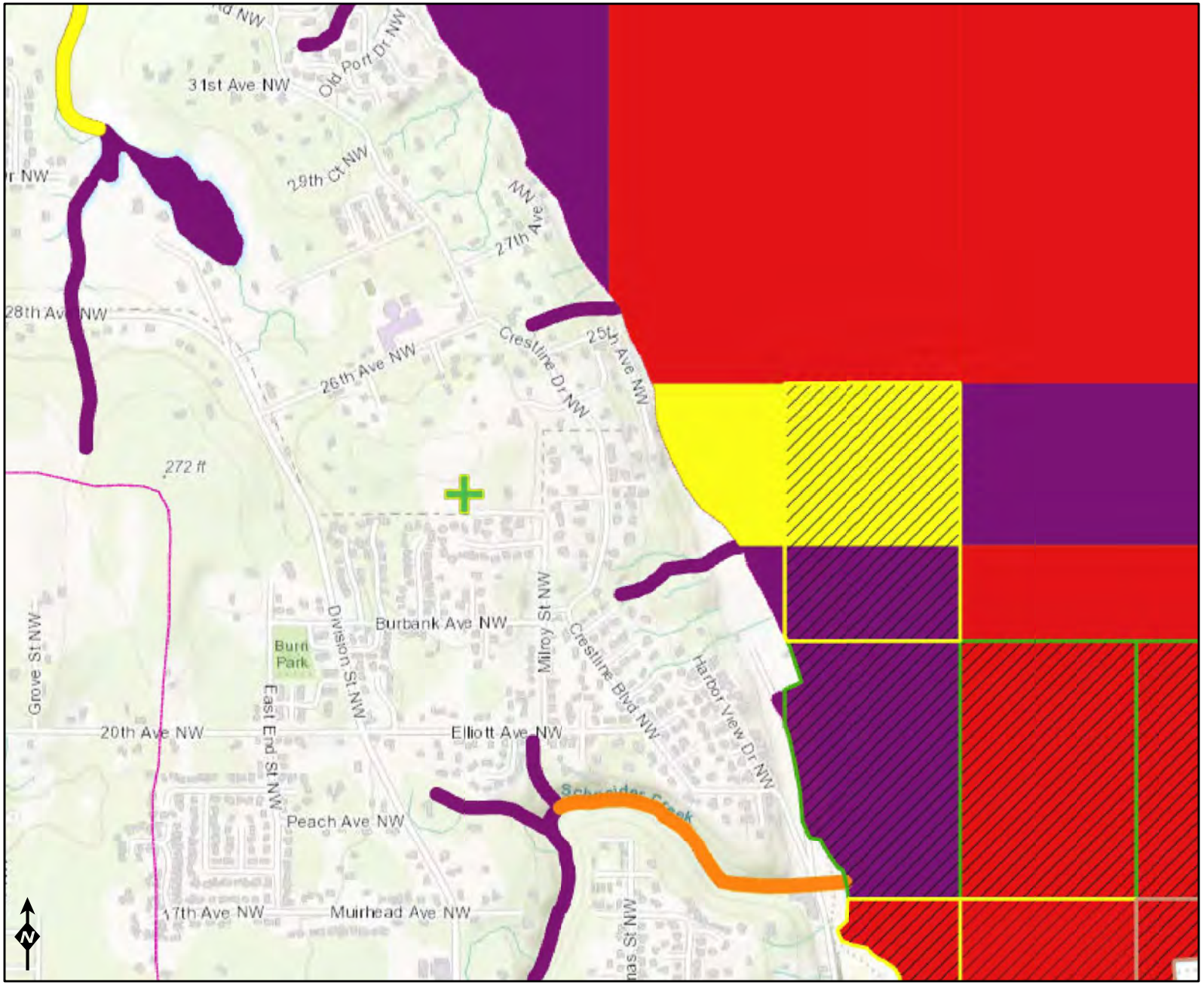
Relatively Undisturbed

0 1,000 Feet

N

November 7, 2022

# 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

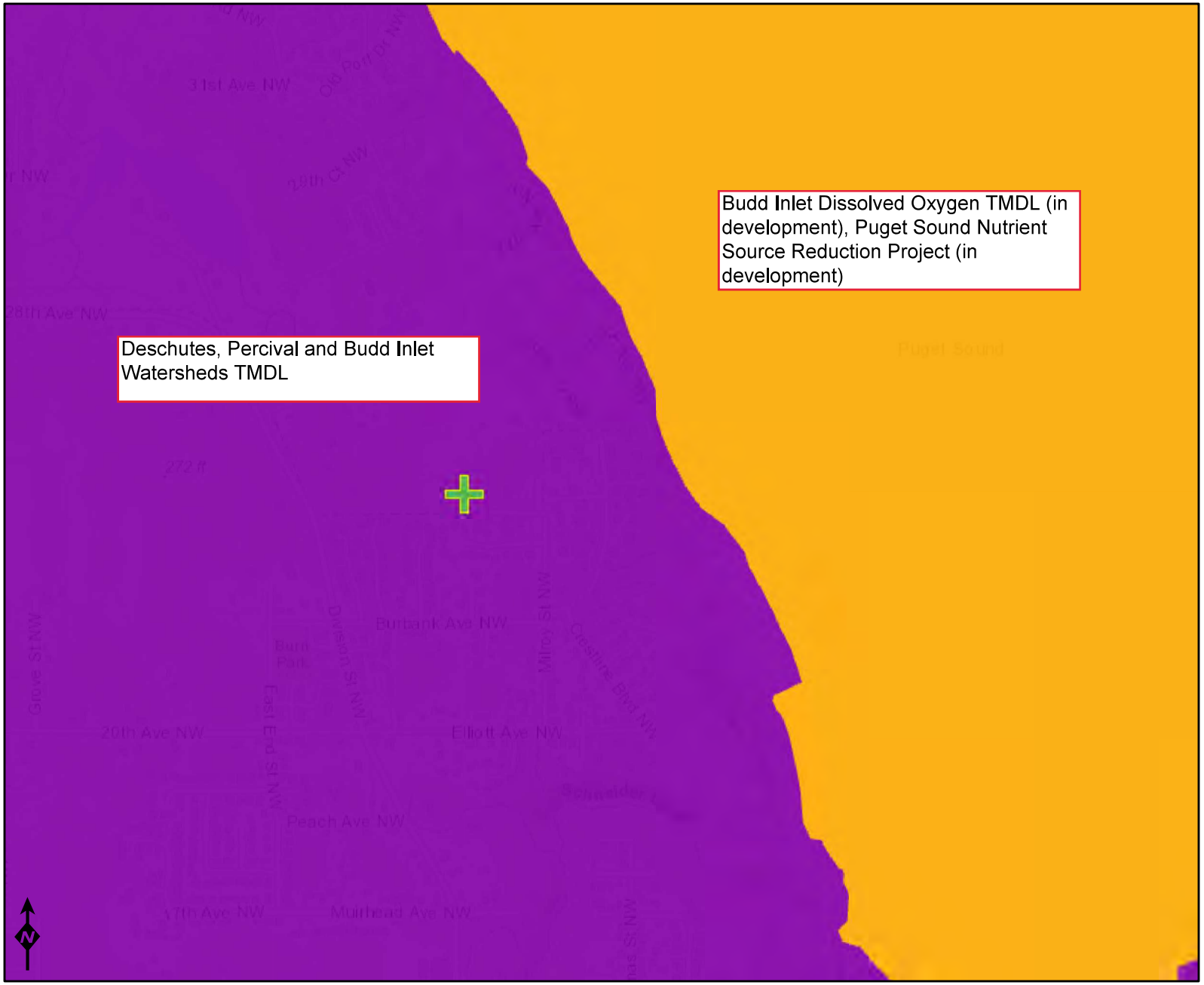
Miles
0 0.1 0.2 0.4



DEPARTMENT OF ECOLOGY
State of Washington

November 7, 2022

# WQA TMDLs




**WQ Improvement Projects**
- Approved
- In Development

**Subbasins (12 digit HUCs)**
- HUC boundary

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

DEPARTMENT OF ECOLOGY
State of Washington

Wetland name or number C

# RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland C Date of site visit: 7/19/2023

Rated by A. Michniak & K. McArthur Trained by Ecology? ☑ Yes ☐ No Date of training 3/23 & 6/16

**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 Esri, Maxar, Earthstat Geographics

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

**1. Category of wetland based on FUNCTIONS**

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

| FUNCTION | Improving Water Quality | Hydrologic | Habitat | |
|---|---|---|---|---|
| | *List appropriate rating (H, M, L)* | | | |
| 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** |

Wetland name or number C

# 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 (*can be added to map of hydroperiods*) | D 1.1, D 4.1 | 2 |
| Boundary of area within 150 ft of the wetland (*can be added to another figure*) | 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 (*can be added to another figure*) | R 2.4 | |
| Plant cover of trees, shrubs, and herbaceous plants | R 1.2, R 4.2 | |
| Width of unit vs. width of stream (*can be added to another figure*) | R 4.1 | |
| Map of the contributing basin | R 2.2, R 2.3, R 5.2 | |
| 1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat | H 2.1, H 2.2, H 2.3 | |
| Screen capture of map of 303(d) listed waters in basin (from Ecology website) | R 3.1 | |
| Screen capture of list of TMDLs for WRIA in which unit is found (from web) | R 3.2, R 3.3 | |

Lake Fringe Wetlands

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

Slope Wetlands

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

# 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:

Wetland name or number C

## 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: | | |
| *This is the area that is ponded for at least 2 months. See description in manual.* | | |
