Attachment V



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

Prepared for: **RJ Development** April 2024







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

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April 2024

This report should be cited as:

Confluence (Confluence Environmental Company). 2024. 2000 24th Avenue NW: Revised critical areas study and mitigation plan. Prepared for RJ Development, Olympia, Washington, by Confluence, Seattle, Washington.

TABLE OF CONTENTS

1.0	INTRO	DUCTION	l	1			
2.0	METH	ODS		3			
	2.1	Deskto	p Analysis	3			
	2.2	Site Investigation					
		2.2.1	Wetlands	3			
		2.2.2	Streams/Shorelines	5			
3.0	RESUI	_TS		6			
	3.1	Deskto	p Analysis	6			
	3.2	Test Pl	ots	6			
	3.3	Wetlan	ds	11			
		3.3.1	Wetland A	11			
		3.3.2	Wetland B	12			
		3.3.3	Wetland C	12			
		3.3.4	Off-Site Wetland	12			
	3.4	Fish ar	nd Wildlife Habitat Conservation Areas	13			
4.0	REGU	LATORY	IMPLICATIONS	14			
5.0	PROP	OSED PR	OJECT	15			
6.0	MITIG	ATION SE	QUENCING AND IMPACT ANALYSIS	17			
	6.1	Impact	Avoidance	17			
	6.2	Tempo	rary Impacts	17			
7.0	PROP	OSED MIT	TIGATION	19			
	7.1	Fencing	g and Signage	20			
	7.2	Financi	ial Guarantee	20			
8.0			DALS, OBJECTIVES, PERFORMANCE STANDARDS AND SUCCESS CRITERIA				
9.0	MONIT	ORING P	LAN	22			
	9.1	Monito	ring Frequency	22			
		9.1.1	As-Built Survey	22			
		9.1.2	Year 0	22			
		9.1.3	Year 1	22			
		9.1.4	Year 2	23			
		9.1.5	Years 3, 5, 7, and 10	23			
		9.1.6	Replanting Survey and Extended Plant Survival Monitoring	23			
	9.2	Monito	ring Methods	23			
		9.2.1	Meander Survey	23			
		9.2.2	Photo Points	24			
		9.2.3	Plant Survival	24			
		9.2.4	Native and Invasive Species Percent Cover	24			
	9.3	Report	S	24			
		9.3.1	As-Built	24			



		9.3.2 Spring Monitoring	25
		9.3.3 Fall Monitoring	25
10.0	MAINT	ENANCE PLAN	
	10.1	Watering	
	10.2	Weeding	
	10.3	Mowing	
	10.4	Mulching	
	10.5	Dead Plant Removal	
11.0	CONTI	NGENCY MEASURES	27
	11.1	Percent Survival	27
	11.2	Native Species Percent Cover	27
	11.3	Invasive Species Percent Cover	27
12.0	COMPL	LIANCE WITH CODE	
	12.1	Compliance with TCC 24.30.060	
	12.2	Compliance with TCC 24.30.065	30
13.0	REFER	ENCES	32

TABLES

Table 1. Wetland summary	11
Table 2. Summary of proposed impacts and mitigation	18
Table 3. Proposed planting schedule	19
Table 4. Success criteria	21

FIGURES

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

APPENDICES

- Appendix A—GIS Database Search Results
- Appendix B—Wetland Delineation Methods
- Appendix C—Wetland Delineation Data Forms
- Appendix D—Wetland Rating Forms
- Appendix E—Site Photographs
- Appendix F—Cost Estimate



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).



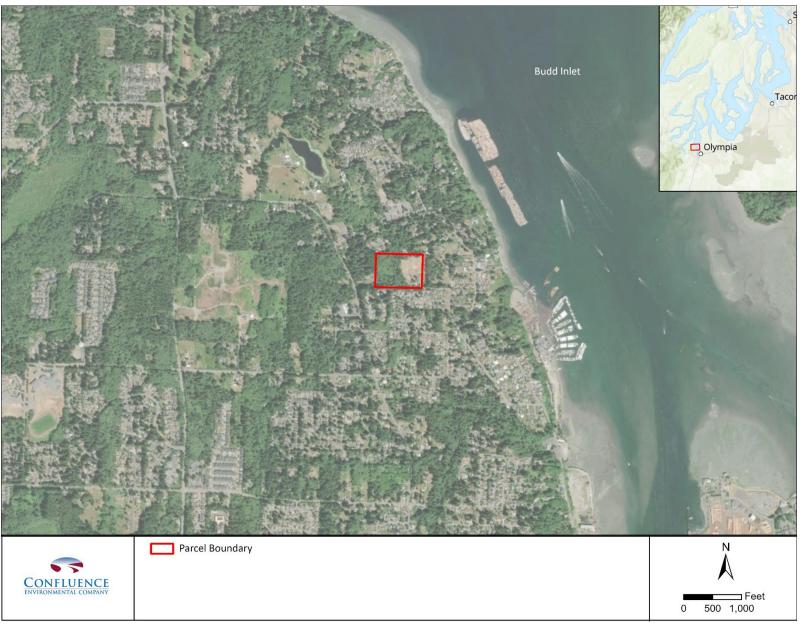


Figure 1. Subject property



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. Soil in the second layer (5-9 inches) was a black (10YR 4/6) redoximorphic concentrations 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. 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 Rating					
Wetland Name	Cowardin Classification ¹	Size (square feet)²	Water Quality	Hydrology	Habitat	Total	Category	
Wetland A	Palustrine forested	15,292	8	5	4	17		
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).

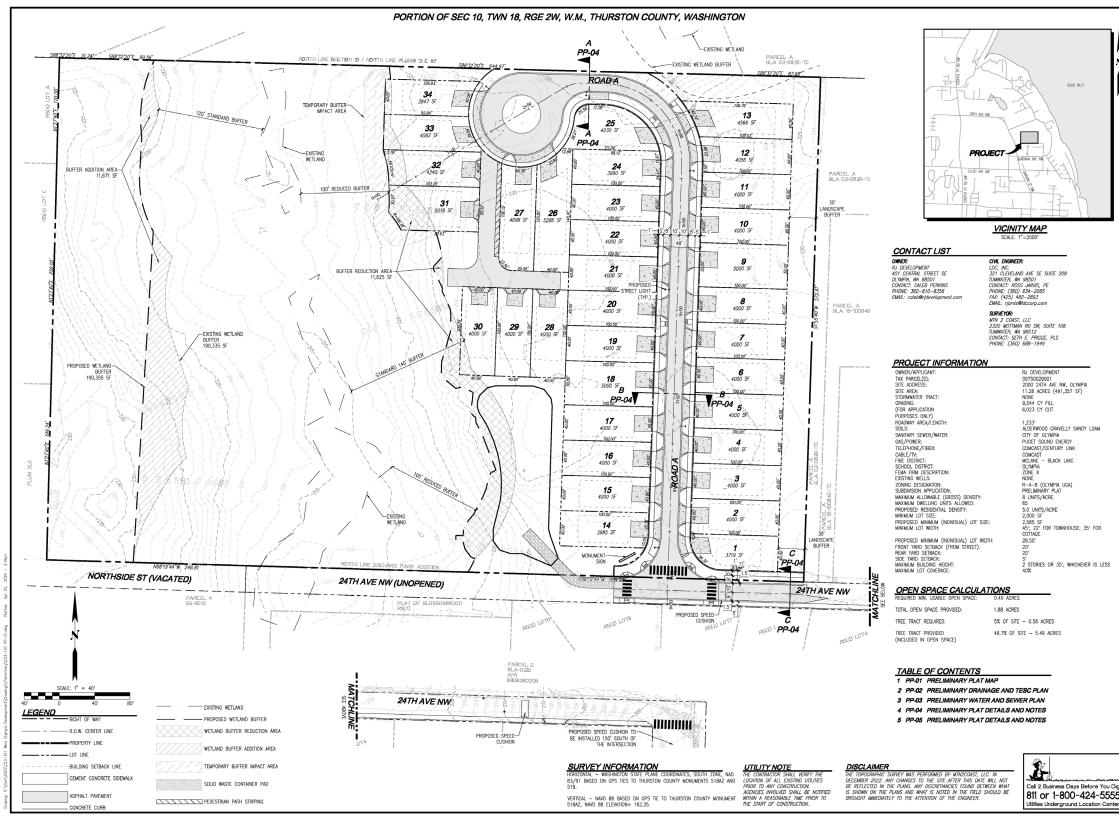


Figure 3. Wetlands and proposed buffer reconfiguration









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	Sword fern Polystichum munitum		3	204	Great cover for insects and small birds.
Total				706	
¹ Based on 5,5 ² Sources: SAS		nd Sawyer 2	001, USDA 2008, WI	NPS 2022, Sta	ark 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

	Success Criteria								
Performance Standard	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	<u><</u> 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 habitatsustaining 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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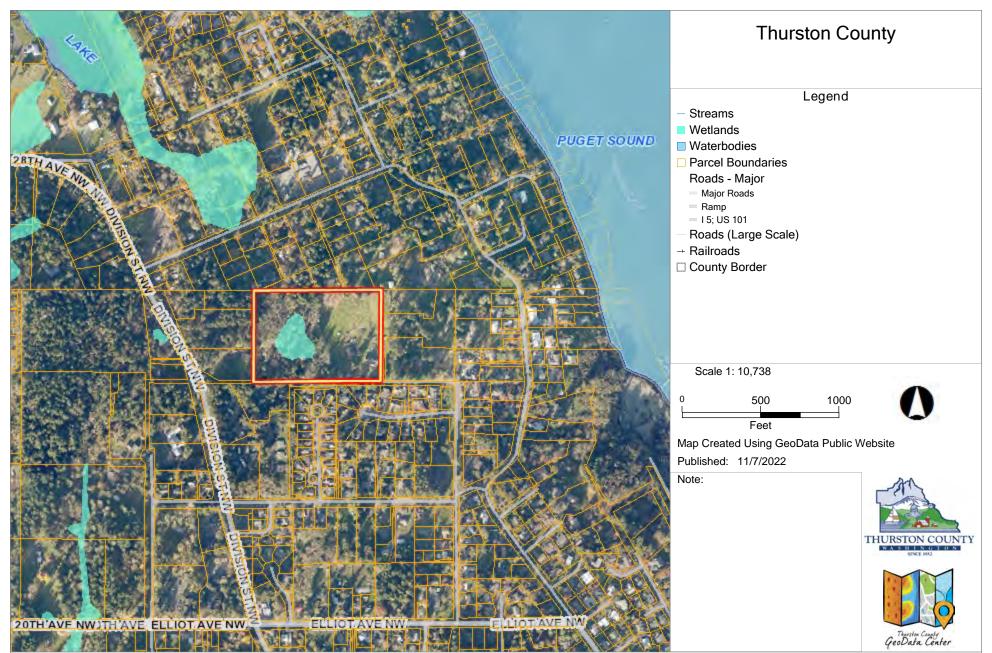


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Appendix A GIS Database Search Results



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



U.S. Fish and Wildlife Service National Wetlands Inventory

NWI



November 7, 2022

Wetlands

- atuaria a and Marine M/s
- Estuarine and Marine Wetland

Estuarine and Marine Deepwater

Freshwater Pond

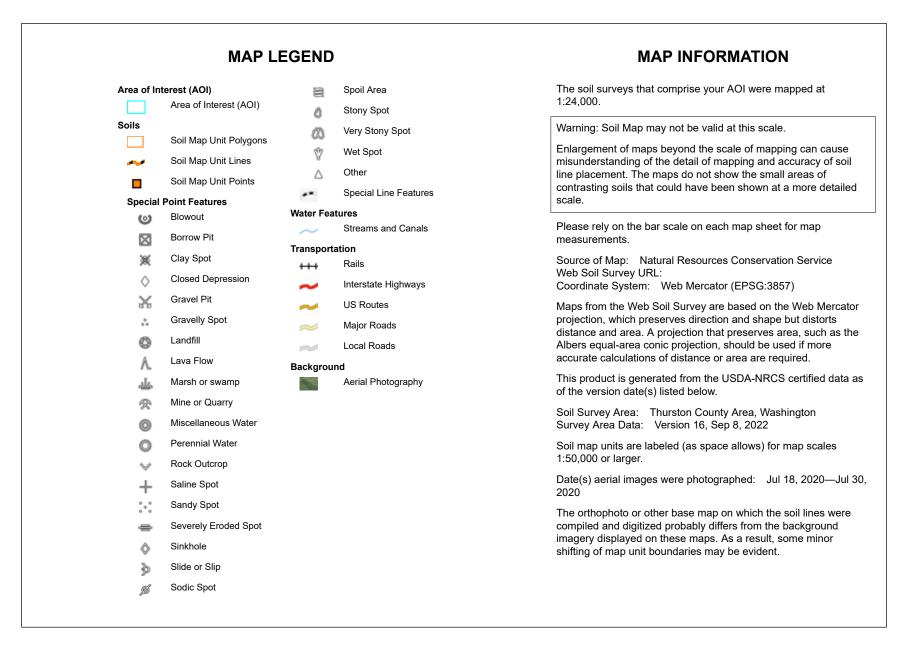
Freshwater Emergent Wetland

Freshwater Forested/Shrub Wetland

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.



USDA Natural Resources Conservation Service Web Soil Survey National Cooperative Soil Survey



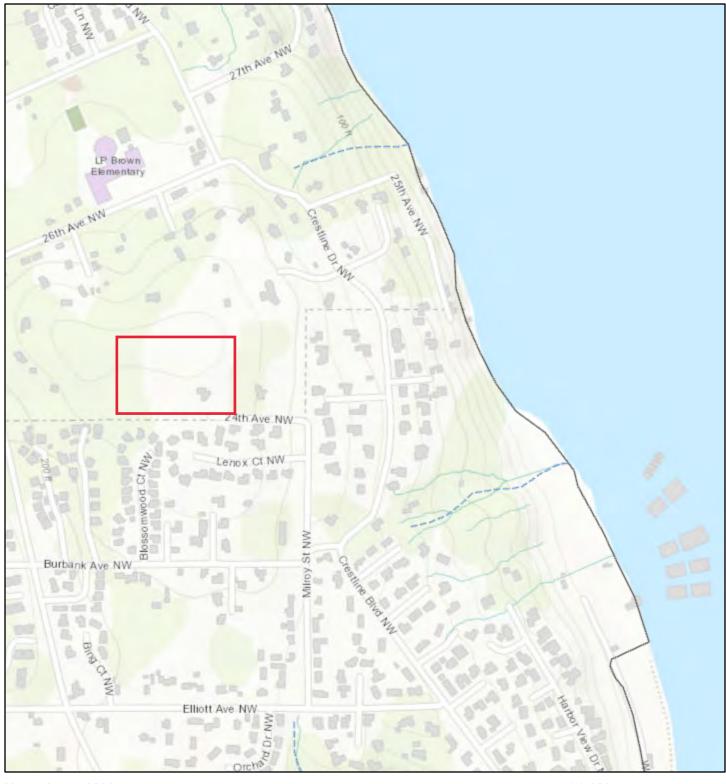
USDA

Map Unit Legend

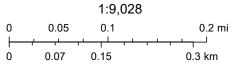
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
2	Alderwood gravelly sandy loam, 8 to 15 percent slopes	9.9	86.4%
3	Alderwood gravelly sandy loam, 15 to 30 percent slopes	1.6	13.6%
Totals for Area of Interest	1	11.4	100.0%



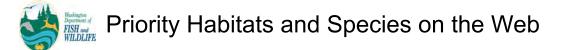
SalmonScape



November 7, 2022



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





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	Ν
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	Ν
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	Ν
Display Resolution	TOWNSHIP
ManagementRecommendations	http://wdfw.wa.gov/publications/pub.php?id=00605

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

Forest Practices Activity Map - Application #_



Legend

- Map Registration Tics
- ★ Water Type Breaks (FP)
- Type S
- Туре 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

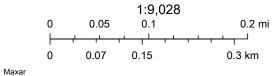
- Public Land Survey Sections
- Public Land Survey Townships
- County Tax Parcels

WA Wetlands of High Conservation Value



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

Counties



Appendix B Wetland Delineation Methods

2000 24th Avenue NW Revised Critical Areas Study: Appendix B CONFLUENCE ENVIRONMENTAL COMPANY WETLAND DELINEATION METHODS

Prepared by:

Confluence Environmental Company 2023

TABLE OF CONTENTS

1.0	METHO	DDOLOGIES	1
2.0	WETLA	AND CRITERIA	1
	2.1	Hydrophytic Vegetation	2
	2.2	Hydric Soils	3
3.0	REFER	ENCES	4



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

1.0 METHODOLOGIES

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

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

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

2.0 WETLAND CRITERIA

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

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



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

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

2.1 Hydrophytic Vegetation

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

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



2.2 Hydric Soils

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

- **Thickness.** Layers are measured to the nearest inch. Usually, each soil profile has at least 2 layers.
- Color. Color is determined by comparison to a color chart. The industry standard is the Munsell Soil-Color Chart, which assigns each color a designation for hue, value, and chroma (e.g., 10YR 3/2, where 10YR=hue, 3=value, and 2=chroma).