| Area seasonally ponded is > ½ total area of wetland | points = 4 | 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 | 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 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 | 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*

Wetland name or number C

## 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*

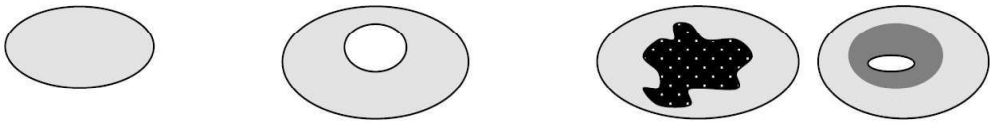
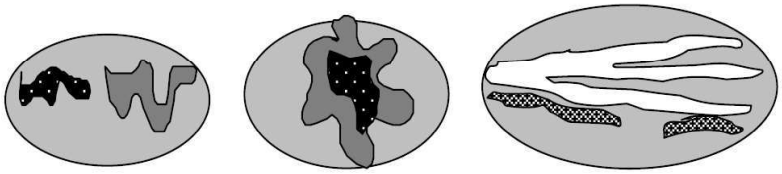
| | | |
|---|---|---|
| D 5.0. Does the landscape have the potential to support hydrologic function of the site? | | |
| D 5.1. Does the wetland unit receive stormwater discharges? | Yes = 1 No = 0 | 0 |
| D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff? | 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 redds): | | |
| • Flooding occurs in a sub-basin that is immediately down-gradient of unit. | points = 2 | 0 |
| ☐ • 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*

Wetland name or number C

| 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.*<br><br>☐ Aquatic bed — 4 structures or more: points = 4<br>☐ Emergent — 3 structures: points = 2<br>☐ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1<br>☑ Forested (areas where trees have > 30% cover) — 1 structure: points = 0<br>*If the unit has a Forested class, check if*:<br>☑ 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 | 1 |
| H 1.2. Hydroperiods<br>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*).<br><br>☐ Permanently flooded or inundated — 4 or more types present: points = 3<br>☑ Seasonally flooded or inundated — 3 types present: points = 2<br>☐ Occasionally flooded or inundated — 2 types present: points = 1<br>☑ Saturated only — 1 types present: points = 0<br>☐ Permanently flowing stream or river in, or adjacent to, the wetland<br>☐ Seasonally flowing stream in, or adjacent to, the wetland<br>☐ **Lake Fringe wetland** — **2 points**<br>☐ **Freshwater tidal wetland** — **2 points** | 1 |
| H 1.3. Richness of plant species<br>Count the number of plant species in the wetland that cover at least 10 ft$^2$.<br>*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***<br><br>If you counted: > 19 species — points = 2<br>5 - 19 species — points = 1<br>< 5 species — points = 0 | 1 |
| H 1.4. Interspersion of habitats<br>Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*<br><br>  <br>**None** = 0 points — **Low** = 1 point — **Moderate** = 2 points<br><br>All three diagrams in this row are **HIGH** = 3 points<br>  | 0 |

| H 1.5. Special habitat features:<br>Check the habitat features that are present in the wetland. *The number of checks is the number of points.* | |
|---|---|
| ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long)<br>☐ Standing snags (dbh > 4 in) within the wetland<br>☐ 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)<br>☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*)<br>☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*)<br>☑ 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: ☐ **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*).<br>*Calculate:*<br>1 % undisturbed habitat + ( 1 % moderate & low intensity land uses / 2 ) = 1.5%<br><br>If total accessible habitat is:<br>> 1/3 (33.3%) of 1 km Polygon — points = 3<br>20 - 33% of 1 km Polygon — points = 2<br>10 - 19% of 1 km Polygon — points = 1<br>< 10 % of 1 km Polygon — points = 0 | 0 |
| H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.<br>*Calculate:*<br>21 % undisturbed habitat + ( 11 % moderate & low intensity land uses / 2 ) = 26.5%<br><br>Undisturbed habitat > 50% of Polygon — points = 3<br>Undisturbed habitat 10 - 50% and in 1-3 patches — points = 2<br>Undisturbed habitat 10 - 50% and > 3 patches — points = 1<br>Undisturbed habitat < 10% of 1 km Polygon — points = 0 | 2 |
| H 2.3 Land use intensity in 1 km Polygon: If<br>> 50% of 1 km Polygon is high intensity land use — points = (-2)<br>≤ 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*.<br>Site meets ANY of the following criteria: — points = 2<br>☐ It has 3 or more priority habitats within 100 m (see next page)<br>☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)<br>☐ It is mapped as a location for an individual WDFW priority species<br>☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources<br>☐ 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<br>Site has 1 or 2 priority habitats (listed on next page) with in 100m — points = 1<br>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<br>*Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.* | Category |
|---|---|
| **SC 1.0. Estuarine Wetlands**<br>Does the wetland meet the following criteria for Estuarine wetlands?<br>☐ The dominant water regime is tidal,<br>☐ Vegetated, and<br>☐ With a salinity greater than 0.5 ppt<br>☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland** | |
| SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?<br>☐ Yes = **Category I** ☐ 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?<br>☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25)<br>☐ 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.<br>☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.<br>☐ Yes = **Category I** ☐ No = **Category II** | |
| **SC 2.0. Wetlands of High Conservation Value (WHCV)**<br>SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value?<br>☑ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3**<br>SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?<br>☐ Yes = **Category I** ☑ No = **Not WHCV**<br>SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?<br>http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf<br>☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV**<br>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?<br>☐ Yes = **Category I** ☐ No = **Not WHCV** | |
| **SC 3.0. Bogs**<br>Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions***.<br>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?<br>☐ Yes - Go to **SC 3.3** ☑ No - Go to **SC 3.2**<br>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?<br>☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog**<br>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?<br>☐ Yes = **Is a Category I bog** ☑ No - Go to **SC 3.4**<br>**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.<br>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?<br>☐ Yes = **Is a Category I bog** ☑ No = **Is not a bog** | |

**SC 4.0. Forested Wetlands**

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

- ☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.
- ☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

**SC 5.0. Wetlands in Coastal Lagoons**

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

- ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks
- ☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

- ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).
- ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.
- ☐ The wetland is larger than $^{1}/_{10}$ ac (4350 $ft^2$)

☐ Yes = **Category I** ☑ No = **Category II**

**SC 6.0. Interdunal Wetlands**

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

- ☐ Long Beach Peninsula: Lands west of SR 103
- ☐ Grayland-Westport: Lands west of SR 105
- ☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☑ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☑ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☑ No = **Category IV**