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.

- **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.



- 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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Appendix C Wetland Delineation Data Forms

oject/Site: 2000 24 Ave NUL	City/County	pin Muston sampling Date 10/251
plicant/Owner RJ Developmen-	ben	State 12
estigator(s): KAMINAD	Section Township R	ande DELLER
pregion (LRR):	Local relief (concave	Long 122. 92691 W Datum (UG) 8
I Map Unit Name: Alder Wood	anavelly randy	10 g M NWI classification A SHE
climatic / hydrologic conditions on the site typic	No. No.	(IT NO, EXplain In Reinander)
Vegetation, Soil, or Hydrology	eignificantly disturbed? Are	"Normal Circumstances" present? Yes No No
Vegetation, Soil, or Hydrology		needed, explain any answers in Remarks.)
, soil, or Hydrology		locations, transects, important features, etc
JMMARY OF FINDINGS – Attach sit	e map showing sampling point	locations, transcers, mp
	No Is the Sample	d Area
	within a Wetla	
Vetland Hydrology Present? Yes		e
vereast Irainy - poorly	white for couring our	in began a couple days m
Unisvally warmy	Idn atober. Ra	in segan a corple cary p
GETATION – Use scientific names	of plants. 10	sik wit.
	Absolute Dominant Indicator	
ree Stratum (Plot size: 30')	% Cover Species? Status	Number of Dominant Species 7 (A)
red alder		
w. red cedar		Total Number of Dominant Species Across All Strata: (B)
		Percent of Dominant Species
	100 = Total Cover	That Are OBL, FACW, or FAC:(A/B)
Sapling/Shrub Stratum (Plot size: 151	- IN I FA	Prevalence Index worksheet:
Sal mon berry	- 13 V FR	Total % Cover of: Multiply by:
Him. blackborry	15 FACH	OBL species x1 =
Despirea		FACW species x 2 = FAC species x 3 =
		FAC species x 4 =
	45 = Total Cover	UPL species x 5 =
terb Stratum (Plot size:)	3 FALL	(A) (B)
of the cody hedge	40 V DR	Prevalence Index = B/A =
Slarsh sedge	25 V OK	Hydrophytic Vegetation Indicators:
Tabutern	25 F FAC	1 - Rapid Test for Hydrophytic Vegetation
horsetail	I FAC	2 - Dominance Test is >50%
		3 - Prevalence Index is ≤3.01
		 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
		5 - Wetland Non-Vascular Plants ¹
		Problematic Hydrophytic Vegetation ¹ (Explain)
0		¹ Indicators of hydric soil and wetland hydrology must
1	Total Cover	be present, unless disturbed or problematic.
Noody Vine Stratum (Plot size: 51		
1		- Hydrophytic
2	- Tublour	Vegetation Present? Yes No
% Bare Ground in Herb Stratum	= Total Cover	
Remarks		
Cemaixs.		

rofile Desc	ription: (Describe	to the dep	oth needed to docu	ment the in	dicator	or confirm	n the absence of indicators.)
epth	Matrix	4		ox Features			
nches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture Remarks
5	104R2/1	100					Sitty clay 100m
-4	10YR2/1	90	IOYR 4/1	7	D	M	Si Hly chiy loam
			IOYR 4/10	3	C	M	
+14+	254512	an	104R ullo	10	C	M	r.buloam
		10	10 yk 410	- 10			2mg par
				;			
1	the second s			-	1000		
			- No.				
							M_M_M_M
ype: C=C	oncentration, D=Dep	letion, RM	=Reduced Matrix, C	S=Covered	or Coate	ed Sand Gr	rains ² Location: PL=Pore Lining, M=Matrix, Indicators for Problematic Hydric Soils ³ ;
	Indicators: (Applic	able to al	I LRRs, unless othe	erwise note	d.)		
_ Histosol			Sandy Redox ((S5)			2 cm Muck (A10) Red Parent Material (TF2)
Black H	pipedon (A2) istic (A3)		Stripped Matrix	(S6)			
Hydroos	en Sulfide (A4)		Loamy Mucky	Matrix (F2)	(except	WILKA I)	Other (Explain in Remarks)
Deplete	d Below Dark Surfac	e (A11)	Depleted Matri				
_ Thick D	ark Surface (A12)	(,	Redox Dark SL	urface (F6)			³ Indicators of hydrophytic vegetation and
_ Sandy M	Mucky Mineral (S1)		Depleted Dark		7)		wetland hydrology must be present, unless disturbed or problematic.
	Gleyed Matrix (S4) Layer (if present):		Redox Depress	sions (F8)			
Type:							
Depth (in	ches):						Hydric Soil Present? Yes No
emarks:							Hydric Soil Present? Yes K No
emarks: /DROLO							Hydric Soil Present? Yes K No
emarks: 'DROLO /etland Hy	IGY						Secondary Indicators (2 or more required)
emarks: DROLO etland Hy rimary India	IGY drology Indicators:		Water-Sta	ained Leaves		xcept	Secondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2,
emarks: DROLO fetland Hy rimary India _ Surface	IGY drology Indicators: cators (minimum of c		Water-Sta	ained Leave 1, 2, 4A, ar		xcept	Secondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
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Primarks: PROLO Petland Hy rimary India Surface High Wa Saturatio Water M Sedimer Drift Deg	GGY drology Indicators: cators (minimum of c Water (A1) ater Table (A2) on (A3) tarks (B1) nt Deposits (B2) posits (B3)		Water-Sta MLRA Salt Crust Aquatic In Hydrogen	ained Leaves 1, 2, 4A , ar (B11) ivertebrates Sulfide Odd Rhizosphere	(B13) or (C1) es along	Living Roo	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) ots (C3) Geomorphic Position (D2)
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CDROLO Contraction Contractio	IGY drology Indicators: cators (minimum of of Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aerial I	one require	Water-Sta MLRA Salt Crust Aquatic In Oxidized I Presence Recent Irc Stunted ou Other (Exp	ained Leaves 1, 2, 4A, ar 1 (B11) ivertebrates Sulfide Odd Rhizosphere of Reduced on Reduction r Stressed F	(B13) or (C1) es along I Iron (C4 n in Tilleo Plants (D	Living Roo !) d Soils (C6	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) ots (C3) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
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WETLAND DETERMINATION	DATA FORM Mostorn Mo	untains, Valleys, and Coast Region
		· m L .
Project/Site: 2000 24 Ave NW	City/County: Oly	n pia Thurston sampling Date 10/25/22
Applicant/Owner: RJ Development		State: WA Sampling Point: TP-2
Investigator(s): KAM (NAB	Section, Township, R	A. T [D .] [] 710]
Landform (hillslope, terrace, etc.):	Local relief (concave	convex none): Slope (%):
Subsector (LDD)	Lat: 47.06755 °N	1000/22 92681 W Datum WES 81
		am (8 NWI classification: none
	avent igraf	(If no, explain in Remarks.)
Are climatic / hydrologic conditions on the site typical for		"Normal Circumstances" present? Yes No
Are Vegetation, Soil, or Hydrology		"Normal Circumstances present ries res
Are Vegetation, Soil, or Hydrology		eeded, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site m	ap showing sampling point	locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes	No Is the Sampled	Area
Hydric Soil Present? Yes V	NO	
Wetland Hydrology Present? Yes	No	
Remarks: Unusually dry	Iwarm october	r. kain just started a
haine two some	carple days pri	or to site visit.
	. /	- I
VEGETATION – Use scientific names of p		Dominance Test worksheet:
Tree Stratum (Plot size: 30 ')	Absolute Dominant Indicator % Cover Species? Status	Number of Dominant Species 4
1. red alder	100 - FAC	That Are OBL, FACW, or FAC: (A)
2.		Total Number of Dominant 7
3.		Species Across All Strata:(B)
4.		Percent of Dominant Species
	100 = Total Cover	That Are OBL, FACW, or FAC: (A/B)
Sapling/Shrub Stratum (Plot size: 1.5)	12 - 500	Prevalence Index worksheet:
1 So Commberry	-10	Total % Cover of: Multiply by:
2 evergreen huckleberry	- 20 V Maria	OBL species x 1 =
sted elderberry		FACW species x 2 =
4		FAC species $75 \times 3 = 580$
5	35 = Total Cover	FACU species 75 x4 = 300
Herb Stratum (Plot size:)	= 10tal Cover	
1 Sword Fern	40 × FACH	Column Totals: 250 (A) 825 (B)
2 norse mil	40 V EAL	Prevalence Index = $B/A = 3.3$
3 anu Fern	S FAC	Hydrophytic Vegetation Indicators:
4		1 - Rapid Test for Hydrophytic Vegetation
5		V 2 - Dominance Test is >50%
6		3 - Prevalence Index is ≤3.0 ¹
7		4 - Morphological Adaptations ¹ (Provide supporting
8.		data in Remarks or on a separate sheet)
9		5 - Wetland Non-Vascular Plants ¹
10		Problematic Hydrophytic Vegetation ¹ (Explain)
11		¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
101	= Total Cover	the present, unless disturbed of problematic.
Woody Vine Stratum (Plot size:)	2D J FAL	
1-prailing blackberry	ID V CALL	Hydrophytic
2. <u>B. IVU</u>	20 THIS	Vegetation Present? Yes No
% Bare Ground in Herb Stratum	= Total Cover	
	25	14-
loss of Faculoist Sop. + 2		sep met dominance tost
but failed Prev. Induct	wetlan vg. but	transitional vos.