**Category of wetland based on Special Characteristics**

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


CONFLUENCE
ENVIRONMENTAL COMPANY

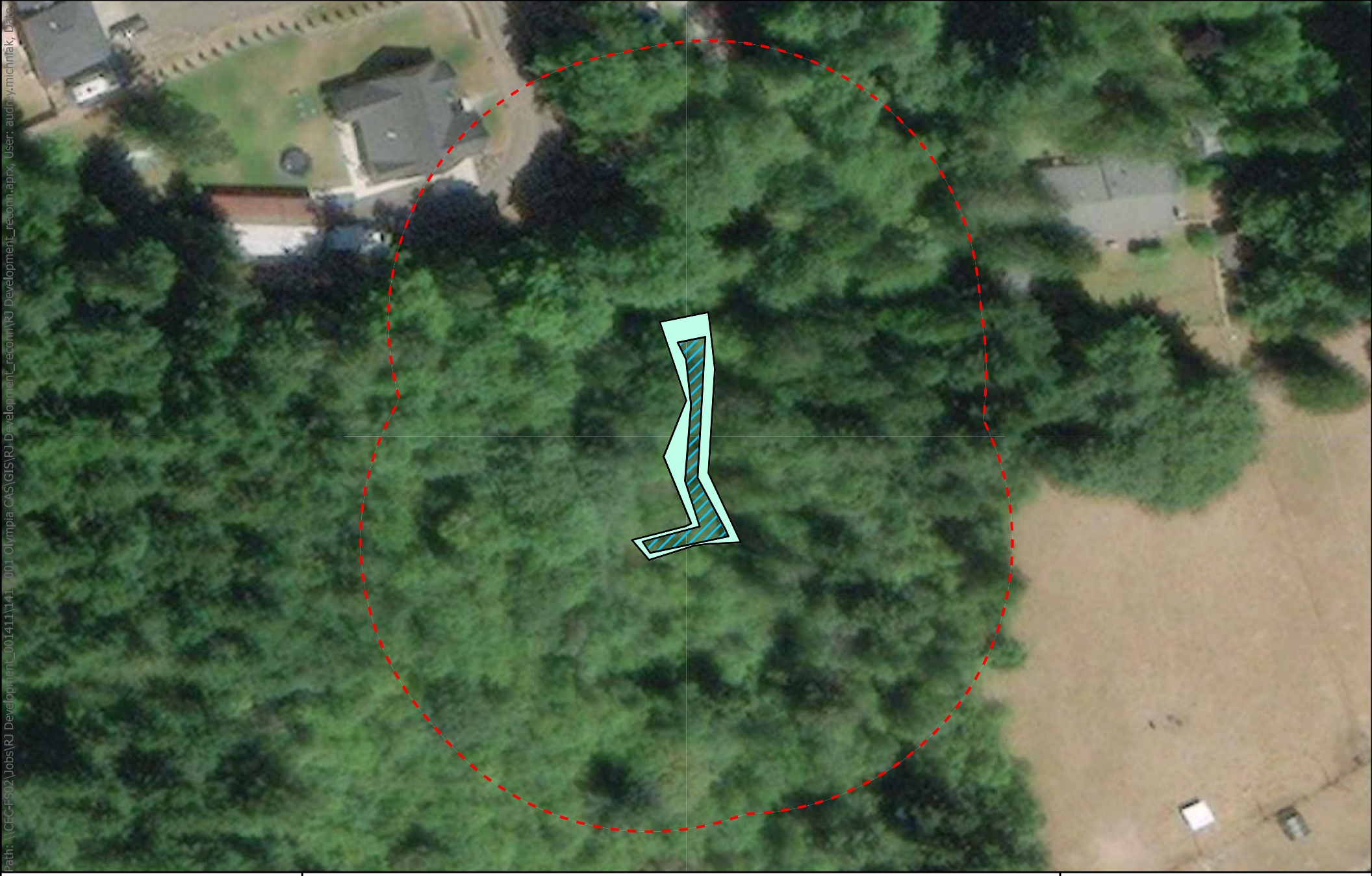
Cowardin Class

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

N

0 50 Feet




CONFLUENCE
ENVIRONMENTAL COMPANY

Hydroperiod
- Saturated
- Seasonally Flooded
- 150 ft Analysis Area

Note: Wetland has no outlet

N

0 75 Feet

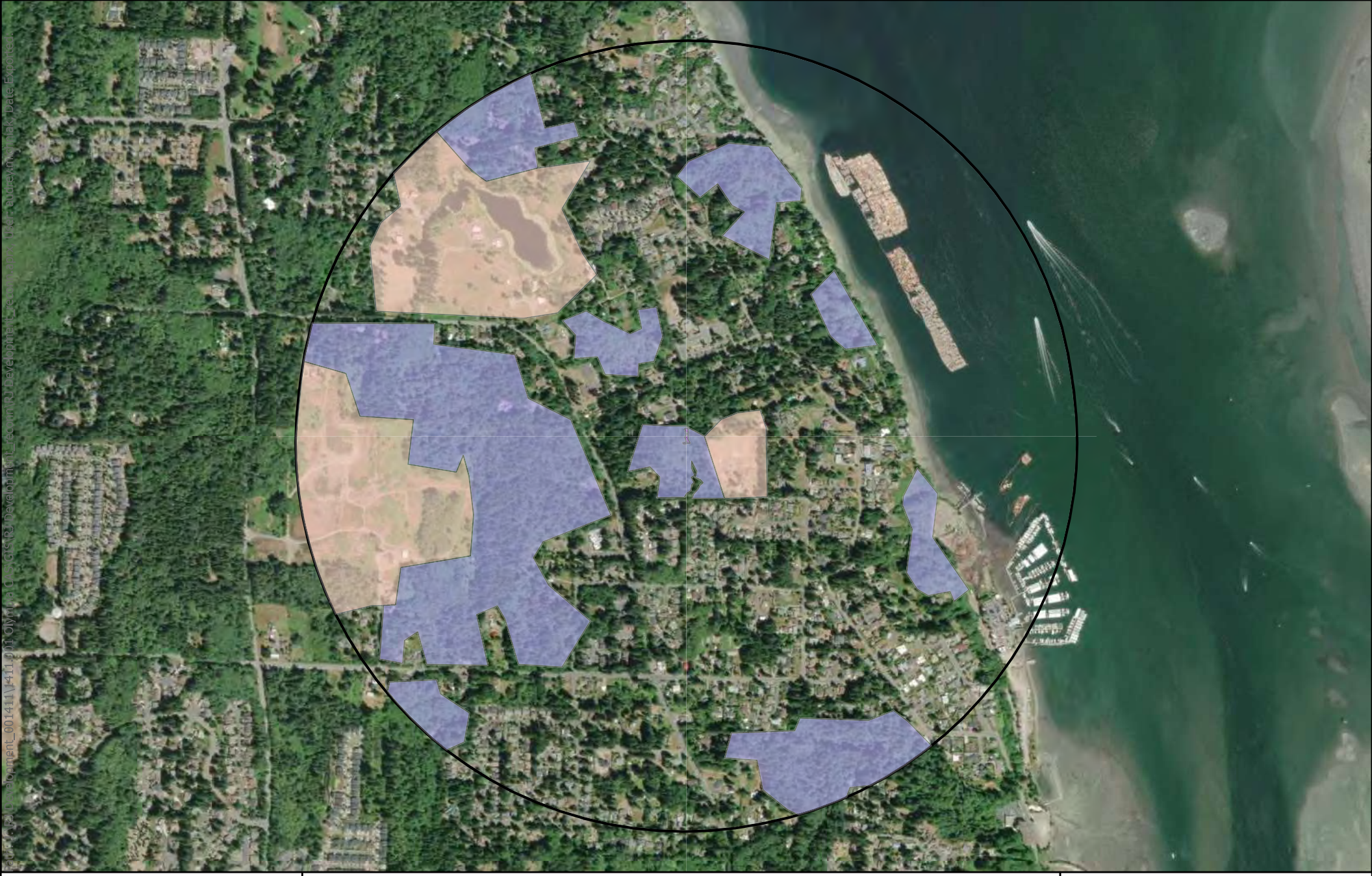

CONFLUENCE
ENVIRONMENTAL COMPANY

Wetland C

Contributing Basin

N

0 200 Feet



CONFLUENCE
ENVIRONMENTAL COMPANY

Wetland C

1 km Analysis Area

Land Use Intensity*

Low/moderate

Relatively Undisturbed

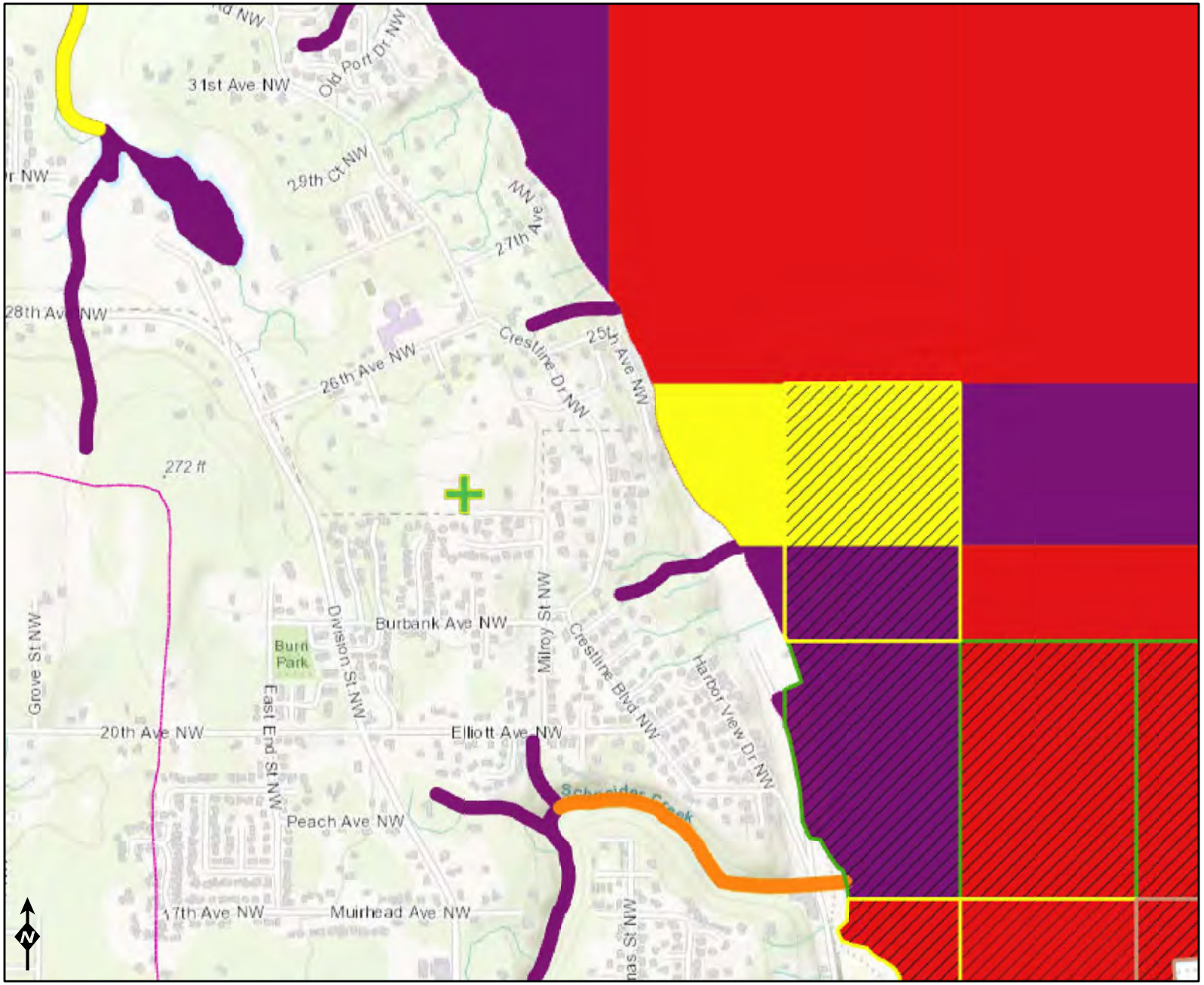
*Uncolored areas represent high intensity land use.

0 1,000 Feet

N

November 7, 2022

# 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

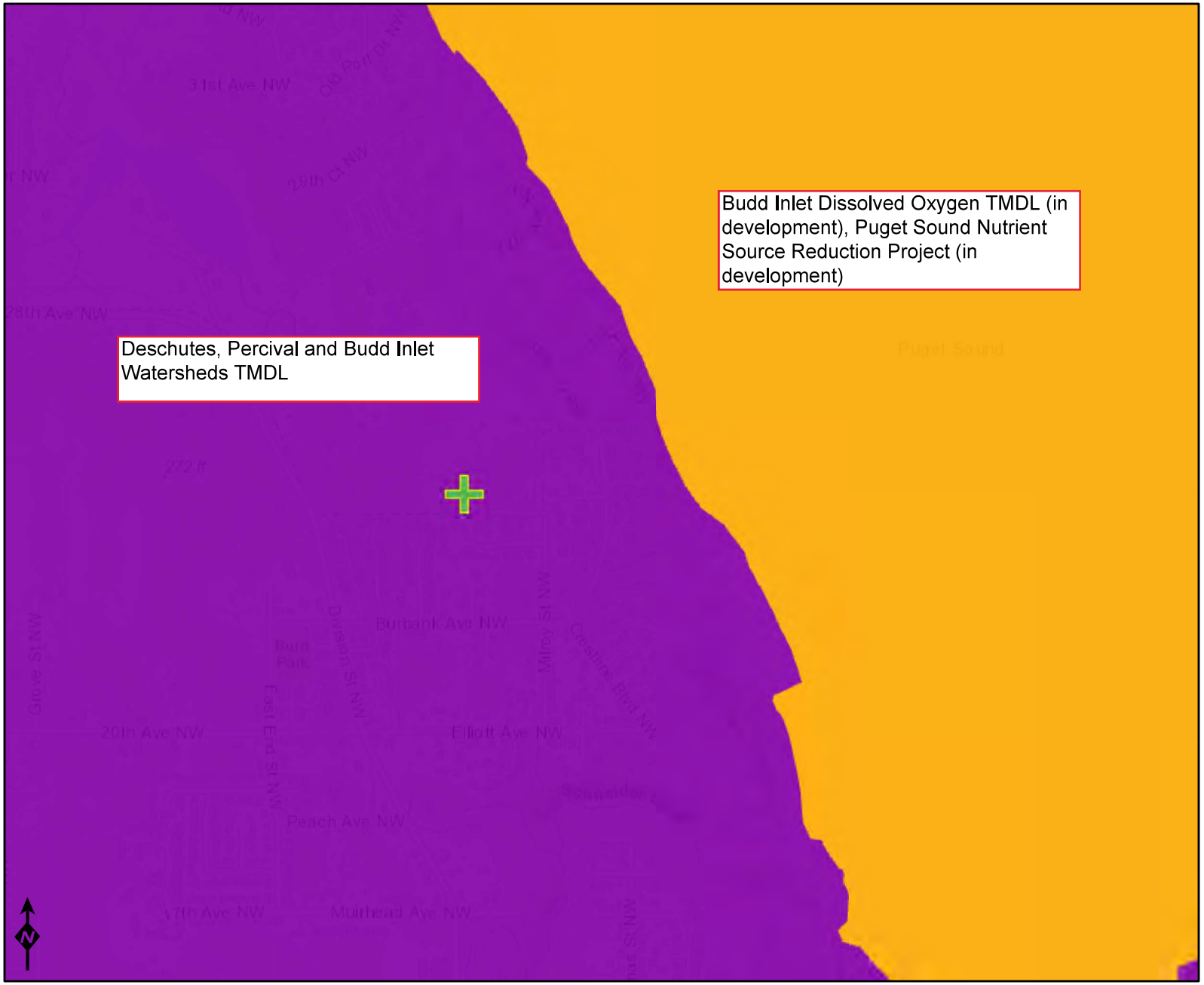
Miles
0 0.1 0.2 0.4



DEPARTMENT OF ECOLOGY
State of Washington

November 7, 2022

# WQA TMDLs




**WQ Improvement Projects**
- Approved
- In Development

**Subbasins (12 digit HUCs)**
- HUC boundary

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

DEPARTMENT OF ECOLOGY
State of Washington

Wetland name or number Off-Site Wetland

# RATING SUMMARY – Western Washington

Name of wetland (or ID #): Off-Site Wetland 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** 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 | |
|---|---|---|---|---|
| | *List appropriate rating (H, M, L)* | | | |
| Site Potential | M | M | L | |
| Landscape Potential | M | L | 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 (*can be added to map of hydroperiods*) | D 1.1, D 4.1 | N/A |
| Boundary of area within 150 ft of the wetland (*can be added to another figure*) | 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 (*can be added to another figure*) | R 2.4 | |
| Plant cover of trees, shrubs, and herbaceous plants | R 1.2, R 4.2 | |
| Width of unit vs. width of stream (*can be added to another figure*) | R 4.1 | |
| Map of the contributing basin | R 2.2, R 2.3, R 5.2 | |
| 1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat | H 2.1, H 2.2, H 2.3 | |
| Screen capture of map of 303(d) listed waters in basin (from Ecology website) | R 3.1 | |
| Screen capture of list of TMDLs for WRIA in which unit is found (from web) | R 3.2, R 3.3 | |