US Army Corps of Engineers

Western Mountains, Valleys, and Coast - Version 2.0

							Sar	npling Point: 7	P-2
Description: (Describe	to the dep	oth needed to docu	ment the in	ndicator	or confir	m the absence			
Matrix		Red	ox Features	3		_		Remarks	
Color (moist)	%	Color (moist)	%	Type'	Loc ²	Texture		Nomaina	
104R4C	100		-	-		SITIO	241		
- 25Y5/1	<u> 95</u>	101/R 4/6	5	C	M	<u>SI IT 10</u>	am		
		1	1. 20	10.00					
		*							
1									
C=Concentration, D=Dep	pletion, RM	Reduced Matrix, C	S=Covered	f or Coat	ted Sand (Grains. ² Lo	cation: PL=P	ore Lining, M=N	Aatrix.
Soil Indicators: (Applic						Indicate		ematic Hydric	Soils":
osol (A1)		Sandy Redox				2 ci	m Muck (A10)		
ic Epipedon (A2)		Stripped Matri	x (S6)				d Parent Mate	nal (1F2) k Surface (TF1	2)
ck Histic (A3) Irogen Sulfide (A4)		Loamy Mucky			ot WILKA 1	Oth	er (Explain in	Remarks)	-,
pleted Below Dark Surfac	ce (A11)	Depleted Matr		/	`		1		
k Dark Surface (A12)		Redox Dark S	urface (F6)			³ Indicate	ors of hydroph	ytic vegetation	and
ndy Mucky Mineral (S1)		Depleted Dark		7)			and hydrology ss disturbed o	must be preser	rit,
tive Layer (if present):		Redox Depres	ssions (F8)			dine	35 015(01000 0	- problemater	
tive Layer (il present).									
th (inches):						Hydric Soi	I Present?	Yes	No
<pre>c</pre>		_				Hydric Soi	I Present?	Yes	No
th (inches): cs: OLOGY id Hydrology Indicators y Indicators (minimum of inface Water (A1) gh Water Table (A2)	51	Water-St	bly) lained Leav A 1, 2, 4A, a		except	<u>Seco</u>	ndary Indicate Water-Stained 4A, and 4E	o <u>rs (2 or more n</u> Leaves (B9) (N	equired)
th (inches): cs: DLOGY d Hydrology Indicators y Indicators (minimum of rface Water (A1) gh Water Table (A2) turation (A3)	51	Water-Si MLR Salt Crus	tained Leav A 1, 2, 4A, a st (B11)	and 4B)	except	<u>Seco</u>	Indary Indicato Nater-Stained 4A, and 4E Drainage Path	o <u>rs (2 or more n</u> Leaves (B9) (N 3) erns (B10)	equired) MLRA 1, 2,
th (inches): cs: DLOGY d Hydrology Indicators y Indicators (minimum of rface Water (A1) gh Water Table (A2) turation (A3) ater Marks (B1)	51	Water-Si MLR/ Salt Crus Aquatic	tained Leav A 1, 2, 4A, a st (B11) Invertebrate	and 4B) es (B13)	except	<u>Seco</u> \	ndary Indicate Vater-Stained 4A, and 4E Drainage Patte Dry-Season W	ors (2 or more n Leaves (B9) (N 3) ems (B10) /ater Table (C2)	equired) MLRA 1, 2,
th (inches): cs: DLOGY d Hydrology Indicators y Indicators (minimum of rface Water (A1) gh Water Table (A2) turation (A3) ater Marks (B1) diment Deposits (B2)	51	Water-Si MLR/ Salt Crus Aquatic I Hydroge	tained Leav A 1, 2, 4A, a st (B11) Invertebrate n Sulfide Od	and 4B) es (B13) dor (C1)		<u>Secc</u>	Indary Indicate Water-Stained 4A, and 4E Drainage Patte Dry-Season W Saturation Vis	ors (2 or more n Leaves (B9) (M 9) erns (B10) /ater Table (C2) ible on Aerial In	equired) MLRA 1, 2,
th (inches): cs: DLOGY d Hydrology Indicators / Indicators (minimum of rface Water (A1) gh Water Table (A2) turation (A3) ater Marks (B1) diment Deposits (B2) ft Deposits (B3)	51	Water-Si MLR/ Salt Crus Aquatic I Hydroge Oxldized	tained Leav A 1, 2, 4A, a st (B11) Invertebrate n Sulfide Od	and 4B) es (B13) dor (C1) eres along	g Living R	<u>Seco</u> [] [] 	Indary Indicate Water-Stained 4A, and 4E Drainage Patte Dry-Season W Saturation Vis	ors (2 or more n Leaves (B9) (M s) ems (B10) /ater Table (C2) ible on Aerial In 'osition (D2)	equired) MLRA 1, 2,
th (inches): cs: DLOGY d Hydrology Indicators / Indicators (minimum of rface Water (A1) gh Water Table (A2) turation (A3) ater Marks (B1) diment Deposits (B2)	51	Water-SI MLR/ Salt Crus Aquatic I Hydroge Oxidized Presence	tained Leav A 1, 2, 4A, a st (B11) Invertebrate n Sulfide Oo I Rhizosphe	and 4B) es (B13) dor (C1) eres along ed Iron (C	g Living Ri	<u>Seco</u> \ [[[] [] []	ndary Indicate Vater-Stained 4A, and 4E Drainage Pate Dry-Season W Saturation Vis Geomorphic P	ors (2 or more n Leaves (B9) (N B) erns (B10) /ater Table (C2) ible on Aenal In osition (D2) ard (D3)	equired) MLRA 1, 2,
th (inches): cs: DLOGY d Hydrology Indicators / Indicators (minimum of rface Water (A1) gh Water Table (A2) turation (A3) ater Marks (B1) diment Deposits (B2) ft Deposits (B3) gal Mat or Crust (B4) n Deposits (B5) rface Soil Cracks (B6)	s: one require	Water-SI MLR/ Salt Crus Aquatic I Hydroge Oxidized Presence Recent I Stunted	ained Leav A 1, 2, 4A, a st (B11) Invertebrate In Sulfide Ou I Rhizosphe e of Reduce ron Reducti or Stressed	and 4B) es (B13) dor (C1) eres along ed Iron (C ion in Till Plants (g Living R C4) led Soils ((Seco [[[] [] 	Indary Indicate Vater-Stained 4A, and 4E Drainage Patte Dry-Season W Saturation Vis Geomorphic P Shallow Aquita FAC-Neutral T Raised Ant Mo	ors (2 or more n Leaves (B9) (N B) erms (B10) /ater Table (C2) ible on Aerial In osition (D2) ard (D3) rest (D5) pounds (D6) (LR	equired) MLRA 1, 2,) nagery (C9) R A)
th (inches): (s: d Hydrology Indicators / Indicators (minimum of rface Water (A1) gh Water Table (A2) turation (A3) ater Marks (B1) diment Deposits (B2) ft Deposits (B3) gal Mat or Crusf (B4) n Deposits (B5) rface Soil Cracks (B6) indation Visible on Aerial	s: one require	Water-Si MLR/ Salt Crus Aquatic I Aquatic I Hydroge Oxidized Presence Recent I Stunted B7) Other (E	ained Leav A 1, 2, 4A, a st (B11) Invertebrate In Sulfide Ou Rhizosphe e of Reduce ron Reducti	and 4B) es (B13) dor (C1) eres along ed Iron (C ion in Till Plants (g Living R C4) led Soils ((Seco [[[] [] 	Indary Indicate Vater-Stained 4A, and 4E Drainage Patte Dry-Season W Saturation Vis Geomorphic P Shallow Aquita FAC-Neutral T Raised Ant Mo	ors (2 or more n Leaves (B9) (N B) erms (B10) /ater Table (C2) ible on Aenal In osition (D2) ard (D3) rest (D5)	equired) MLRA 1, 2,) nagery (C9) R A)
th (inches):	s: one require	Water-Si MLR/ Salt Crus Aquatic I Aquatic I Hydroge Oxidized Presence Recent I Stunted B7) Other (E	ained Leav A 1, 2, 4A, a st (B11) Invertebrate In Sulfide Ou I Rhizosphe e of Reduce ron Reducti or Stressed	and 4B) es (B13) dor (C1) eres along ed Iron (C ion in Till Plants (g Living R C4) led Soils ((Seco [[[] [] 	Indary Indicate Vater-Stained 4A, and 4E Drainage Patte Dry-Season W Saturation Vis Geomorphic P Shallow Aquita FAC-Neutral T Raised Ant Mo	ors (2 or more n Leaves (B9) (N B) erms (B10) /ater Table (C2) ible on Aerial In osition (D2) ard (D3) rest (D5) pounds (D6) (LR	equired) MLRA 1, 2,) nagery (C9) R A)
th (inches): (s: b) b) b) c) c) c) c) c) c) c) c) c) c) c) c) c)	s: one require I Imagery (I ve Surface	Water-Si MLR/ Salt Crus Aquatic I Hydroge Oxidized Presence Recent I Stunted B7) Other (E (B8)	tained Leav A 1, 2, 4A, a st (B11) Invertebrate n Sulfide Od Rhizosphe e of Reduce ron Reducti or Stressed xplain in Re	and 4B) es (B13) dor (C1) rres along ed Iron (C ion in Till Plants (emarks)	g Living R C4) Ied Soils (0 D1) (LRR	Seco [[[] [] 	Indary Indicate Vater-Stained 4A, and 4E Drainage Patte Dry-Season W Saturation Vis Geomorphic P Shallow Aquita FAC-Neutral T Raised Ant Mo	ors (2 or more n Leaves (B9) (N B) erms (B10) /ater Table (C2) ible on Aerial In osition (D2) ard (D3) rest (D5) pounds (D6) (LR	equired) MLRA 1, 2,) nagery (C9) R A)
th (inches):	s: one require	Water-Si MLR/ Salt Crus Aquatic I Hydroge Oxidized Presence Recent I Stunted B7) Other (E (B8)	tained Leav A 1, 2, 4A, a st (B11) Invertebrate n Sulfide Od Rhizosphe e of Reduce ron Reducti or Stressed xplain in Re	and 4B) es (B13) dor (C1) rres along ed Iron (C ion in Till Plants (emarks)	g Living R C4) Ied Soils (0 D1) (LRR	Seco [[[] [] 	Indary Indicate Vater-Stained 4A, and 4E Drainage Patte Dry-Season W Saturation Vis Geomorphic P Shallow Aquita FAC-Neutral T Raised Ant Mo	ors (2 or more n Leaves (B9) (N B) erms (B10) /ater Table (C2) ible on Aerial In osition (D2) ard (D3) rest (D5) pounds (D6) (LR	equired) MLRA 1, 2,) nagery (C9) R A)
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th (inches):	s: one require I Imagery (I ve Surface Yes Yes Yes	Water-Si MLR/ Salt Crus Aquatic I Hydroge Oxidized Presence Recent I Stunted B7) Other (E (B8) No Depth (No Depth (tained Leav A 1, 2, 4A, a st (B11) Invertebrate In Sulfide Ou Rhizosphe e of Reduce or Reducti or Stressed xplain in Re inches): inches):	and 4B) es (B13) dor (C1) eres along ed Iron (C ion in Till Plants (emarks)	g Living R C4) led Soils (I D1) (LRR	Seco [[] [] oots (C3) [] C6) [A)	Indary Indicate Water-Stained 4A, and 4E Drainage Patte Dry-Season W Saturation Vis Seemorphic P Shallow Aquite FAC-Neutral T Raised Ant Me Frost-Heave H	ors (2 or more r Leaves (B9) (M B) erms (B10) /ater Table (C2) ible on Aerial In /osition (D2) ard (D3) fest (D5) punds (D6) (LR łummocks (D7)	equired) MLRA 1, 2,) nagery (C9) R A)
th (inches):	s: one require I Imagery (I ve Surface Yes Yes Yes	Water-Si MLR/ Salt Crus Aquatic I Hydroge Oxidized Presence Recent I Stunted B7) Other (E (B8) No Depth (No Depth (tained Leav A 1, 2, 4A, a st (B11) Invertebrate In Sulfide Ou Rhizosphe e of Reduce or Reducti or Stressed xplain in Re inches): inches):	and 4B) es (B13) dor (C1) eres along ed Iron (C ion in Till Plants (emarks)	g Living R C4) led Soils (I D1) (LRR	Seco [[] [] oots (C3) [] C6) [A)	Indary Indicate Water-Stained 4A, and 4E Drainage Patte Dry-Season W Saturation Vis Seemorphic P Shallow Aquite FAC-Neutral T Raised Ant Me Frost-Heave H	ors (2 or more r Leaves (B9) (M B) erms (B10) /ater Table (C2) ible on Aerial In /osition (D2) ard (D3) fest (D5) punds (D6) (LR łummocks (D7)	equired) MLRA 1, 2,) nagery (C9) R A)
th (inches):	s: one require I Imagery (I ve Surface Yes Yes Yes	Water-Si MLR/ Salt Crus Aquatic I Hydroge Oxidized Presence Recent I Stunted B7) Other (E (B8) No Depth (No Depth (tained Leav A 1, 2, 4A, a st (B11) Invertebrate In Sulfide Ou Rhizosphe e of Reduce or Reducti or Stressed xplain in Re inches): inches):	and 4B) es (B13) dor (C1) eres along ed Iron (C ion in Till Plants (emarks)	g Living R C4) led Soils (I D1) (LRR	Seco [[] [] oots (C3) [] C6) [A)	Indary Indicate Water-Stained 4A, and 4E Drainage Patte Dry-Season W Saturation Vis Seemorphic P Shallow Aquite FAC-Neutral T Raised Ant Me Frost-Heave H	ors (2 or more r Leaves (B9) (M B) erms (B10) /ater Table (C2) ible on Aerial In /osition (D2) ard (D3) fest (D5) punds (D6) (LR łummocks (D7)	equired) MLRA 1, 2,) nagery (C9) R A)
h (inches):	I Imagery (I ve Surface Yes Yes Yes	Water-Si MLR/ Salt Crus Aquatic I Hydroge Oxidized Presenc Recent I Stunted B7) Other (E (B8) No Depth (No Depth (No Depth (No Depth (tained Leav A 1, 2, 4A, a st (B11) Invertebrate In Sulfide Ou Rhizosphe e of Reduce or Reducti or Stressed xplain in Re inches): inches):	and 4B) es (B13) dor (C1) eres along ed Iron (C ion in Till Plants (emarks)	g Living R C4) led Soils (I D1) (LRR	Seco [[] [] oots (C3) [] C6) [A)	Indary Indicate Water-Stained 4A, and 4E Drainage Patte Dry-Season W Saturation Vis Seemorphic P Shallow Aquite FAC-Neutral T Raised Ant Me Frost-Heave H	ors (2 or more r Leaves (B9) (M B) erms (B10) /ater Table (C2) ible on Aerial In /osition (D2) ard (D3) fest (D5) punds (D6) (LR łummocks (D7)	equired) MLRA 1, 2,) nagery (C9) R A)
h (inches):	I Imagery (I ve Surface Yes Yes Yes	Water-Si MLR/ Salt Crus Aquatic I Hydroge Oxidized Presenc Recent I Stunted B7) Other (E (B8) No Depth (No Depth (No Depth (No Depth (tained Leav A 1, 2, 4A, a st (B11) Invertebrate In Sulfide Ou Rhizosphe e of Reduce or Reducti or Stressed xplain in Re inches): inches):	and 4B) es (B13) dor (C1) eres along ed Iron (C ion in Till Plants (emarks)	g Living R C4) led Soils (I D1) (LRR	Seco [[] [] oots (C3) [] C6) [A)	Indary Indicate Water-Stained 4A, and 4E Drainage Patte Dry-Season W Saturation Vis Seemorphic P Shallow Aquite FAC-Neutral T Raised Ant Me Frost-Heave H	ors (2 or more r Leaves (B9) (M B) erms (B10) /ater Table (C2) ible on Aerial In /osition (D2) ard (D3) fest (D5) punds (D6) (LR łummocks (D7)	equired) MLRA 1, 2,) nagery (C9) R A)
h (inches):	I Imagery (I ve Surface Yes Yes Yes	Water-Si MLR/ Salt Crus Aquatic I Hydroge Oxidized Presenc Recent I Stunted B7) Other (E (B8) No Depth (No Depth (No Depth (No Depth (tained Leav A 1, 2, 4A, a st (B11) Invertebrate In Sulfide Ou Rhizosphe e of Reduce or Reducti or Stressed xplain in Re inches): inches):	and 4B) es (B13) dor (C1) eres along ed Iron (C ion in Till Plants (emarks)	g Living R C4) led Soils (I D1) (LRR	Seco [[] [] oots (C3) [] C6) [A)	Indary Indicate Water-Stained 4A, and 4E Drainage Patte Dry-Season W Saturation Vis Seemorphic P Shallow Aquite FAC-Neutral T Raised Ant Me Frost-Heave H	ors (2 or more r Leaves (B9) (M B) erms (B10) /ater Table (C2) ible on Aerial In /osition (D2) ard (D3) fest (D5) punds (D6) (LR łummocks (D7)	equired) MLRA 1, 2,) nagery (C9) R A)

oject/Site: 2000 24th Ave NW	City/County: Olum	pia Thurston sampling Date 10/25/22
KT Doubleson	north	State: UNA Sampling Point: TP-3
vestigator(s): KAM& MAD	Section Townshin F	Range: SST. T.T. BN R2W
ndform (hillslope, terrace, etc.):	Local relief (conceve	convex nonel: Dried I Stope (10)
ibregion (LRR): A	1.47. 0(0744 °A	Long 122. 92(217 Datum WGS &
ill Map Unit Name: Alder Wood		an (will classification none
	VI N VIII A VII A VIII	
e climatic / hydrologic conditions on the site typical		e "Normal Circumstances" present? Yes No
e Vegetation, Soil, or Hydrology		needed, explain any answers in Remarks.)
e Vegetation, Soil, or Hydrology	Thattartany production	
JMMARY OF FINDINGS – Attach site	map showing sampling point	locations, transects, important features, etc
	No	
lydric Soil Present? Yes	No V Is the Sample within a Wetl	
Vetland Hydrology Present? Yes	No	New year
Remarks: Unstrally dry,	I warm october.	. Rain just stand a
Could Lans	nor to site vis	
couple days po		<u>,,, , , , , , , , , , , , , , , , , , </u>
EGETATION – Use scientific names of	-	Dominance Test worksheet:
ree Stratum (Plot size:)	Absolute Dominant Indicator % Cover Species? Status	Number of Dominant Species 4
w. red cedar	30 - FAR	That Are OBL, FACW, or FAC:(A)
red a ider	100 V FAR	Total Number of Dominant
-		Species Across All Strata: (B)
		Percent of Dominant Species 57 (A/B)
apling/Shrub Stratum (Plot size: 15	1 <u>30</u> = Total Cover	That Are OBL, FACW, OFFAC
E. huckleberg	30 ~ FACH	Prevalence Index worksheet: Total % Cover of: Multiply by:
Salmonberry	10 FAC	
Indian plum	S FACU	OBL species x 1 = FACW species x 2 =
		FAC species x 3 =
		FACU species x 4 =
EI >	T = Total Cover	UPL species x 5 =
Stratum (Plot size:)	25 LOB	Column Totals: (A) (B)
Jady feen	5 PAL	Prevalence Index = B/A =
Swontern	40 V FALL	Hydrophytic Vegetation Indicators:
		1 - Rapid Test for Hydrophytic Vegetation
		2 - Dominance Test is >50%
		3 - Prevalence Index is ≤3.0 ¹
		 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
		5 - Wetland Non-Vascular Plants ¹
		Problematic Hydrophytic Vegetation ¹ (Explain)
D		¹ Indicators of hydric soil and wetland hydrology must
·	90 = Total Cover	be present, unless disturbed or problematic.
loody Vine Stratum (Plot size:)	in Church	
muling blackbears	10 March	Hydrophytic
	10	Vegetation Present? Yes No
Bare Ground in Herb Stratum	TO= Total Cover	
Bare strengt		
emarks:		