Lake Fringe Wetlands

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

Slope Wetlands

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

# 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:

Wetland name or number Off-Site Wetland

## 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:<br>Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3<br>Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2<br>☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1<br>☐ 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):<br>Wetland has persistent, ungrazed, plants > 95% of area points = 5<br>Wetland has persistent, ungrazed, plants > ½ of area points = 3<br>Wetland has persistent, ungrazed plants > $^1/_{10}$ of area points = 1<br>Wetland has persistent, ungrazed plants < $^1/_{10}$ of area points = 0 | | 1 |
| D 1.4. Characteristics of seasonal ponding or inundation:<br>*This is the area that is ponded for at least 2 months. See description in manual.*<br>Area seasonally ponded is > ½ total area of wetland points = 4<br>Area seasonally ponded is > ¼ total area of wetland points = 2<br>Area seasonally ponded is < ¼ 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?<br>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*

Wetland name or number Off-Site Wetland

## 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:<br>Wetland is a depression or flat depression with no surface water leaving it (no outlet) points = 4<br>Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet points = 2<br>Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch points = 1<br>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.*<br>Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7<br>Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5<br>☐ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3<br>☐ The wetland is a "headwater" wetland points = 3<br>Wetland is flat but has small depressions on the surface that trap water points = 1<br>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.*<br>☐ The area of the basin is less than 10 times the area of the unit points = 5<br>The area of the basin is 10 to 100 times the area of the unit points = 3<br>The area of the basin is more than 100 times the area of the unit points = 0<br>☐ 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.*<br>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):<br>• Flooding occurs in a sub-basin that is immediately down-gradient of unit. points = 2<br>☐ • Surface flooding problems are in a sub-basin farther down-gradient. points = 1<br>☐ Flooding from groundwater is an issue in the sub-basin. points = 1<br>☐ 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<br>☐ 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.*

- ☐ Aquatic bed
- ☑ Emergent
- ☐ Scrub-shrub (areas where shrubs have > 30% cover)
- ☐ Forested (areas where trees have > 30% cover)

4 structures or more: points = 4
3 structures: points = 2
2 structures: points - 1
1 structure: points = 0

*If the unit has a Forested class, check if*:

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

**0**

H 1.2. Hydroperiods

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

- ☑ Permanently flooded or inundated
- ☑ Seasonally flooded or inundated
- ☐ Occasionally flooded or inundated
- ☐ Saturated only

4 or more types present: points = 3
3 types present: points = 2
2 types present: points = 1
1 types present: points = 0

- ☐ Permanently flowing stream or river in, or adjacent to, the wetland
- ☐ Seasonally flowing stream in, or adjacent to, the wetland
- ☐ **Lake Fringe wetland** **2 points**
- ☐ **Freshwater tidal wetland** **2 points**

**1**

H 1.3. Richness of plant species

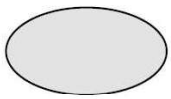
Count the number of plant species in the wetland that cover at least 10 $ft^2$.
*Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

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

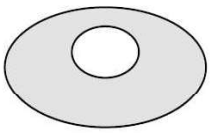
**1**

H 1.4. Interspersion of habitats

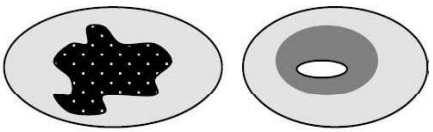
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always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



**None** = 0 points

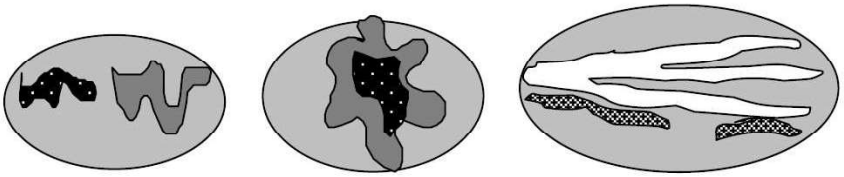


**Low** = 1 point



**Moderate** = 2 points

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



**0**

| H 1.5. Special habitat features:<br>Check the habitat features that are present in the wetland. *The number of checks is the number of points.*<br>☐ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long)<br>☐ Standing snags (dbh > 4 in) within the wetland<br>☐ 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)<br>☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*)<br>☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*)<br>☑ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*) | 1 |
|---|---|
| Total for H 1 Add the points in the boxes above | **3** |

**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*).<br>*Calculate:*<br>1 % undisturbed habitat + ( 1 % moderate & low intensity land uses / 2 ) = 1.5%<br><br>If total accessible habitat is:<br>> 1/3 (33.3%) of 1 km Polygon points = 3<br>20 - 33% of 1 km Polygon points = 2<br>10 - 19% of 1 km Polygon points = 1<br>< 10 % of 1 km Polygon points = 0 | 0 |
| H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.<br>*Calculate:*<br>19 % undisturbed habitat + ( 8 % moderate & low intensity land uses / 2 ) = 23%<br><br>Undisturbed habitat > 50% of Polygon points = 3<br>Undisturbed habitat 10 - 50% and in 1-3 patches points = 2<br>Undisturbed habitat 10 - 50% and > 3 patches points = 1<br>Undisturbed habitat < 10% of 1 km Polygon points = 0 | 2 |
| H 2.3 Land use intensity in 1 km Polygon: If<br>> 50% of 1 km Polygon is high intensity land use points = (-2)<br>≤ 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*.<br>Site meets ANY of the following criteria: points = 2<br>☐ It has 3 or more priority habitats within 100 m (see next page)<br>☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)<br>☐ It is mapped as a location for an individual WDFW priority species<br>☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources<br>☐ 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<br>Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1<br>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<br><br>*Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.* | Category |
|---|---|
| **SC 1.0. Estuarine Wetlands**<br>Does the wetland meet the following criteria for Estuarine wetlands?<br>☐ The dominant water regime is tidal,<br>☐ Vegetated, and<br>☐ With a salinity greater than 0.5 ppt<br>☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland** | |
| SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?<br>☐ Yes = **Category I** ☐ 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?<br>☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25)<br>☐ 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.<br>☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.<br>☐ Yes = **Category I** ☐ No = **Category II** | |
| **SC 2.0. Wetlands of High Conservation Value (WHCV)**<br>SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value?<br>☑ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3**<br>SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?<br>☐ Yes = **Category I** ☑ No = **Not WHCV**<br>SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?<br>http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf<br>☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV**<br>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?<br>☐ Yes = **Category I** ☐ No = **Not WHCV** | |
| **SC 3.0. Bogs**<br>Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions***.<br>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?<br>☐ Yes - Go to **SC 3.3** ☑ No - Go to **SC 3.2**<br>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?<br>☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog**<br>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?<br>☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4**<br>**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.<br>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?<br>☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog** | |