rofile Desc	inpuon. (Describe t	to the depth	needed to document the indicator or	o o minine and			
Depth	Matrix		Redox Features			Remarks	
(inches)	Color (moist)		Color (moist) % Type1	Loc ^e 1	exture	Remarke	
) = 10	104R 212	100		5	1 It laam		
0-12+	1042 4/4	100 .		- SI	H loam		
		<u></u>	h				
					*		
			educed Matrix, CS=Covered or Coated S	Sand Grains	² Location: PL	_=Pore Lining, M=Matr	ix.
lydric Soil	Indicators: (Application)	able to all LF	RRs, unless otherwise noted.)			oblematic Hydric Soil	
Histosol		_	_ Sandy Redox (S5)		2 cm Muck (A	(10) (storial (TE2)	
	pipedon (A2)	_	_ Stripped Matrix (S6)		Red Parent M	Dark Surface (TF12)	
	istic (A3) en Sulfide (A4)		 Loamy Mucky Mineral (F1) (except Mineral Loamy Gleyed Matrix (F2) 	LRA 1)	Other (Explain	n in Remarks)	
	d Below Dark Surface	e (A11)	Depleted Matrix (F3)				
	ark Surface (A12)		Redox Dark Surface (F6)		³ Indicators of hydr	rophytic vegetation and	1
	Aucky Mineral (S1)		Depleted Dark Surface (F7)			ogy must be present.	
Sandy (Gleyed Matrix (S4)		Redox Depressions (F8)		unless disturbe	ed or problematic.	
Restrictive	Layer (if present):						
Type:							1-
Depth (in	ches):			Hy	ydric Soil Present?	Yes No	1
emarks.							
	drology Indicators:					(2	
YDROLO Wetland Hy		ne required;				cators (2 or more requi	
YDROLO Wetland Hy Primary Indi	drology Indicators:	ne required;	Water-Stained Leaves (B9) (exce	ept	Water-Stain	ned Leaves (B9) (MLR	
YDROLC Wetland Hy Primary Indi Surface	drology Indicators: cators (minimum of o	ne required;	Water-Stained Leaves (B9) (exce MLRA 1, 2, 4A, and 4B)	ept	Water-Stain 4A, and	ned Leaves (B9) (MLR I 4B)	
YDROLC Wetland Hy Primary Indi Surface	rdrology Indicators: cators (minimum of o Water (A1) ater Table (A2)	ne required:	Water-Stained Leaves (B9) (exce MLRA 1, 2, 4A, and 4B) Salt Crust (B11)		Water-Stain 4A, and Drainage P	ned Leaves (B9) (MLR I 4B) Patterns (B10)	
YDROLC Vetland Hy Primary Indi Surface High Wa Saturati Water M	drology Indicators: cators (minimum of o Water (A1) ater Table (A2) ion (A3) Marks (B1)	ne required:	Water-Stained Leaves (B9) (exco MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13)	ept	Water-Stain 4A, and Drainage P Dry-Season	ned Leaves (B9) (MLR I 4B) Patterns (B10) n Water Table (C2)	A 1, 2
YDROLC Vetland Hy Primary Indi Surface High Wa Saturati Water M Sedime	drology Indicators: cators (minimum of o Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2)	ne required:	Water-Stained Leaves (B9) (exco MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1)		Water-Stain 4A, and Drainage P Dry-Season Saturation	ned Leaves (B9) (MLR I 4B) Patterns (B10) n Water Table (C2) Visible on Aerial Image	A 1, 2
YDROLC Vetland Hy Primary Indi Surface High Wa Saturati Water N Sedime Drift De	rdrology Indicators: cators (minimum of o Water (A1) ater Table (A2) ion (A3) Marks (B1) nt Deposits (B2) posits (B3)	ne required:	Water-Stained Leaves (B9) (exco MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Liv		Water-Stain 4A, and Drainage P Dry-Season Saturation 3) Geomorphi	ned Leaves (B9) (MLR I 4B) Patterns (B10) n Water Table (C2) Visible on Aerial Image ic Position (D2)	A 1, 2
YDROLC Vetland Hy Primary Indi Surface High Wa Saturati Water N Sedime Drift De Algal M	cators (minimum of o Water (A1) ater Table (A2) ion (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4)	ne required:	Water-Stained Leaves (B9) (exco MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Liv Presence of Reduced Iron (C4)	ing Roots (C	Water-Stain 4A, and Drainage P Dry-Season Saturation Gamorphi Shallow Aq	ned Leaves (B9) (MLR Patterns (B10) In Water Table (C2) Visible on Aerial Image ic Position (D2) puitard (D3)	A 1, 2
YDROLC Vetland Hy Primary Indi Surface High Wi Saturati Water N Sedime Drift De Algal M Iron De	rdrology Indicators: cators (minimum of o Water (A1) ater Table (A2) ion (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5)	ne required:	Water-Stained Leaves (B9) (exco MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Livi Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled S	ing Roots (C oils (C6)	Water-Stain 4A, and Drainage P Dry-Season Saturation Gaemorphi Shallow Aq FAC-Neutr	ned Leaves (B9) (MLR Patterns (B10) In Water Table (C2) Visible on Aerial Image ic Position (D2) puitard (D3) al Test (D5)	A 1, 2
YDROLC Vetland Hy Primary Indi Surface High Wi Saturati Water N Sedime Drift De Algal M Iron De Surface	rdrology Indicators: cators (minimum of o Water (A1) ater Table (A2) ion (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6)		Water-Stained Leaves (B9) (exco MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Liv Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled S Stunted or Stressed Plants (D1) (ing Roots (C oils (C6)	Water-Stain 4A, and Drainage P Dry-Season Saturation Gamorphi Shallow Aq FAC-Neutr Raised Ant	ned Leaves (B9) (MLR Patterns (B10) In Water Table (C2) Visible on Aerial Image ic Position (D2) puitard (D3) al Test (D5) Mounds (D6) (LRR A)	A 1, 2
YDROLC Vetland Hy 2rimary Indi Surface High Wi Saturati Water N Sedime Drift De Algal M Iron De Surface Inundat	rdrology Indicators: cators (minimum of o Water (A1) ater Table (A2) ion (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5)	magery (B7)	Water-Stained Leaves (B9) (exco MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Liv Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled S Stunted or Stressed Plants (D1) (Other (Explain in Remarks)	ing Roots (C oils (C6)	Water-Stain 4A, and Drainage P Dry-Season Saturation Gamorphi Shallow Aq FAC-Neutr Raised Ant	ned Leaves (B9) (MLR Patterns (B10) In Water Table (C2) Visible on Aerial Image ic Position (D2) puitard (D3) al Test (D5)	A 1, 2
YDROLC Vetland Hy Primary Indi Surface High Wa Saturati Water N Sedime Drift De Algal M Iron De Surface Inundat Sparsel	drology Indicators: cators (minimum of o Water (A1) ater Table (A2) ion (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) is Soil Cracks (B6) ion Visible on Aerial I y Vegetated Concave rvations:	magery (B7) a Surface (B8	Water-Stained Leaves (B9) (exco MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Liv Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled S Stunted or Stressed Plants (D1) (Other (Explain in Remarks)	ing Roots (C oils (C6)	Water-Stain 4A, and Drainage P Dry-Season Saturation Gamorphi Shallow Aq FAC-Neutr Raised Ant	ned Leaves (B9) (MLR Patterns (B10) In Water Table (C2) Visible on Aerial Image ic Position (D2) puitard (D3) al Test (D5) Mounds (D6) (LRR A)	A 1, 2
YDROLC Vetland Hy Primary Indi Surface High Wa Saturati Water M Sedime Drift De Algal M Iron De Surface Inundat Sparsel Field Obser	drology Indicators: cators (minimum of o Water (A1) ater Table (A2) ion (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) ion Visible on Aerial Ii y Vegetated Concave rvations: ter Present?	magery (B7) a Surface (B8 es No	Water-Stained Leaves (B9) (exco MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Liv Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled S Stunted or Stressed Plants (D1) (Other (Explain in Remarks) Depth (inches):	ing Roots (C oils (C6)	Water-Stain 4A, and Drainage P Dry-Season Saturation Gamorphi Shallow Aq FAC-Neutr Raised Ant	ned Leaves (B9) (MLR Patterns (B10) In Water Table (C2) Visible on Aerial Image ic Position (D2) puitard (D3) al Test (D5) Mounds (D6) (LRR A)	A 1, 2
YDROLC Vetland Hy Primary Indi Surface High Wi Saturati Water N Sedime Drift De Algal M Iron De Surface Inundat Sparsel Field Obser Surface Wat	rdrology Indicators: cators (minimum of o Water (A1) ater Table (A2) ion (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) ion Visible on Aerial Ii y Vegetated Concave rvations: ter Present? Yi	magery (B7) a Surface (B8 es No es No	Water-Stained Leaves (B9) (exco MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Liv Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled S Stunted or Stressed Plants (D1) (Other (Explain in Remarks) D D Depth (inches): Depth (inches):	ing Roots (C oils (C6) LRR A)	Water-Stain 4A, and Drainage P Dry-Season Saturation Geomorphi Shallow Aq FAC-Neutr Raised Ant Frost-Heav	ned Leaves (B9) (MLR 1 4B) Patterns (B10) In Water Table (C2) Visible on Aerial Image ic Position (D2) quitard (D3) al Test (D5) t Mounds (D6) (LRR A) Pathematic (D7)	A 1, 2
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oject/site 2000 24th Ave NEO	City/County C	tympia Thuston sampling Date: 10/25/
pplicant/Owner: RJ Development	Only Oblinity 2	State: WA Sampling Point: TP-4
vestigator(s): KAM/NAD	O-dias Taura	iship, Range: SST TISN R2W
indform (hillslope, terrace, etc.):	Section, Town	Isnip, Range, Contave Slope (%);
(hillslope, terrace, etc.):		ent (1) 92721°W Datum WES
ibregion (LRR):	Lat 47. Digrad	
il Map Unit Name: Alderwood 9	wavery sand	Y Log A C NW classification
e climatic / hydrologic conditions on the site typical fo		_ No (If no, explain in Remarks.)
e Vegetation, Soil, or Hydrology		Are "Normal Circumstances" present? Yes Vo_
e Vegetation, Soil, or Hydrology		(If needed, explain any answers in Remarks.)
UMMARY OF FINDINGS - Attach site m	ap showing sampling p	point locations, transects, important features, e
Hydrophytic Vegetation Present? Yes ///////////////////////////////////	No Is the S	Sampled Area
Vetland Hydrology Present? Yes	No within a	a Wetland? Yes No
Couple days EGETATION - Use scientific names of p	phor to .	ber Rains just started a sile visit.
	Absolute Dominant Ind	
ree Stratum (Plot size: 30)		
redalder		
The second se		Total Number of Dominant (B)
428		
-1	SO = Total Cover	Percent of Dominant Species 75 (AM
apling/Shrub Stratum (Plot size: 15)		Prevalence Index worksheet:
Salmonberny	/ / / / / / / / / / / / / / / /	Total % Cover of: Multiply by:
Salal		OBL species x 1 =
		FACW species x 2 =
		FAC species x 3 =
	45 = Total Cover	FACU species x 4 =
erb Stratum (Plot size:)		UPL species x 5 = (A)
slave h sedge	_ 50 V 06	Column Totals: (A) (B)
superditern		Prevalence Index = B/A =
		Hydrophytic Vegetation Indicators:
		1- Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50%
		3 - Prevalence index is 33.0 4 - Morphological Adaptations ¹ (Provide supporti
		data in Remarks or on a separate sheet)
		5 - Wetland Non-Vascular Plants ¹
		Problematic Hydrophytic Vegetation ¹ (Explain)
	= Total Cover	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
۱		
1		
۱		Hydrophytic Vegetation
1		Hydrophytic Vegetation Present? Yes No
1	= Total Cover	Vegetation

US Army Corps of Engineers

Western Mountains, Valleys, and Coast - Version 2.0

rofile Desc	ription: (Describe	to the depth	needed to docun	nent the ir	ndicator o	or confirm	n the abs	lence of Indic.	ators.)	
Pepth	Matrix			x Features						
nches)	Color (moist)		Color (moist)	%	Type ¹	Loc	Text	1	Remark	(5
	104R 2/2	100			-		Sitt	pan		
-0+	104R 32	80	Minane and American Street, and and	a contraction of the sector			Sitt	loam		
	104R413	20			and the second se	planetteria.	Silt	loam		
1.290	Sec. 61 1 3		1 - S. 1998	1.01		1	1 1 1	A Star A	1 1	
		· · · · · · · · · · · · · · · · · · ·								
		·								44
ype: C=Co	oncentration, D=Dep	letion, RM=F	Reduced Matrix, CS	=Covered	or Coated	Sand Gr	ains.	"Location: Pl	L=Pore Lining	dric Soils ³ :
	Indicators: (Applic				d.)					
_ Histosol		-	Sandy Redox (S				_	2 cm Muck (A Red Parent M		
	pipedon (A2)	-	_ Stripped Matrix		(augent)		_	Very Shallow	Dark Surface	(TF12)
 Black His Hydroge 	stic (A3) en Sulfide (A4)	-	Loamy Mucky M Loamy Gleyed M			WLRA 1)		Other (Explain	n in Remarks	1.44
	Below Dark Surfac	e (A11) -	Depleted Matrix							
	ark Surface (A12)		Redox Dark Sur				³ Inc	licators of hydr	ophytic veget	ation and
_ Sandy M	lucky Mineral (S1)	_	Depleted Dark S	Surface (F7	')			wetland hydrol		
	eleyed Matrix (S4)	_	_ Redox Depressi	ons (F8)				unless disturbe	ed or problema	atic.
estrictive L	Layer (if present):									
										1 -
Type:										AL- MARTIN
Depth (inc emarks:							Hydric	Soil Present?	' Yes	No
Depth (indemarks:							Hydric	Soil Present?	Yes	No
Depth (indemarks:	GY							Secondary India	cators (2 or m	ore required)
Depth (indemarks:	GY drology Indicators:		check all that apply Water-Stair		s (B9) (ex a	cept		Secondary India	cators (2 or m red Leaves (B	
Depth (independent of the second of the seco	GY drology Indicators: ators (minimum of o		Water-Stair MLRA 1	ned Leaves , 2, 4A, an		cept	<u>S</u>	Secondary India Water-Stair 4A, and	cators (2 or m ned Leaves (E 4B)	ore required)
Depth (independent of the second of the seco	GY drology Indicators: cators (minimum of o Water (A1) ter Table (A2)		Water-Stair MLRA 1 Salt Crust (ned Leaves , 2, 4A, an B11)	d 4B)	cept	<u>S</u>	Secondary India Water-Stair 4A, and Drainage P	cators (2 or m ned Leaves (E 4B) atterns (B10)	ore required) 99) (MLRA 1, 2,
Depth (ind emarks: DROLO etland Hyd imary Indic Surface High Wa Saturatic Water M	GY drology Indicators: cators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1)		Water-Stair MLRA 1 Salt Crust (Aquatic Invi	ned Leaves , 2, 4A, an B11) ertebrates	(B13)	ept	<u>S</u>	Secondary India Water-Stair 4A, and Drainage P Dry-Seasor	cators (2 or m ned Leaves (E 4B) atterns (B10) n Water Table	ore required) 99) (MLRA 1, 2, (C2)
Depth (ind emarks: DROLO etland Hyd imary Indic Surface High Wa Saturatic Water M Sedimen	GY drology Indicators: cators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1) it Deposits (B2)		Water-Stair MLRA 1 Salt Crust (Aquatic Invi Hydrogen S	ned Leaves , 2, 4A, an B11) ertebrates Sulfide Odo	(B13) or (C1)		<u>S</u>	Secondary Indic Water-Stair 4A, and Drainage P Dry-Seasor Saturation V	cators (2 or m ned Leaves (E 4B) atterns (B10) n Water Table Visible on Aer	ore required) 39) (MLRA 1, 2, (C2) ial Imagery (C9)
Depth (inc emarks: DROLO etland Hyo imary Indic Surface High Wa Saturatic Water M Sedimen Drift Dep	GY drology Indicators: cators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1) arks (B1) to Deposits (B2) posits (B3)		Water-Stair MLRA 1 Salt Crust (Aquatic Invi Hydrogen S Oxidized RI	ned Leaves , 2, 4A, an B11) ertebrates Sulfide Odo hizosphere	(B13) or (C1) s along Li		<u>S</u>	Secondary Indic Water-Stair 4A, and Drainage P Dry-Seasor Saturation N Geomorphic	cators (2 or m ned Leaves (E 4B) atterns (B10) n Water Table Visible on Aer c Position (D2	ore required) 39) (MLRA 1, 2, (C2) ial Imagery (C9)
Depth (inc emarks: DROLO etland Hyo imary Indic Surface High Wa Saturatic Water M Sedimen Drift Dep Algal Ma	GY drology Indicators: cators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1) arks (B1) to Deposits (B2) posits (B3) t or Crust (B4)		Water-Stair MLRA 1 Salt Crust (Aquatic Invo Hydrogen S Oxidized RI Presence o	ned Leaves , 2, 4A, an B11) ertebrates Sulfide Odo hizosphere f Reduced	(B13) or (C1) s along Li Iron (C4)	ving Root	S	Secondary Indic Water-Stair 4A, and Drainage P Dry-Seasor Saturation N Geomorphic Shallow Aq	cators (2 or m ned Leaves (E 4B) atterns (B10) n Water Table Visible on Aer c Position (D2 uitard (D3)	ore required) 39) (MLRA 1, 2, (C2) ial Imagery (C9)
Depth (inc emarks: DROLO etland Hyo imary Indic Surface High Wa Saturatic Water M Sedimen Drift Dep Algal Ma Iron Dep	GY drology Indicators: ators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1) at Deposits (B2) posits (B3) t or Crust (B4) osits (B5)		Water-Stair MLRA 1 Salt Crust (Aquatic Invo Hydrogen S Oxidized RI Presence o Recent Iron	ned Leaves , 2, 4A, an B11) ertebrates Sulfide Odo nizosphere f Reduced Reduction	(B13) or (C1) s along Li Iron (C4) n in Tilled	ving Root Soils (C6)	S	Secondary Indic Water-Stair 4A, and Drainage P Dry-Seasor Saturation N Geomorphic Shallow Aq FAC-Neutra	cators (2 or m ned Leaves (E 4B) atterns (B10) n Water Table Visible on Aer c Position (D2 uitard (D3) al Test (D5)	ore required) i9) (MLRA 1, 2, (C2) ial Imagery (C9)
Depth (inc emarks: DROLO etland Hyd imary India Surface High Wa Saturatio Water M Sedimen Drift Dep Algal Ma Iron Dep Surface	GY drology Indicators: ators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1) t Deposits (B2) posits (B3) t or Crust (B4) osits (B5) Soit Cracks (B6)	<u>ne required;</u>	Water-Stair MLRA 1 Salt Crust (Aquatic Invo Hydrogen S Oxidized RI Presence o Recent Iron Stunted or S	ned Leaves , 2, 4A, an B11) ertebrates Sulfide Odo nizosphere f Reduced Reduction Stressed P	(B13) or (C1) s along Li Iron (C4) n in Tilled i lants (D1)	ving Root Soils (C6)	S	Secondary India Water-Stair 4A, and Drainage P Dry-Seasor Saturation N Geomorphi Shallow Aq FAC-Neutra Raised Ant	cators (2 or m ned Leaves (E 4B) atterns (B10) n Water Table Visible on Aer c Position (D2 uitard (D3) al Test (D5) Mounds (D6)	ore required) 9) (MLRA 1, 2, (C2) ial Imagery (C9))) (LRR A)
Depth (inc emarks: DROLOO etland Hyd imary India Surface High Wa Saturatio Water M Sedimen Drift Dep Algal Ma Iron Dep Surface Inundatio	GY drology Indicators: ators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1) t Deposits (B2) posits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aerial II	<u>ne required;</u> magery (B7)	Water-Stair MLRA 1 Salt Crust (Aquatic Invo Hydrogen S Oxidized RI Presence o Recent Iron Stunted or S Other (Expl	ned Leaves , 2, 4A, an B11) ertebrates Sulfide Odo nizosphere f Reduced Reduction Stressed P	(B13) or (C1) s along Li Iron (C4) n in Tilled i lants (D1)	ving Root Soils (C6)	S	Secondary Indic Water-Stair 4A, and Drainage P Dry-Seasor Saturation N Geomorphic Shallow Aq FAC-Neutra	cators (2 or m ned Leaves (E 4B) atterns (B10) n Water Table Visible on Aer c Position (D2 uitard (D3) al Test (D5) Mounds (D6)	ore required) 9) (MLRA 1, 2, (C2) ial Imagery (C9))) (LRR A)
Depth (inc emarks: DROLO etland Hyo imary Indic Surface High Wa Saturatic Water M Sedimen Drift Dep Algal Ma Iron Dep Surface 3 Inundatic Sparsely	GY drology Indicators: ators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1) at Deposits (B2) posits (B3) at or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aerial In Vegetated Concave	<u>ne required;</u> magery (B7)	Water-Stair MLRA 1 Salt Crust (Aquatic Invo Hydrogen S Oxidized RI Presence o Recent Iron Stunted or S Other (Expl	ned Leaves , 2, 4A, an B11) ertebrates Sulfide Odo nizosphere f Reduced Reduction Stressed P	(B13) or (C1) s along Li Iron (C4) n in Tilled i lants (D1)	ving Root Soils (C6)	S	Secondary India Water-Stair 4A, and Drainage P Dry-Seasor Saturation N Geomorphi Shallow Aq FAC-Neutra Raised Ant	cators (2 or m ned Leaves (E 4B) atterns (B10) n Water Table Visible on Aer c Position (D2 uitard (D3) al Test (D5) Mounds (D6)	ore required) 9) (MLRA 1, 2, (C2) ial Imagery (C9))) (LRR A)
Depth (inc emarks: DROLO etland Hyo imary Indic Surface High Wa Saturatic Water M Sedimen Drift Dep Algal Ma Iron Dep Surface S Inundatic Sparsely	GY drology Indicators: cators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1) arks (B1) to Deposits (B2) posits (B3) to or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aerial II Vegetated Concave vations:	magery (B7) Surface (B8	Water-Stair MLRA 1 Salt Crust (Aquatic Invo Hydrogen S Oxidized RI Presence o Recent Iron Stunted or S Other (Expl)	ned Leaves , 2 , 4A , an B11) ertebrates Sulfide Odo nizosphere f Reduced Reduction Stressed P ain in Rem	(B13) (B13) or (C1) s along Li Iron (C4) o in Tilled tants (D1) tarks)	ving Root Soils (C6) (LRR A)	S	Secondary India Water-Stair 4A, and Drainage P Dry-Seasor Saturation N Geomorphi Shallow Aq FAC-Neutra Raised Ant	cators (2 or m ned Leaves (E 4B) atterns (B10) n Water Table Visible on Aer c Position (D2 uitard (D3) al Test (D5) Mounds (D6)	ore required) 9) (MLRA 1, 2, (C2) ial Imagery (C9))) (LRR A)
Depth (inc emarks: DROLO etland Hyo imary Indic Surface 1 High Wa Saturatic Water M Sedimen Drift Dep Algal Ma Iron Dep Surface 3 Inundatic Sparsely eld Observ inface Water	GY trology Indicators: cators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1) arks (B1) arks (B2) posits (B2) posits (B3) art or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aerial II Vegetated Concave rations: ar Present?	magery (B7) Surface (B8	Water-Stair MLRA 1 Salt Crust (Aquatic Invo Hydrogen S Oxidized RI Presence o Recent Iron Stunted or S Other (Expl) Depth (incl	ed Leaves , 2, 4A, an B11) ertebrates Sulfide Odo hizosphere f Reduced Reduction Stressed P ain in Rem	(B13) or (C1) s along Li Iron (C4) a in Tilled alants (D1) iarks)	ving Root Soils (C6) (LRR A)	S	Secondary India Water-Stair 4A, and Drainage P Dry-Seasor Saturation N Geomorphi Shallow Aq FAC-Neutra Raised Ant	cators (2 or m ned Leaves (E 4B) atterns (B10) n Water Table Visible on Aer c Position (D2 uitard (D3) al Test (D5) Mounds (D6)	ore required) 9) (MLRA 1, 2, (C2) ial Imagery (C9))) (LRR A)
Depth (ind emarks: DROLO etland Hyo imary Indic Surface 9 High Wa Saturatic Water M Sedimen Drift Dep Algal Ma Iron Dep Surface 9 Inundatic Sparsely eld Observ inface Wate	GY drology Indicators: cators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1) arks (B1) to Crust (B4) osits (B3) to Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aerial In Vegetated Concave vations: ar Present? Ye	magery (B7) Surface (B8 7 * es No as No	Water-Stair MLRA 1 Salt Crust (Aquatic Invo Hydrogen S Oxidized RI Presence o Recent Iron Stunted or S Other (Expl) Depth (incl Depth (inc	ed Leaves , 2, 4A, an B11) ertebrates Sulfide Odo hizosphere f Reduced Reduction Stressed P ain in Rem hes):	(B13) or (C1) is along Li Iron (C4) o in Tilled lants (D1) arks)	ving Root Soils (C6) (LRR A)	S	Secondary India Water-Stair 4A, and Drainage P Dry-Seasor Saturation N Geomorphio Shallow Aq FAC-Neutra Raised Ant Frost-Heave	cators (2 or m ned Leaves (E 4B) atterns (B10) n Water Table Visible on Aer c Position (D2 uitard (D3) al Test (D5) Mounds (D6) e Hummocks	ore required) 9) (MLRA 1, 2, (C2) ial Imagery (C9) (LRR A) (D7)
Depth (ind emarks: DROLOO etland Hyo imary Indio Surface High Wa Saturatio Water M Sedimen Drift Dep Algal Ma Inon Dep Surface Sparsely eld Observ urface Wate ater Table I turation Pri	GY drology Indicators: cators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1) arks (B1) to Crust (B4) osits (B3) to Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aerial In Vegetated Concave vations: ar Present? Ye	magery (B7) Surface (B8 7,9 as No as No as No	Water-Stair MLRA 1 Salt Crust (Aquatic Invi Hydrogen S Oxidized RI Presence o Recent Iron Stunted or S Other (Expl) Depth (incl Depth (inc	ed Leaves , 2, 4A, an B11) ertebrates Sulfide Odo nizosphere f Reduced Reduction Stressed P ain in Rem hes): hes):	(B13) or (C1) is along Li Iron (C4) h In Tilled : lants (D1) iarks)	ving Root Soils (C6) (LRR A)	s (C3)	Secondary India Water-Stair 4A, and Drainage P Dry-Seasor Saturation V Geomorphic Shallow Aq FAC-Neutra Raised Ant Frost-Heave Stair State	cators (2 or m ned Leaves (E 4B) atterns (B10) n Water Table Visible on Aer c Position (D2 uitard (D3) al Test (D5) Mounds (D6) e Hummocks	ore required) 9) (MLRA 1, 2, (C2) ial Imagery (C9) (LRR A) (D7)
Depth (ind emarks: DROLO etland Hyo imary Indic Surface 1 High Wa Saturatio Water M Sedimen Drift Dep Algal Ma Iron Dep Surface 3 Inundatio Sparsely eld Observ inface Wate ater Table I turation Pro cludes cap iscribe Rec	GY drology Indicators: ators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1) it Deposits (B2) nosits (B3) it or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aerial In Vegetated Concave vations: ar Present? Ye esent? Ye	magery (B7) Surface (B8 7,9 as No as No as No	Water-Stair MLRA 1 Salt Crust (Aquatic Invi Hydrogen S Oxidized RI Presence o Recent Iron Stunted or S Other (Expl) Depth (incl Depth (inc	ed Leaves , 2, 4A, an B11) ertebrates Sulfide Odo nizosphere f Reduced Reduction Stressed P ain in Rem hes): hes):	(B13) or (C1) is along Li Iron (C4) h In Tilled : lants (D1) iarks)	ving Root Soils (C6) (LRR A)	s (C3)	Secondary India Water-Stair 4A, and Drainage P Dry-Seasor Saturation V Geomorphic Shallow Aq FAC-Neutra Raised Ant Frost-Heave Stair State	cators (2 or m ned Leaves (E 4B) atterns (B10) n Water Table Visible on Aer c Position (D2 uitard (D3) al Test (D5) Mounds (D6) e Hummocks	ore required) 9) (MLRA 1, 2, (C2) ial Imagery (C9) (LRR A) (D7)
Depth (inc emarks: DROLO etland Hyo imary Indic Surface High Wa Saturatio Water M Sedimen Drift Dep Algal Ma Iron Dep Surface S Inundatio Sparsely eld Observ inface Wate ater Table I surface Rec	GY drology Indicators: ators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1) it Deposits (B2) nosits (B3) it or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aerial In Vegetated Concave vations: ar Present? Ye esent? Ye	magery (B7) Surface (B8 7,9 as No as No as No	Water-Stair MLRA 1 Salt Crust (Aquatic Invi Hydrogen S Oxidized RI Presence o Recent Iron Stunted or S Other (Expl) Depth (incl Depth (inc	ed Leaves , 2, 4A, an B11) ertebrates Sulfide Odo nizosphere f Reduced Reduction Stressed P ain in Rem hes): hes):	(B13) or (C1) is along Li Iron (C4) h In Tilled : lants (D1) iarks)	ving Root Soils (C6) (LRR A)	s (C3)	Secondary India Water-Stair 4A, and Drainage P Dry-Seasor Saturation V Geomorphic Shallow Aq FAC-Neutra Raised Ant Frost-Heave Stair State	cators (2 or m ned Leaves (E 4B) atterns (B10) n Water Table Visible on Aer c Position (D2 uitard (D3) al Test (D5) Mounds (D6) e Hummocks	ore required) 9) (MLRA 1, 2, (C2) ial Imagery (C9) (LRR A) (D7)
Depth (inc emarks: DROLO etland Hyo imary Indic Surface High Wa Saturatio Water M Sedimen Drift Dep Algal Ma Iron Dep Surface S Inundatio Sparsely eld Observ inface Wate ater Table I surface Rec	GY drology Indicators: ators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1) it Deposits (B2) nosits (B3) it or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aerial In Vegetated Concave vations: ar Present? Ye esent? Ye	magery (B7) Surface (B8 7,9 as No as No as No	Water-Stair MLRA 1 Salt Crust (Aquatic Invi Hydrogen S Oxidized RI Presence o Recent Iron Stunted or S Other (Expl) Depth (incl Depth (inc	ed Leaves , 2, 4A, an B11) ertebrates Sulfide Odo nizosphere f Reduced Reduction Stressed P ain in Rem hes): hes):	(B13) or (C1) is along Li Iron (C4) h In Tilled : lants (D1) iarks)	ving Root Soils (C6) (LRR A)	s (C3)	Secondary India Water-Stair 4A, and Drainage P Dry-Seasor Saturation V Geomorphic Shallow Aq FAC-Neutra Raised Ant Frost-Heave Stair State	cators (2 or m ned Leaves (E 4B) atterns (B10) n Water Table Visible on Aer c Position (D2 uitard (D3) al Test (D5) Mounds (D6) e Hummocks	ore required) 9) (MLRA 1, 2, (C2) ial Imagery (C9) (LRR A) (D7)
Depth (ind emarks: DROLOO retland Hyo imary Indio Surface Saturatio Water M Saturatio Water M Saturatio Drift Dep Algal Ma Inon Dep Surface Sparsely eld Observ urface Wate ater Table I surface Can	GY drology Indicators: ators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1) it Deposits (B2) nosits (B3) it or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aerial In Vegetated Concave vations: ar Present? Ye esent? Ye	magery (B7) Surface (B8 7,9 as No as No as No	Water-Stair MLRA 1 Salt Crust (Aquatic Invi Hydrogen S Oxidized RI Presence o Recent Iron Stunted or S Other (Expl) Depth (incl Depth (inc	ed Leaves , 2, 4A, an B11) ertebrates Sulfide Odo nizosphere f Reduced Reduction Stressed P ain in Rem hes): hes):	(B13) or (C1) is along Li Iron (C4) h In Tilled : lants (D1) iarks)	ving Root Soils (C6) (LRR A)	s (C3)	Secondary India Water-Stair 4A, and Drainage P Dry-Seasor Saturation V Geomorphic Shallow Aq FAC-Neutra Raised Ant Frost-Heave Stair State	cators (2 or m ned Leaves (E 4B) atterns (B10) n Water Table Visible on Aer c Position (D2 uitard (D3) al Test (D5) Mounds (D6) e Hummocks	ore required) 9) (MLRA 1, 2, (C2) ial Imagery (C9) (LRR A) (D7)

WETLAND DETERMINATION	DATA FOR	VI – West	ern Mou	ntains, Valleys, and Coast Region
Project/Site: 2000 24th Ave NW		City/Countv	Olump	in/Thurston Sampling Date: 5/30/23
Applicant/Owner: RJ Development		,,	-0-1	State: WA Sampling Point: TP - S
		Section To	woshin Ra	nge: TISN R2W SS7
andform (hillslope, terrace, etc.): hulslope				convex, none): Con Car ve Slope (%):
Subregion (LRR):	Lat: 47			Long: 122,92715° W Datum: 455 11
Soil Map Unit Name: Alderwood gravel				
Are climatic / hydrologic conditions on the site typical fo		}		
				'Normal Circumstances" present? Yes <u> Vo</u> No
re Vegetation, Soil, or Hydrology				
				eded, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site m	ap showing	samplin	g point le	ocations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes V	No			
Hydric Soil Present? Yes V	_ No		e Sampled	nd? Yes No
Wetland Hydrology Present? Yes	_ No			
Continuation of use Ham	A Hu	me, Fla	so w	A-7A Minush WA-7C.
OVENCASE Flug UNA -1 Connec	te to UDA	-74 -	al state T	B-> INA TA - DOA- 8
/EGETATION – Use scientific names of p	1.2	Catel		
EGETATION – Use scientific names of p	ianto.			
Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?		Dominance Test worksheet: Number of Dominant Species
1. red alder	90	V	FAC	Number of Dominant Species 3 That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant 3
3				Total Number of Dominant 3 Species Across All Strata: (B)
4.		<u> </u>		Percent of Dominant Species
101	90	= Total Co	ver	That Are OBL, FACW, or FAC: (A/B)
Sapling/Shrub Stratum (Plot size: 10)	5	,	[nal)	Prevalence Index worksheet:
1. D. Spira 2. Elercisen hueldeberry	<u> </u>		FACW ENLL	Total % Cover of: Multiply by:
3. Salat	<u> </u>		TALI	OBL species x 1 =
4. HBB	$-\frac{3}{3}$		TA	FACW species x 2 =
5			FIC	FAC species x 3 =
	<u> </u>	= Total Co	ver	FACU species x 4 =
Herb Stratum (Plot size: /0')				UPL species x 5 =
1. lady tern	3		FAC	Column Totals: (A) (B)
2. Soft nish		<u> </u>	FACW	Prevalence Index = B/A =
3				Hydrophytic Vegetation Indicators:
4				1 - Rapid Test for Hydrophytic Vegetation
5				2 - Dominance Test is >50%
6				3 - Prevalence Index is ≤3.0 ¹
7				4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
8				5 - Wetland Non-Vascular Plants ¹
9				Problematic Hydrophytic Vegetation ¹ (Explain)
11				¹ Indicators of hydric soil and wetland hydrology must
/	13	= Total Cov	/er	be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size:())				
1				Hydrophytic
2				Vegetation
81-	-0	= Total Cov	ver	Present? Yes No
% Bare Ground in Herb Stratum				
Remarks:				