**SC 4.0. Forested Wetlands**

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

- ☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.
- ☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

**SC 5.0. Wetlands in Coastal Lagoons**

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

- ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks
- ☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

- ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).
- ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.
- ☐ The wetland is larger than $^{1}/_{10}$ ac (4350 $ft^2$)

☐ Yes = **Category I** ☐ No = **Category II**

**SC 6.0. Interdunal Wetlands**

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

- ☐ Long Beach Peninsula: Lands west of SR 103
- ☐ Grayland-Westport: Lands west of SR 105
- ☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

**Category of wetland based on Special Characteristics**

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

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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).

N

0 25 50 Feet

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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.

N

0 25 50 Feet

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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).

N

0 25 50 Feet

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Off-Site Wetland (estimated boundary)

1 km Analysis Area

Land Use Intensity*

Low/moderate

Relatively Undisturbed

*Uncolored areas represent high intensity land use.

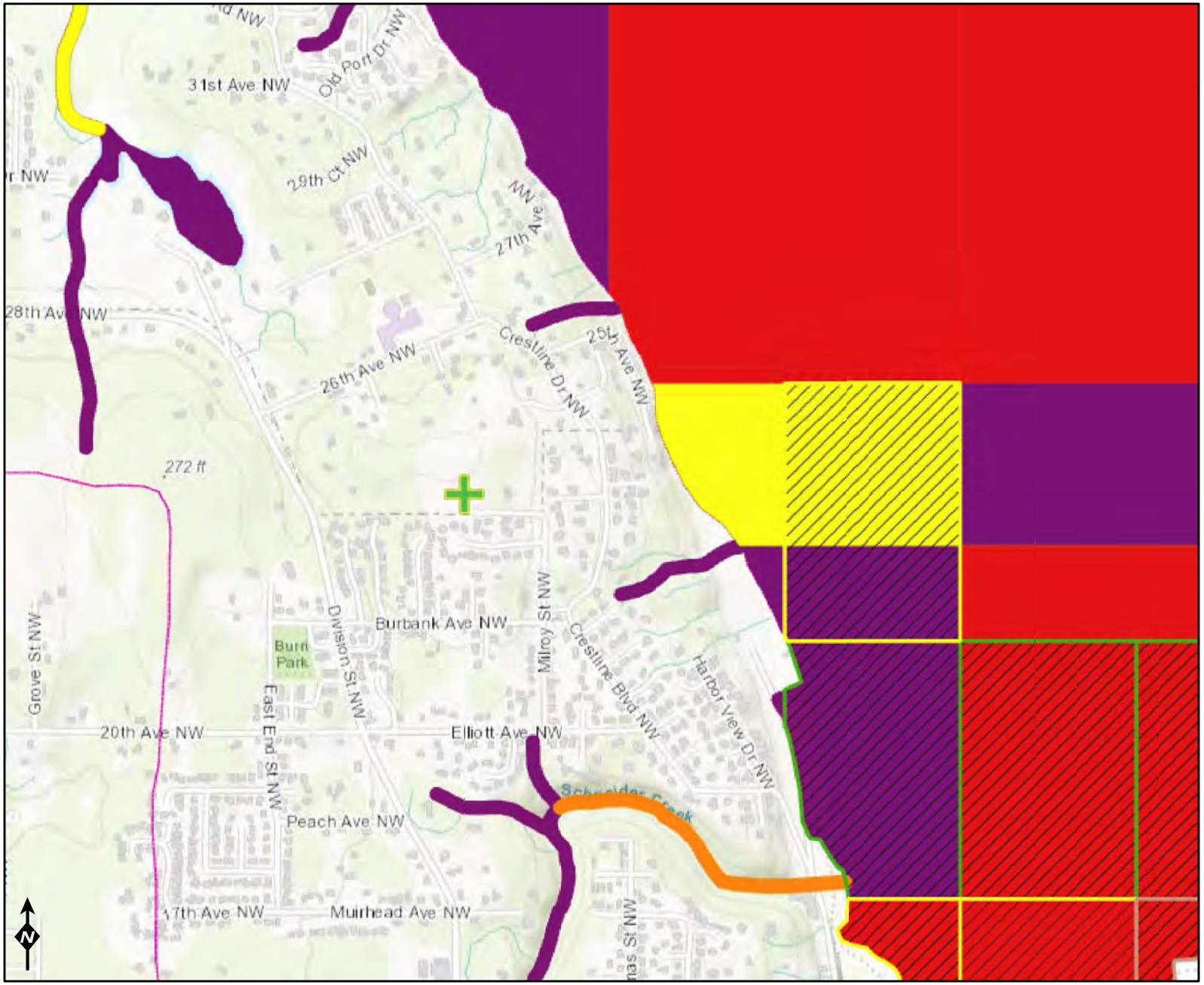
N

Feet

0 500 1,000

November 7, 2022

# 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

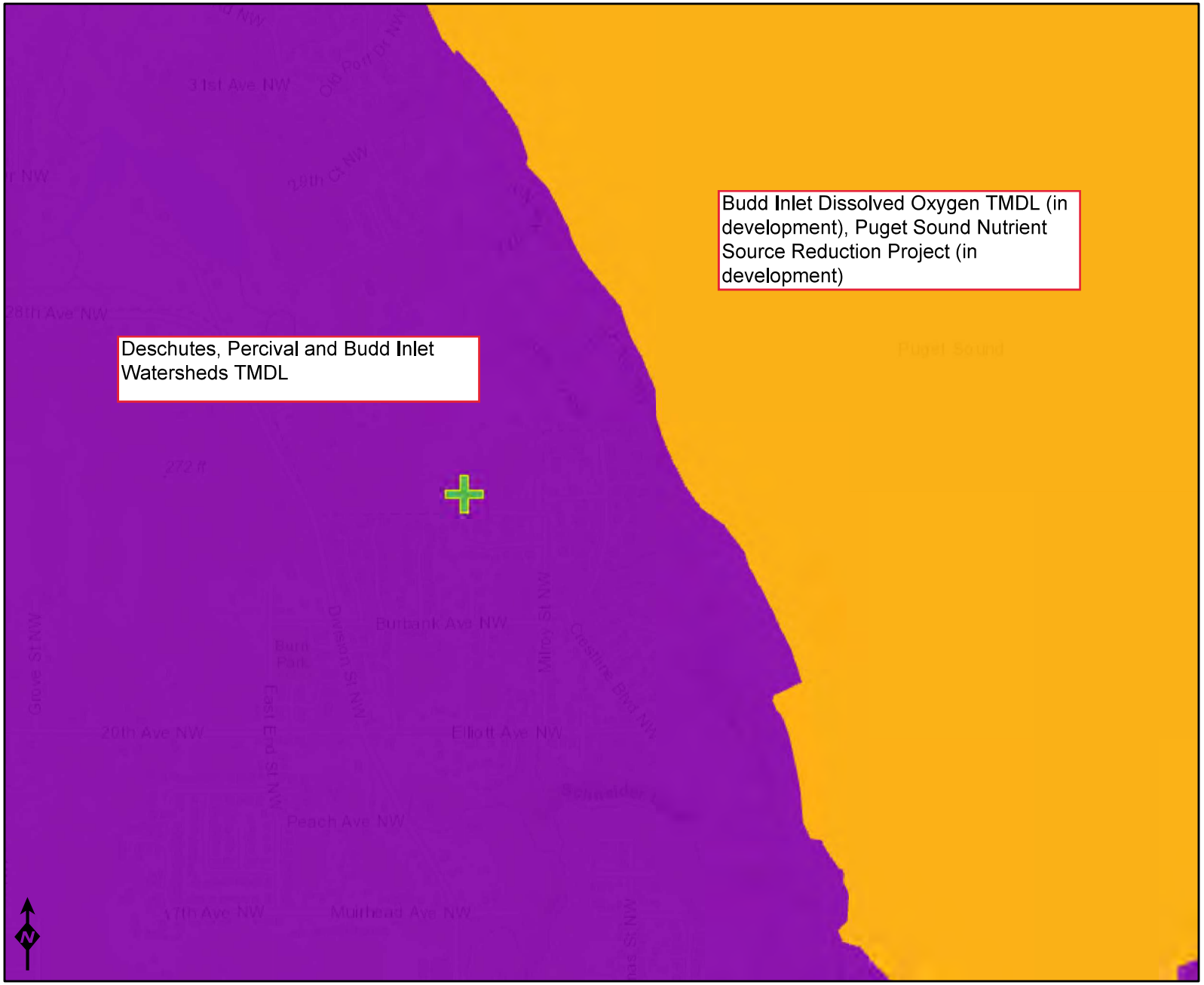
Miles
0 0.1 0.2 0.4



DEPARTMENT OF ECOLOGY
State of Washington

November 7, 2022

# WQA TMDLs




**WQ Improvement Projects**
- Approved
- In Development

**Subbasins (12 digit HUCs)**
- HUC boundary

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

DEPARTMENT OF ECOLOGY
State of Washington

# 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

# Appendix F
## Cost Estimate

# Critical Areas Mitigation

## Bond Quantity Worksheet

**Project Name:** West Olympia Development **Date: 4/3/24** **Prepared by:** Kerrie McArthur

**Project Number:** 2023100650 **Project Description:** 34 lot subdivision

**Location:** 2000 24th Avenue NW, Olympia, WA **Applicant:** RJ Development **Contact Information:**

### PLANT MATERIAL COSTS

**(Includes labor cost for plant installation)**

| Type | Unit Price | Unit | Quantity | Description | Cost |
|---|---|---|---|---|---|
| PLANTS: Potted, 4" diameter | $7.00 | Each | | | $ - |
| PLANTS: Container, 1 gallon | $17.00 | Each | 662.00 | | $ 11,254.00 |
| PLANTS: Container, 2 gallon | $20.00 | Each | 44.00 | | $ 880.00 |
| PLANTS: Container, 5 gallon | $36.00 | Each | | | $ - |
| | | | | *TOTAL* | **$ 12,134.00** |

### INSTALLATION COSTS

**(Unit Cost Furnished and Installed in February, 2022 Dollars for General Contractor Overhead and Profit)**

| Type | Unit Price | Unit | Quantity | Description | Cost |
|---|---|---|---|---|---|
| Compost, vegetable, delivered and spread | $95.00 | CY | 101.00 | 6 inches topsoil | $ 9,595.00 |
| 4-inch thick woodchip mulch, delivered and spread | $1.75 | SF | 5500.00 | | $ 9,625.00 |
| Temporary irrigation (assume 3,000 – 10,000SF) | $1.95 | SF | 5500.00 | | $ 10,725.00 |
| Fencing, split rail, 3' high (2-rail) | $95.00 | LF | 700.00 | | $ 66,500.00 |
| Sign on Post, sensitive area boundary (inc. backing, post, install) | $550.00 | Each | 7.00 | | $ 3,850.00 |
| | | | | | $ - |
| | | | | *TOTAL* | **$ 100,295.00** |

### OTHER

| | | | | *(Construction Cost Subtotal)* | **$ 112,429.00** |
|---|---|---|---|---|---|
| ITEMS | Percentage of Construction Cost | Unit | Quantity | Description | Cost |
| Mobilization/Demobilization | 10% | ALLOWANCE | 1 | | $ 11,242.90 |
| | | | | *TOTAL* | **$ 11,242.90** |

### MAINTENANCE AND MONITORING

NOTES: 1) Projects with multiple permit requirements may be required to have longer monitoring and maintenance terms. This will be evaluated on a case-by-case basis for development applications. Monitoring and maintance ranges may be assessed anywhere from 3 to 5 years in the city of Kirkland. Federal permitting requirements typically do not require bonding, but can range up to 10 years in duration. 2) Annual should include the Year Zero or As-built year as well, such that a five year plan includes an as-built and therefore a total of 6 units are required.

| **Maintenance, Min. 3 visits annual (by owner or contractor)** | | | Quantity | | |
|---|---|---|---|---|---|
| Larger than 5,000 SF but < 1 AC | $ 4,560.00 | EACH | 30.00 | (3 X 16 hrs per visit @ 95/hr) | $ 136,800.00 |
| **Monitoring and Report, per growing season "year" plus Year Zero/As-built (by owner or consultant)** | | | | | |
| Annual monitoring for sites larger than 5,000 SF but < 1 AC - enhancement only | $ 4,680.00 | EACH | 8.00 | (36 hrs @ $130/hr) | $ 37,440.00 |
| Annual spring maintenance review for sites larger than 5,000 SF but < 1 AC - enhancement only | $ 1,040.00 | EACH | 2.00 | (8 hrs @ $130/hr) | $ 2,080.00 |
| | | | | | |
| | | | | *TOTAL* | **$ 176,320.00** |

| | |
|---|---|
| **Total** | **$299,991.90** |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