SOIL

Sampling Point: TP - 5

Profile Desc	cription: (Describe)	to the dep	th needed to docu	ment the ir	ndicator	or confirm	n the absence of	(indicators.)
Depth	Matrix			ox Features				
(inches)	Color (moist)		Color (moist)	%	Type ¹	_Loc ²		Remarks
<u>0-4</u>	107R 3/2	100		-			Silt loan	`
4-9	10 YR 3/2	80					Silt loan	^
4-9	2.54412	20		-	- non-station	-	Siltioan	n
9-13+	1011R 6/1	50%	104R5/8	50%	C	M	Siltloan	۱
				1.5 - 51				
		ē						
17								
	oncentration, D=Depl Indicators: (Application)					a Sand Gr		tion: PL=Pore Lining, M=Matrix.
Histosol			Sandy Redox		,			Muck (A10)
	pipedon (A2)		Stripped Matrix					arent Material (TF2)
	istic (A3)		Loamy Mucky) (excep	MLRA 1)		Shallow Dark Surface (TF12)
Hydroge	en Sulfide (A4)		Loamy Gleyed	•		,		(Explain in Remarks)
VC Depleter	d Below Dark Surface	e (A11)	Depleted Matri	x (F3)				
	ark Surface (A12)		Redox Dark S	. ,				of hydrophytic vegetation and
	Aucky Mineral (S1)		Depleted Dark	•	7)			hydrology must be present,
	Gleyed Matrix (S4)		Redox Depres	sions (F8)			unless	disturbed or problematic.
Type:	Layer (il present).							
Depth (in	ches)=						Hydric Soil P	resent? Yes No
Remarks:							Thyane Son P	
	pert le 8"							
(marc	PCH IN C							
HYDROLO								
-	drology Indicators:							
	cators (minimum of o	ne require						ary Indicators (2 or more required)
	Water (A1)		Vater-Sta			xcept		ter-Stained Leaves (B9) (MLRA 1, 2
	ater Table (A2)			1, 2, 4A, a	nd 4B)			4A, and 4B)
Saturatio	()		Salt Crus		(540)			inage Patterns (B10)
	larks (B1)		·	vertebrates	• •			-Season Water Table (C2)
	nt Deposits (B2)		Hydroger			Living Dec		uration Visible on Aerial Imagery (C
· ·	posits (B3) at or Crust (B4)			Rhizospher of Reduced	-	-		omorphic Position (D2)
	posits (B5)			on Reductio				allow Aquitard (D3) C-Neutral Test (D5)
	Soil Cracks (B6)			r Stressed I		•		sed Ant Mounds (D6) (LRR A)
	on Visible on Aerial I	magery (B		plain in Rer				st-Heave Hummocks (D7)
	y Vegetated Concave				nankoj		110	
Field Obser								
Surface Wat	er Present? Yo	es	No V Depth (ir	nches):				
Water Table		es		nches):				
Saturation P		es					and Hydrology	Present? Yes No
	pillary fringe)							
		gauge, m	onitoring well, aerial	photos, pre	evious ins	spections),	if available:	
Describe Re	pillary fringe)	gauge, m	onitoring well, aerial	photos, pre	evious ins	spections),	if available:	
	pillary fringe)	gauge, m	onitoring well, aerial	photos, pre	evious ins	spections),	if available:	
Describe Re	pillary fringe)	gauge, m	onitoring well, aerial	photos, pre	evious ins	spections),	if available:	
Describe Re	pillary fringe)	gauge, m	onitoring well, aerial	photos, pre	evious ins	spections),	if available:	
Describe Re	pillary fringe)	gauge, m	onitoring well, aerial	photos, pre	evious ins	spections),	if available:	

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

Project/Site: 2000 24th Ave DW	City/County Olympia Thurston Sampling Date: 5/30/23
Applicant/Owner: KJ Development	State: UVA Sampling Point: TP-6
Investigator(s): LCAMN 1/KS	Section, Township, Range: TISN R210 557
Landform (hillslope, terrace, etc.): holds de	Local relief (concave, convex, none): Slope (%):
Subregion (LRR): Lat:	7.0681 °N Long: 122. 92734 °W Datum: WAS HU
Soil Map Unit Name: Alderwood chavelly 1	OalfMNWI classification:
Are climatic / hydrologic conditions on the site typical for this time of ye	ear? Yes No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly	y disturbed? Are "Normal Circumstances" present? Yes No
Are Vegetation, Soil, or Hydrology naturally pr	oblematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing	g sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No	to the Demoted Area
Hydric Soil Present? Yes No	Is the Sampled Area within a Wetland? Yes No
Wetland Hydrology Present? Yes No	
Remarks: 1 Ocated NI. OF TP-4 Lin Small	depression of slough proble

VEGETATION – Use scientific names of plants.

20	Absolute		t Indicator	Dominance Test worksheet:	
<u>Tree Stratum</u> (Plot size: <u></u> ろい)	and the second s	Species?		Number of Dominant Species 4	
1 xed alder	70	V	FAL	That Are OBL, FACW, or FAC: (A	۹)
2. W. red Certar	30	~	FAC	Total Number of Demission	
3				Total Number of Dominant Species Across All Strata:	3)
4.			· · · · · · · · · · · · · · · · · · ·		.,
T	700	T-1-1 0		Percent of Dominant Species	
Sapling/Shrub Stratum (Plot size:)	100	= Total Co	over	That Are OBL, FACW, or FAC:	4/B)
1. Sal monberni	Un	1/	FAC	Prevalence Index worksheet:	
				Total % Cover of: Multiply by:	
2				OBL species x 1 =	
3				FACW species x 2 =	
4				FAC species	
5	-	-			
	40	= Total Co	over	FACU species x 4 =	
Herb Stratum (Plot size:)	0			UPL species x 5 =	
1. Slavely Service			GBL	Column Totals: (A)	(B)
2. SOFF MIST	5		FACE	Prevalence Index = B/A =	
3. ladis ferri	70		FAR	Hydrophytic Vegetation Indicators:	
4				1 - Rapid Test for Hydrophytic Vegetation	
5	202			2 - Dominance Test is >50%	
6				3 - Prevalence Index is ≤3.0 ¹	
7 8				4 - Morphological Adaptations ¹ (Provide suppor data in Remarks or on a separate sheet)	rting
				5 - Wetland Non-Vascular Plants ¹	
9				Problematic Hydrophytic Vegetation ¹ (Explain)	
10	··· · · · · · · · · · · · · · · · · ·	-	·	¹ Indicators of hydric soil and wetland hydrology mus	
11		(1		be present, unless disturbed or problematic.	51
Woody Vine Stratum (Plot size: 10)	45	= Total Co	ver		
	C. Marken		1.00		
1. English LUY			UPL	Hydrophytic	
2	÷ —			Vegetation Present? Yes No	
20	5	= Total Co	ver		
% Bare Ground in Herb Stratum					
Remarks:					

SOIL

Sampling Point:

Depth	Matrix			ox Feature				
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
>-7_	IOYR 3/1	100						
7-11	104/2 4/2	99	104R516	61	C	M		
1-16+	10Y 5/3	100	IOYR516	10	С	M		
					. —			
			=Reduced Matrix, C			ed Sand Gr		n: PL=Pore Lining, M=Matrix.
		cable to al	LRRs, unless oth	erwise no	ted.)		Indicators f	or Problematic Hydric Soils ³ :
Histosol	• •		Sandy Redox	. ,				uck (A10)
	pipedon (A2)		Stripped Matri					rent Material (TF2)
	istic (A3)		Loamy Mucky	•		ot MLRA 1)		allow Dark Surface (TF12)
	en Sulfide (A4) d Below Dark Surfa	co (A11)	Loamy Gleyed Depleted Matr		2)		Other (E	Explain in Remarks)
	ark Surface (A12)	Ce (ATT)	Redox Dark S		N N		³ Indicators o	f hydrophytic vegetation and
	Aucky Mineral (S1)		Depleted Dark	•	,			hydrology must be present,
	Gleyed Matrix (S4)		Redox Depres					sturbed or problematic.
	Layer (if present):			(-)			1	
Туре:								X
Depth (in	ches):						Hydric Soil Pre	sent? Yes No L
Remarks:								
Primary Indi			d; check all that ap					y Indicators (2 or more required)
	Water (A1) ater Table (A2)		Water-St			except		r-Stained Leaves (B9) (MLRA 1, 2
Saturati			Salt Crus	1, 2, 4A ,	anu 40)			A, and 4B)
	farks (B1)			nvertebrat	ne (B12)			age Patterns (B10) Season Water Table (C2)
	nt Deposits (B2)		Aquatic I		• •			ation Visible on Aerial Imagery (C
	posits (B3)					Living Roo		norphic Position (D2)
	at or Crust (B4)			of Reduc		-	• • —	ow Aquitard (D3)
	posits (B5)			on Reduct				Neutral Test (D5)
	Soil Cracks (B6)			0111100000		a Solis (Ch		
Surface				or Stressed				
		l Imagery (E	Stunted of		d Plants (l) Raise	ed Ant Mounds (D6) (LRR A)
Inundat	ion Visible on Aeria		Stunted of Stunted of Contract (E: S7)		d Plants (l) Raise	
Inundat Sparsel	on Visible on Aerial y Vegetated Conca		Stunted of Stunted of Contract (E: S7)		d Plants (l) Raise	ed Ant Mounds (D6) (LRR A)
Inundat Sparsel Field Obser	on Visible on Aerial y Vegetated Conca vations:	ve Surface	Stunted of Stunted of Contract (E: S7)	xplain in R	d Plants (l emarks)	01) (LRR A) Raise	ed Ant Mounds (D6) (LRR A)
Inundat Sparsel Field Obser Surface Wat	ion Visible on Aerial y Vegetated Concar vations: ver Present?	ve Surface Yes	Stunted ((7) Other (E: (88) No Depth (i	xplain in R 	d Plants (l emarks)	D1) (LRR A)) Raise	ed Ant Mounds (D6) (LRR A)
Inundat Sparsel Field Obser Surface Water Water Table	ion Visible on Aerial y Vegetated Conca vations: er Present? Present?	ve Surface Yes Yes		xplain in R nches): nches):	l Plants (I emarks)	D1) (LRR A)) Raise Frost	ed Ant Mounds (D6) (LRR A) -Heave Hummocks (D7)
Inundat Sparsel Field Obser Surface Wat Water Table Saturation F (includes ca	on Visible on Aerial y Vegetated Concar vations: er Present? Present? pillary fringe)	ve Surface Yes Yes Yes	Stunted (57) Other (E: (B8) No Depth (i No Depth (i No Depth (i	xplain in R nches): nches): nches):	d Plants (I emarks)	01) (LRR A)) Raise Frost	ed Ant Mounds (D6) (LRR A) -Heave Hummocks (D7)
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Inundat Sparsel Field Obser Surface Wate Water Table Saturation F (includes ca Describe Re	ion Visible on Aerial y Vegetated Concar vations: ter Present? Present? pillary fringe) corded Data (stream	ve Surface Yes Yes Yes m gauge, m	Stunted (17) Other (E: (B8) No Depth (i No Depth (i No Depth (i onitoring well, aeria	xplain in R nches): nches): nches): l photos, p	d Plants (I emarks) revious in	D1) (LRR A) Raise Frost and Hydrology Pr if available:	ed Ant Mounds (D6) (LRR A) -Heave Hummocks (D7) resent? Yes No
Inundat Sparsel Surface Water Saturation F (includes ca Describe Re Remarks:	ion Visible on Aerial y Vegetated Concar vations: ter Present? Present? pillary fringe) corded Data (stream August 2000 2000 2000 2000 2000 2000 2000 200	ve Surface Yes Yes m gauge, m gauge, m	$ \begin{array}{c} & _ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$	xplain in R nches): nches): nches): I photos, p	revious in	Weth spections), Mary May) Raise Frost and Hydrology Pr if available:	ed Ant Mounds (D6) (LRR A) -Heave Hummocks (D7) resent? Yes No present û di ratis hydrologi to Wester Staine
Inundat Sparsel Field Obser Surface Water Saturation F (includes ca Describe Re Remarks:	ion Visible on Aerial y Vegetated Concar vations: her Present? Present? pillary fringe) corded Data (stream Myd Molecular Myd Molecular Arrow Myd Molecular Myd Molecular Arrow Myd Myd Molecular Arrow Myd Myd Myd Molecular Arrow Myd	ve Surface Yes Yes m gauge, m gauge, m		xplain in R nches): nches): nches): I photos, p	revious in	Wetla spections), Wetra Wetra Wetra Wetra Wetra) Raise Frost and Hydrology Pr if available:	ed Ant Mounds (D6) (LRR A) -Heave Hummocks (D7) resent? Yes <u>No</u> <u>No</u> present û di ratis hydrologi + Wester Staine rowing Sea Son)
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WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 2000 24 Ave NOW		City/County/Dlynu	Dial Thurston Sampling Date: 5/30/23					
Applicant/Owner: RJ Development		State: UA Sampling Date: 57 000						
			ection, Township, Range: TIN KIW SS7					
Landform (hillslope, terrace, etc.)								
Subregion (LRR):	_ Lat: <u>44</u>	r. 06706 M	Long: (22,9)731°W Datum: WGS F4					
Soil Map Unit Name: Addenwood gravelly								
Are climatic / hydrologic conditions on the site typical for the	s time of ye	ar? Yes No	(If no, explain in Remarks.)					
Are Vegetation, Soil, or Hydrology s	significantly	disturbed? Are "	"Normal Circumstances" present? Yes No					
Are Vegetation, Soil, or Hydrology r			eeded, explain any answers in Remarks.)					
SUMMARY OF FINDINGS – Attach site map		sampling point l	ocations, transects, important features, etc.					
Hydrophytic Vegetation Present? Yes V N		Is the Sampled	Aron					
Hydric Soil Present? Yes N		within a Wetlar						
Wetland Hydrology Present? Yes N Remarks:								
TP locuped 5.00 wetland	Ad	N. 00 dite	li					
VEGETATION – Use scientific names of plan	its.							
7. 201	Absolute		Dominance Test worksheet:					
Tree Stratum (Plot size: <u>30'</u>) 1. Big liaf Maple	<u>% Cover</u>	Species? Status	Number of Dominant Species That Are OBL, FACW, or FAC: (A)					
2			Total Number of Dominant					
3			Species Across All Strata: (B)					
4	18	_ = Total Cover	Percent of Dominant Species That Are OBL, FACW, or FAC:					
Sapling/Shrub Stratum (Plot size: 10')	10	The	Prevalence Index worksheet:					
1. willow 2. Indian Dlow	<u>ao</u>	<u> </u>	Total % Cover of: Multiply by:					
3. H. Black berry	30	FR	OBL species x 1 =					
4			FACW species x 2 =					
5			FAC species x 3 =					
	100	= Total Cover	FACU species x 4 =					
Herb Stratum (Plot size: 10)	1		UPL species x 5 =					
1			Column Totals: (A) (B)					
2			Prevalence Index = B/A =					
3			Hydrophytic Vegetation Indicators:					
4			1 - Rapid Test for Hydrophytic Vegetation					
5			2 - Dominance Test is >50%					
6			3 - Prevalence Index is ≤3.0 ¹					
7			4 - Morphological Adaptations ¹ (Provide supporting					
8			data in Remarks or on a separate sheet)					
9			5 - Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain)					
10			¹ Indicators of hydric soil and wetland hydrology must					
11	7	= Total Cover	be present, unless disturbed or problematic.					
Woody Vine Stratum (Plot size:/ン/)		_ Total Cover						
1			Hydrophytic					
2		· · · · · · · · · · · · · · · · · · ·	Vegetation					
	Ð.	= Total Cover	Present? Yes No					
% Bare Ground in Herb Stratum								
Konarka.								

SOIL

Sampling Point: 77-7

	ription: (Describe	to the dep	Sui needed to docum	ionic the h	inuicator	or comm	n the absence of indicators.)	
Depth	Matrix			x Features			To the Develo	
(inches)	Color (moist)	%	Color (moist)		Type'	Loc ²	Texture Remarks	
0-4	104R31	100					sit loom	-
19-11	101R311		7. SYR414	1%		M	siltloam	_
11-16	104R 3/3	80	104R 4/6	20	C	M	loom w/gravel	
			~~~~~					
			-					
	(c)							_
			*					-
	( <b>•</b>	· · · · · · · · · · · · · · · · · · ·						-
-								-
			EReduced Matrix, CS			ed Sand G	irains. ² Location: PL=Pore Lining, M=Matrix. Indicators for Problematic Hydric Soils ³ :	
-		able to all	Sandy Redox (\$		<i></i> ,		2 cm Muck (A10)	- 1
Histosol	pipedon (A2)		Stripped Matrix	-			Red Parent Material (TF2)	
	istic (A3)		Loamy Mucky N		) (excep	t MLRA 1)		
Hydroge	en Sulfide (A4)		Loamy Gleyed	Matrix (F2	)		Other (Explain in Remarks)	
· - ·	d Below Dark Surfac	e (A11)	Depleted Matrix				3	
	ark Surface (A12)		Redox Dark Su				³ Indicators of hydrophytic vegetation and	
	Mucky Mineral (S1) Gleyed Matrix (S4)		Depleted Dark 3 Redox Depress		()		wetland hydrology must be present, unless disturbed or problematic.	_
	Layer (if present):							
Type:								
	ches):						Hydric Soil Present? Yes No	
Remarks:							·	
HYDROLO								
	drology Indicators:							
	Water (A1)	ne require	d: check all that and	M)			Secondary Indicators (2 or more required)	
Sunace			ed; check all that appl Water-Sta		es (B9) (	evcent	Secondary Indicators (2 or more required)	1
High W	. ,		Water-Sta	ined Leav		except	Water-Stained Leaves (B9) (MLRA 1,	1
	ater Table (A2)		Water-Sta MLRA	ined Leav 1, <b>2, 4A</b> , a		except	Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B)	1
Saturati	ater Table (A2) ion (A3)		Water-Sta MLRA Salt Crust	ined Leave <b>1, 2, 4A, a</b> (B11)	and 4B)	except	Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10)	1
Saturati	ater Table (A2) ion (A3) /larks (B1)		Water-Sta MLRA Salt Crust Aquatic In	ined Leave 1, <b>2, 4A, a</b> (B11) vertebrate	and 4B) s (B13)	except	Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B)	2,
Saturati Water M Sedime	ater Table (A2) ion (A3)		Water-Sta MLRA Salt Crust Aquatic In Hydrogen	ined Leave 1, 2, 4A, a (B11) vertebrate Sulfide Oc	and 4B) s (B13) dor (C1)		Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2)	2,
Saturati Water M Sedime	ater Table (A2) ion (A3) /larks (B1) nt Deposits (B2)		Water-Sta MLRA Salt Crust Aquatic In Hydrogen	ined Leave 1, 2, 4A, a (B11) vertebrate Sulfide Oo Rhizosphe	and 4B) s (B13) dor (C1) res along	Living Ro	Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C	2,
Saturati Water M Sedime Drift De	ater Table (A2) ion (A3) Marks (B1) int Deposits (B2) iposits (B3)		Water-Sta     MLRA     Salt Crust     Aquatic In     Hydrogen     Oxidized F	ined Leave 1, 2, 4A, a (B11) vertebrate Sulfide Oc Rhizosphe of Reduce	and 4B) s (B13) dor (C1) res along ed Iron (C	Living Ro 4)	Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C ots (C3) Shallow Aquitard (D3)	2,
Saturati Water M Sedime Drift De Algal M Iron De	ater Table (A2) ion (A3) Marks (B1) int Deposits (B2) iposits (B3) at or Crust (B4)		Water-Sta     MLRA     Salt Crust     Aquatic In     Hydrogen     Oxidized F     Presence	ined Leave 1, 2, 4A, a (B11) vertebrate Sulfide Oc Rhizosphe of Reduce on Reducti	and 4B) s (B13) dor (C1) res along ed Iron (C on in Tille	Living Ro 4) ed Soils (C	Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C ots (C3) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5)	2,
Saturati Water M Sedime Drift De Algal M Iron De Surface	ater Table (A2) ion (A3) Marks (B1) int Deposits (B2) iposits (B3) at or Crust (B4) posits (B5)	Imagery (E	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized F Presence Recent Irc Stunted or	ined Leave <b>1, 2, 4A, a</b> (B11) vertebrate Sulfide Oc Rhizosphe of Reduce on Reducti r Stressed	and 4B) s (B13) dor (C1) res along ed Iron (C on in Tille Plants (I	Living Ro 4) ed Soils (C	Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C ots (C3) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5)	2,
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Saturati Water M Sedime Drift De Algal M Iron De Surface Inundat	ater Table (A2) ion (A3) Marks (B1) int Deposits (B2) posits (B3) at or Crust (B4) posits (B5) e Soil Cracks (B6) ion Visible on Aerial ly Vegetated Concav		Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized F Presence Recent Iro Stunted or 37) Other (Exp	ined Leave <b>1, 2, 4A, a</b> (B11) vertebrate Sulfide Oc Rhizosphe of Reduce on Reducti r Stressed	and 4B) s (B13) dor (C1) res along ed Iron (C on in Tille Plants (I	Living Ro 4) ed Soils (C	Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C ots (C3) Geomorphic Position (D2) Shallow Aquitard (D3) (C6) FAC-Neutral Test (D5) (A) Raised Ant Mounds (D6) (LRR A)	2,
Saturati Water N Sedime Drift De Algal M Iron De Surface Inundat Sparsel Field Obset	ater Table (A2) ion (A3) Marks (B1) int Deposits (B2) posits (B3) at or Crust (B4) posits (B5) e Soil Cracks (B6) ion Visible on Aerial ly Vegetated Concav rvations: ter Present?	e Surface	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized F Presence Recent Irc Stunted or 37) Other (Exp (B8)	ined Leave <b>1, 2, 4A, a</b> (B11) vertebrate Sulfide Oc Rhizosphe of Reduce on Reducti r Stressed plain in Re 	and 4B) s (B13) dor (C1) res along ed Iron (C on in Tille Plants (I marks)	Living Ro 4) ed Soils (C D1) ( <b>LRR A</b>	Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C ots (C3) Geomorphic Position (D2) Shallow Aquitard (D3) (C6) FAC-Neutral Test (D5) (A) Raised Ant Mounds (D6) (LRR A)	2,
Saturati Water N Sedime Drift De Algal M Iron De Surface Inundat Sparsel Field Obset	ater Table (A2) ion (A3) Marks (B1) int Deposits (B2) posits (B3) at or Crust (B4) posits (B5) e Soil Cracks (B6) ion Visible on Aerial y Vegetated Concav rvations: ter Present?	e Surface /es /es	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized F Presence Recent Irc Stunted or 37) Other (Exp (B8)	ined Leave <b>1, 2, 4A, a</b> (B11) vertebrate Sulfide Oc Rhizosphe of Reduce on Reduce plain in Reducti ches): ches):	and 4B) s (B13) dor (C1) res along ed Iron (C on in Tille Plants (I marks)	Living Ro 4) ed Soils (C D1) ( <b>LRR 4</b>	Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C ots (C3) Geomorphic Position (D2) Shallow Aquitard (D3) (C6) FAC-Neutral Test (D5) (A) Raised Ant Mounds (D6) (LRR A)	2,
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Saturati     Water N     Sedime     Drift De     Drift De     Algal M     Iron De     Surface     Inundat     Sparsel     Field Obset     Surface Wa Water Table Saturation F     (includes ca	ater Table (A2) ion (A3) Marks (B1) int Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) ion Visible on Aerial ly Vegetated Concav <b>rvations:</b> ter Present? Present? pipillary fringe)	e Surface /es /es /es	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized F Presence Recent Irc Stunted or 37) Other (Ex) (B8) No U Depth (in No Depth (in	ined Leave <b>1, 2, 4A, a</b> (B11) vertebrate Sulfide Oc Rhizosphe of Reduce on Reducti r Stressed plain in Re ches): ches):	and 4B) s (B13) dor (C1) res along ed Iron (C on in Tille Plants (I marks)	Living Ro 4) ed Soils (C D1) (LRR A	Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C ots (C3) Geomorphic Position (D2) Shallow Aquitard (D3) Go FAC-Neutral Test (D5) A) Frost-Heave Hummocks (D7) Called Hydrology Present? Yes No No	2,
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Saturati     Water N     Sedime     Drift De     Drift De     Algal M     Iron De     Surface     Inundat     Sparsel     Field Obset     Surface Wa Water Table Saturation F     (includes ca Describe Re	ater Table (A2) ion (A3) Marks (B1) int Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) ion Visible on Aerial ly Vegetated Concav <b>rvations:</b> ter Present? Present? pipillary fringe)	e Surface /es /es /es	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized F Presence Recent Irc Stunted or 37) Other (Ex) (B8) No U Depth (in No Depth (in	ined Leave <b>1, 2, 4A, a</b> (B11) vertebrate Sulfide Oc Rhizosphe of Reduce on Reducti r Stressed plain in Re ches): ches):	and 4B) s (B13) dor (C1) res along ed Iron (C on in Tille Plants (I marks)	Living Ro 4) ed Soils (C D1) (LRR A	Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C ots (C3) Geomorphic Position (D2) Shallow Aquitard (D3) Go FAC-Neutral Test (D5) A) Frost-Heave Hummocks (D7) Called Hydrology Present? Yes No No	2,
Saturati     Water N     Sedime     Drift De     Drift De     Algal M     Iron De     Surface     Inundat     Sparsel     Field Obset     Surface Wa Water Table Saturation F     (includes ca Describe Re	ater Table (A2) ion (A3) Marks (B1) int Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) ion Visible on Aerial ly Vegetated Concav <b>rvations:</b> ter Present? Present? pipillary fringe)	e Surface /es /es /es	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized F Presence Recent Irc Stunted or 37) Other (Ex) (B8) No U Depth (in No Depth (in	ined Leave <b>1, 2, 4A, a</b> (B11) vertebrate Sulfide Oc Rhizosphe of Reduce on Reducti r Stressed plain in Re ches): ches):	and 4B) s (B13) dor (C1) res along ed Iron (C on in Tille Plants (I marks)	Living Ro 4) ed Soils (C D1) (LRR A	Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C ots (C3) Geomorphic Position (D2) Shallow Aquitard (D3) Go FAC-Neutral Test (D5) A) Frost-Heave Hummocks (D7) Called Hydrology Present? Yes No No	2,
Saturati     Water N     Sedime     Drift De     Drift De     Algal M     Iron De     Surface     Inundat     Sparsel     Field Obset     Surface Wa Water Table Saturation F     (includes ca Describe Re	ater Table (A2) ion (A3) Marks (B1) int Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) ion Visible on Aerial ly Vegetated Concav <b>rvations:</b> ter Present? Present? pipillary fringe)	e Surface /es /es /es	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized F Presence Recent Irc Stunted or 37) Other (Ex) (B8) No U Depth (in No Depth (in	ined Leave <b>1, 2, 4A, a</b> (B11) vertebrate Sulfide Oc Rhizosphe of Reduce on Reducti r Stressed plain in Re ches): ches):	and 4B) s (B13) dor (C1) res along ed Iron (C on in Tille Plants (I marks)	Living Ro 4) ed Soils (C D1) (LRR A	Water-Stained Leaves (B9) (MLRA 1, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C ots (C3) Geomorphic Position (D2) Shallow Aquitard (D3) Go FAC-Neutral Test (D5) A) Frost-Heave Hummocks (D7) Called Hydrology Present? Yes No No	2,

WETLAND DETERMINATION D	ATA FORM -	Western Mour	ntains, Valleys, and Coast Region
Project/Site: 2000 24th Ave NE	City/	County: <u>Oymp</u>	1a/Thurson_ Sampling Date: 1/19/23
Applicant/Owner: RJ Development		· U	State: WA Sampling Point: TP-8
Investigator(s); KAM	Sect	ion, Township, Rar	Ige: TISN RZW SST
Landform (hillslope, terrace, etc.):	Loc	al relief (concave, c	convex, none) CONCAVE Slope (%):
Subregion (LRR):	Lat: 47.00	0846°N	convex, none) <u>Concave</u> Slope (%): <u>9</u> Long: <u>122. 92 73 ° 62</u> Datum: <u>66584</u>
Soil Map Unit Name: Aderiaand Grillelly	Sernly 10	Mina	NWI classification:
Are climatic / hydrologic conditions on the site typical for th			
Are Vegetation, Soil, or Hydrology			Normal Circumstances" present? Yes 1/ No
Are Vegetation, Soil, or Hydrology Are Vegetation, Soil, or Hydrology			eded, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map	o showing sa	mpling point lo	ocations, transects, important features, etc.
	No	Is the Sampled	A.r.o.
	No	within a Wetlan	
Wetland Hydrology Present? Yes Remarks:	No		
Remarks.			
wetlandedge topo & Salal	break		
VEGETATION – Use scientific names of pla			
2.21		minant Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: $3\partial'$ )		ecies? <u>Status</u>	Number of Dominant Species
	<u> </u>		That Are OBL, FACW, or FAC: (A)
2. W. Lod Reday			Total Number of Dominant
3			Species Across All Strata: [] (B)
	- <i>100</i>	otal Cover	Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)
Sapling/Shrub Stratum (Plot size: 101)	<u> </u>	/	Prevalence Index worksheet:
1. D. Spirea	25	Z FACIN	Total % Cover of: Multiply by:
2. ABlackbern	-5	PAY_	OBL species x 1 =
3			FACW species x 2 =
4 5			FAC species x 3 =
	- <u>30</u>	otal Cover	FACU species x 4 =
Herb Stratum (Plot size:)			UPL species x 5 =
1. lady forn	<u> </u>	<u> </u>	Column Totals: (A) (B)
2. <u>Sloven sed ge</u>	<u> </u>	V VBL	Prevalence Index = B/A =
			Hydrophytic Vegetation Indicators:
4			1 - Rapid Test for Hydrophytic Vegetation
5			2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹
7			4 - Morphological Adaptations ¹ (Provide supporting
8			data in Remarks or on a separate sheet)
9			5 - Wetland Non-Vascular Plants ¹
10			Problematic Hydrophytic Vegetation ¹ (Explain)
11			¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 10/	<u>20</u> =T	otal Cover	
1			Hudrophytic
2			Hydrophytic Vegetation
Sa		otal Cover	Present? Yes No
% Bare Ground in Herb Stratum <u>XU</u>			
Remarks:			

Profile Descri	ption: (Describe	to the dep	th needed to docur	nent the i	ndicator	or confiri	m the absence of indicators.)
Depth	Matrix			x Features			
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	_Type ¹	Loc ²	
0-5	104R 32	100					loam_
<u> </u>	04R413	95	104R \$ 16	<u> </u>		<u>M</u>	sitiloam
	centration D=Den	letion RM					arains. ² Location: PL=Pore Lining, M=Matrix.
			LRRs, unless other				Indicators for Problematic Hydric Soils ³ :
Depleted E Thick Dark Sandy Mud	edon (A2) c (A3) Sulfide (A4) Below Dark Surface Surface (A12) cky Mineral (S1)	e (A11)	<ul> <li>Sandy Redox (\$</li> <li>Stripped Matrix</li> <li>Loamy Mucky M</li> <li>Loamy Gleyed I</li> <li>Depleted Matrix</li> <li>Redox Dark Su</li> <li>Depleted Dark \$</li> </ul>	(S6) /lineral (F1 Matrix (F2 (F3) face (F6) Surface (F	)	t MLRA 1)	<ul> <li>Other (Explain in Remarks)</li> <li>³Indicators of hydrophytic vegetation and wetland hydrology must be present,</li> </ul>
	yed Matrix (S4)		Redox Depress	ions (F8)			unless disturbed or problematic.
							Hydric Soil Present? Yes No
-	ology Indicators:			•			
Surface W High Wate Saturation Water Mar	ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4)	ne required	Salt Crust Aquatic Inv Hydrogen 3	ned Leave 1, 2, 4A, a (B11) vertebrates Sulfide Od hizospher of Reduce	nd 4B) s (B13) lor (C1) res along d Iron (C4	Living Roo	<ul> <li><u>Secondary Indicators (2 or more required)</u></li> <li>Water-Stained Leaves (B9) (MLRA 1, 2</li> <li>4A, and 4B)</li> <li>Drainage Patterns (B10)</li> <li>Dry-Season Water Table (C2)</li> <li>Saturation Visible on Aerial Imagery (CS ots (C3)</li> <li>Geomorphic Position (D2)</li> <li>Shallow Aquitard (D3)</li> <li>FAC-Neutral Test (D5)</li> </ul>
Surface Sc	il Cracks (B6) Visible on Aerial I egetated Concave		<ul> <li>Stunted or</li> <li>Other (Exp</li> </ul>	Stressed	Plants (D	•	
Surface Water		96	No Depth (inc	thee).			
Water Table Pr			No Depth (inc				
Saturation Pres			No Depth (inc				land Hydrology Present? Yes
(includes capilla	ary fringe)		pnitoring well, aerial p				
Remarks:							

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

Project/Site: 2000 24th Ave NW	(	City/County	Dra Thurston Sampling Date: 7/19/23
Applicant/Owner: RS Development		0,	State: WA Sampling Point: TP - 9
		Section, Township, Rar	nge: TIEN ROWS57
Landform (hillslope, terrace, etc.):			
Subregion (LRR):	Lat: 47	.06847 °N	Long: 122. 92.735 W Datum: WGS &
Soil Map Unit Name: Alelo rurod cynuellu		1	
Are climatic / hydrologic conditions on the site typical for	i ·	17.	
Are Vegetation, Soil, or Hydrology			all the second se
Are Vegetation, Soil, or Hydrology			eded, explain any answers in Remarks.)
		sampling point le	ocations, transects, important features, etc.
	No	is the Sampled	Area
Hydric Soil Present?     Yes       Wetland Hydrology Present?     Yes		within a Wetlar	
Remarks:			
VEGETATION – Use scientific names of pl	ants.		
	Absolute	Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: <u>30</u> )		<u>Species?</u> <u>Status</u>	Number of Dominant Species 3
1. red alder 2. w. red ledar	$-\frac{60}{20}$	V HR FAC	That Are OBL, FACW, or FAC: (A)
3.		Fro	Total Number of Dominant Species Across All Strata:
۵	,,,	<u></u>	Species Across All Strata: (B)
	90	_ = Total Cover	Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
Sapling/Shrub Stratum (Plot size:)		T That	Prevalence Index worksheet:
1. Sectal	_ <u>zs</u> _		Total % Cover of: Multiply by:
2. Salammberry 3. A. Blackberry		EB-	OBL species x 1 =
3. h. Diace Berry		/ 8° Base	FACW species x 2 =
			FAC species x 3 =
·····	- 85	= Total Cover	FACU species x 4 =
Herb Stratum (Plot size:)			UPL species x 5 =
1. lady fern	_ <u>10</u> _	V HR	Column Totals: (A) (B)
2. Slovich sed se		<u> </u>	Prevalence Index = B/A =
3. <u>Sword fern</u>			Hydrophytic Vegetation Indicators:
4			1 - Rapid Test for Hydrophytic Vegetation
5			2 - Dominance Test is >50%
6 7			$3$ - Prevalence Index is $\leq 3.0^{1}$
8			4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
9			5 - Wetland Non-Vascular Plants ¹
10			Problematic Hydrophytic Vegetation ¹ (Explain)
11			¹ Indicators of hydric soil and wetland hydrology must
10	23	_= Total Cover	be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: / 0/)			
1		·	Hydrophytic Vegetation
2		- Tatal Causa	Present? Yes No
% Bare Ground in Herb Stratum		_= Total Cover	
Remarks:			

## SOIL

Sampling Point:

Profile Descrip	tion: (Describ	e to the de	epth needed to doc	ument the i	ndicator o	r confirm	n the abse	ence of indicators.)
Depth _								
(inches)	Color (moist)	%	Color (moist)	%	Type'	Loc ²	<u> </u>	
0-10-10	DYR 3/2.	_ <u>/\ccc}</u>					loan	<u>n</u>
NL-14 10	54R 4/2	100					Sitt	loam
14-16+	104R4/2	95	101R516		<u> </u>	m	SH	Icam
						<u>/</u>	<u>91</u>	
·								
		<u></u>	<u> </u>					
¹ Type: C=Cond	entration, D=De	pletion, RI	M=Reduced Matrix, (	CS=Covered	I or Coated	Sand Gr	rains.	² Location: PL=Pore Lining, M=Matrix.
Hydric Soil Ind	icators: (Appl	icable to a	ll LRRs, unless oth	erwise note	ed.)		Ind	icators for Problematic Hydric Soils ³ :
Histosol (A	1)		Sandy Redox	(S5)				2 cm Muck (A10)
Histic Epipe			Stripped Matr	. ,				Red Parent Material (TF2)
Black Histic	· · ·		Loamy Mucky	•	, · ·	MLRA 1)		Very Shallow Dark Surface (TF12)
Hydrogen S		00 (011)	Loamy Gleye		)			Other (Explain in Remarks)
	elow Dark Surfa Surface (A12)	ice (ATT)	Depleted Mat Redox Dark S				³ Ind	licators of hydrophytic vegetation and
	ky Mineral (S1)		Depleted Dark	• • •	7)			wetland hydrology must be present,
	red Matrix (S4)		Redox Depres		- /			unless disturbed or problematic.
Restrictive Lay								
Туре:								
Depth (inche	s):						Hydric	Soil Present? Yes No
Remarks:								
dodets	A color	1 IDV	RALANI	redion	= to	vo do	1010	to meet indicator
Cepuit	0 000*	CI	, nga go		/ 10-		ap	
HYDROLOG	(							
Wetland Hydro	logy Indicators	3:						
Primary Indicato	ors (minimum of	one requir	ed; check all that ap	ply)				Secondary Indicators (2 or more required)
Surface Wa	iter (A1)		Water-Si	tained Leave	es (B9) ( <b>ex</b>	cept		Water-Stained Leaves (B9) (MLRA 1, 2,
High Water	Table (A2)		MLR	A 1, 2, 4A, a	nd 4B)			4A, and 4B)
Saturation (	(A3)		Salt Crus	st (B11)				Drainage Patterns (B10)
Water Mark	s (B1)		Aquatic	Invertebrate	s (B13)		_	Dry-Season Water Table (C2)
Sediment D	eposits (B2)		Hydroge	n Sulfide Oc	lor (C1)		_	Saturation Visible on Aerial Imagery (C9)
Drift Depos	. ,				-			Geomorphic Position (D2)
Algal Mat o	• •			e of Reduce				Shallow Aquitard (D3)
Iron Deposi				ron Reductio			-	FAC-Neutral Test (D5)
I —	il Cracks (B6)			or Stressed	• •	) (LRR A)		Raised Ant Mounds (D6) (LRR A)
	Visible on Aeria			xplain in Re	marks)			Frost-Heave Hummocks (D7)
Field Observat	egetated Conca	ve Surface	(66)					
		Voa	No Donth (	inchoc):				
	'ieseni/	res	No Depth (					
Surface Water F		Vaa	Ne Donth /					
Water Table Pre	esent?		No Depth (			1	and Hude	alagu Bracant2 Vac No
	esent? ent?		No Depth (			1	and Hydro	ology Present? Yes No
Water Table Pression Saturation Pression (includes capilla	esent? ent? ıry fringe)	Yes		inches):		_ Wetla		
Water Table Pres Saturation Pres (includes capilla Describe Record	esent? ent? Iry fringe) ded Data (strea	Yes m gauge, r	No Depth (	inches):		_ Wetla		
Water Table Pres Saturation Pres (includes capilla Describe Record	esent? ent? Iry fringe) ded Data (strea	Yes m gauge, r	No Depth (	inches):		_ Wetla		
Water Table Pre Saturation Pres (includes capilla Describe Record	esent? ent? Iry fringe) ded Data (strea	Yes m gauge, r	No Depth (	inches):		_ Wetla		
Water Table Pre Saturation Pres (includes capilla Describe Record	esent? ent? Iry fringe) ded Data (strea	Yes m gauge, r	No Depth (	inches):		_ Wetla		
Water Table Pres Saturation Pres (includes capilla Describe Record	esent? ent? Iry fringe) ded Data (strea	Yes m gauge, r	No Depth (	inches):		_ Wetla		

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

Project/Site: 2000 24 Are NW	_ City/County: Olympia Thurston Sampling Date: 7/19/23
Applicant/Owner: RT Development	State: WA Sampling Point: TP-10
Investigator(s):	_ Section, Township, Range: <u>TI&amp;N_R2WS57</u>
Landform (hillslope, terrace, etc.): hul slope	_ Local relief (concave, convex, none): <u>ハのハレ</u> Slope (%): <u>2 %</u>
Subregion (LRR):	7.008457°N Long: 122.92746°W Datum: WAS 84
Soil Map Unit Name: Alderwood Gravelly Surd	и Joann NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of	¥
Are Vegetation, Soil, or Hydrology significant	ly disturbed? Are "Normal Circumstances" present? Yes No
Are Vegetation, Soil, or Hydrology naturally p	problematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showin	ng sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No	-
Hydric Soil Present? Yes No 🗹	Is the Sampled Area within a Wetland? Yes No
Wetland Hydrology Present? Yes No	within a Wetland? Yes No
Remarks:	

## **VEGETATION – Use scientific names of plants.**

221	Absolute	Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 30/)		Species? Status	Number of Dominant Species 7
1red alder	<u>3D</u>	MAC	That Are OBL, FACW, or FAC: (A)
2			Total Number of Deminent
3			Total Number of Dominant Species Across All Strata: (B)
4.	•	······	
	30	= Total Cover	Percent of Dominant Species
Sapling/Shrub Stratum (Plot size: 10')			That Are OBL, FACVV, or FAC: (A/B)
1. red alder	ID	FA	Prevalence Index worksheet:
2 beaked hazlenut	70	FAU	Total % Cover of: Multiply by:
		FAR.	OBL species x 1 =
3. Calmonberry	10		FACW species x 2 =
4. Solal	10	FACU	FAC species x 3 =
5. D. Spirea	10	FAc	
·	IIO	= Total Cover	FACU species x 4 =
Herb Stratum, (Plot size:)			UPL species x 5 =
1. lady fern	10	FAC	Column Totals: (A) (B)
2. dear Fern	60	V FAC	Prevalence Index = B/A =
3. Sword Fern		FACU	Hydrophytic Vegetation Indicators:
4			
			1 - Rapid Test for Hydrophytic Vegetation
5			2 - Dominance Test is >50%
6			3 - Prevalence Index is ≤3.0 ¹
7			4 - Morphological Adaptations ¹ (Provide supporting
8			data in Remarks or on a separate sheet)
9			5 - Wetland Non-Vascular Plants ¹
10		<u> </u>	Problematic Hydrophytic Vegetation ¹ (Explain)
11			¹ Indicators of hydric soil and wetland hydrology must
1	75	= Total Cover	be present, unless disturbed or problematic.
<u>Woody Vine Stratum</u> (Plot size: $12^{\prime}$ )		-	
1		<u> </u>	Hydrophytic
2			Vegetation
-	-0-	= Total Cover	Present? Yes V No
% Bare Ground in Herb Stratum			
Remarks:			

US Army Corps of Engineers

## SOIL

## Sampling Point: <u>TP-10</u>

Profile Description: (Describe to the depth needed to document the indicator or cont	firm the absence of indicators.)					
Depth Matrix Redox Features						
(inches) Color (moist) % Color (moist) % Type ¹ Loc ²	² <u>Texture</u> <u>Remarks</u>					
0-11 104R312 160	- SH loom					
11-15+ 104R 412 100	- Silt loan					
	<u>SH1000001</u>					
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand	d Grains. ² Location: PL=Pore Lining, M=Matrix.					
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :					
Histosol (A1) Sandy Redox (S5)	2 cm Muck (A10)					
Histic Epipedon (A2) Stripped Matrix (S6)	Red Parent Material (TF2)					
Black Histic (A3) Loamy Mucky Mineral (F1) (except MLRA	A 1) Very Shallow Dark Surface (TF12)					
Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2)	Other (Explain in Remarks)					
Depleted Below Dark Surface (A11) Depleted Matrix (F3)						
Thick Dark Surface (A12) Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and					
Sandy Mucky Mineral (S1) Depleted Dark Surface (F7)	wetland hydrology must be present,					
Sandy Gleyed Matrix (S4) Redox Depressions (F8)	unless disturbed or problematic.					
Restrictive Layer (if present):						
Туре:						
Depth (inches):	Hydric Soil Present? Yes No/					
Remarks:						
	C. 1. 100. C					
HYDROLOGY						
Wetland Hydrology Indicators:						
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)					
Surface Water (A1) Water-Stained Leaves (B9) (except	Water-Stained Leaves (B9) (MLRA 1, 2,					
High Water Table (A2) MLRA 1, 2, 4A, and 4B)	4A, and 4B)					
Saturation (A3) Salt Crust (B11)	Drainage Patterns (B10)					
Water Marks (B1) Aquatic Invertebrates (B13)	Dry-Season Water Table (C2)					
Sediment Deposits (B2) Hydrogen Sulfide Odor (C1)	Saturation Visible on Aerial Imagery (C9)					
Drift Deposits (B3) Oxidized Rhizospheres along Living I	Roots (C3) Geomorphic Position (D2)					
Algal Mat or Crust (B4) Presence of Reduced Iron (C4)	Shallow Aquitard (D3)					
Iron Deposits (B5) Recent Iron Reduction in Tilled Soils	(C6) FAC-Neutral Test (D5)					
Surface Soil Cracks (B6) Stunted or Stressed Plants (D1) (LRI	R A) Raised Ant Mounds (D6) (LRR A)					
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks)	Frost-Heave Hummocks (D7)					
Sparsely Vegetated Concave Surface (B8)						
Field Observations:						
Surface Water Present? Yes No Depth (inches):						
Water Table Present? Yes No Depth (inches):						
	Vetland Hydrology Present? Yes No					
(includes capillary fringe)						
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspection	ns), if available:					
Remarks:						
No in his for stars of						
No indicators observed						

## Appendix D Wetland Rating Forms

## **RATING SUMMARY – Western Washington**

Name of wetland (or ID #):	Wetland A		Date of site visit:	10/25/2022			
Rated by K. McArthur and N	I. Dietsch	Trained by Ecology? I Yes No	Date of training	Mar-21			
HGM Class used for rating	Depressional & Flats	Wetland has multip	le HGM classes? 🗌	Yes 🕢 No			
<b>NOTE: Form is not complete with out the figures requested</b> ( <i>figures can be combined</i> ). Source of base aerial photo/map							
<b>OVERALL WETLAND CATEGORY III</b> (based on functions <b>I</b> or special characteristics <b>I</b> )							
1. Category of wetland	I based on FUNCTI	ONS					
	Category I - Total sc	ore = 23 - 27	Score for each				
	<b>Category II -</b> Total se	core = 20 - 22	function based				

	_ <b>Calegory II -</b> 10(al Score - 20 - 22
Х	Category III - Total score = 16 - 19
	Category IV - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List app	ropriate rating	g (H, M, L)	
Site Potential	Н	М	М	
Landscape Potential	М	М	L	
Value	Н	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

## 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	H 2.1, H 2.2, H 2.3	4
polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	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	H 2.1, H 2.2, H 2.3	
polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

## 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	H 2.1, H 2.2, H 2.3	
polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	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	S 4.1	
(can be added to another figure )		
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	H 2.1, H 2.2, H 2.3	
polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	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 Classificat	ion of Wetland in Western Washington
If hydrologic criteria listed in each quest	d must apply to the entire unit being rated. tion do not apply to the entire unit being rated, you probably have a unit , identify which hydrologic criteria in questions 1 - 7 apply, and go to
1. Are the water levels in the entire unit	t usually controlled by tides except during floods?
✓ NO - go to 2	☐ <b>YES -</b> the wetland class is <b>Tidal Fringe -</b> go to 1.1
1.1 Is the salinity of the water dur	ing periods of annual low flow below 0.5 ppt (parts per thousand)?
-	ed as a Freshwater Tidal Fringe use the forms for <b>Riverine</b> wetlands. It is an <b>Estuarine</b> wetland and is not scored. This method <b>cannot</b> be
2. The entire wetland unit is flat and pre Groundwater and surface water runoff a	cipitation is the only source (>90%) of water to it. are NOT sources of water to the unit.
☑ NO - go to 3 If your wetland can be classifi	☐ <b>YES -</b> The wetland class is <b>Flats</b> ed as a Flats wetland, use the form for <b>Depressional</b> wetlands.
plants on the surface at any ti	of the following criteria? land is on the shores of a body of permanent open water (without any me of the year) at least 20 ac (8 ha) in size; er area is deeper than 6.6 ft (2 m).
☑ NO - go to 4	☐ <b>YES</b> - The wetland class is <b>Lake Fringe</b> (Lacustrine Fringe)
	ope can be very gradual ), vetland in one direction (unidirectional) and usually comes from seeps. It vtflow, or in a swale without distinct banks.
☑ NO - go to 5	☐ YES - The wetland class is Slope
	these type of wetlands except occasionally in very small and shallow ressions are usually <3 ft diameter and less than 1 ft deep).
5. Does the entire wetland unit <b>meet all</b> ☐ The unit is in a valley, or stread from that stream or river, ☐ The overbank flooding occurs	am channel, where it gets inundated by overbank flooding
☑ 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.

3

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.* 

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

□ NO - go to 8 □ YES - The wetland class is Depressional

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

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

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

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

NOTES and FIELD OBSERVATIONS:

DEPRESSIONAL AND FLATS WETLA	NDS	
Water Quality Functions - Indicators that the site functions to im	prove water quality	
D 1.0. Does the site have the potential to improve water quality?		
D 1.1. Characteristics of surface water outflows from the wetland:		
Wetland is a depression or flat depression (QUESTION 7 on key)		
with no surface water leaving it (no outlet).	points = 3	
Wetland has an intermittently flowing stream or ditch, OR highly		
constricted permanently flowing outlet.	points = 2	3
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. <u>The soil 2 in below the surface (or duff layer)</u> is true clay or true organic		0
(use NRCS definitions).	Yes = 4 No = 0	
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shi	rub, and/or	
Forested Cowardin classes):		
Wetland has persistent, ungrazed, plants > 95% of area	points = 5	5
Wetland has persistent, ungrazed, plants > $\frac{1}{2}$ of area	points = 3	5
Wetland has persistent, ungrazed plants $> \frac{1}{10}$ of area	points = 1	
Wetland has persistent, ungrazed plants $< \frac{1}{10}$ 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 i	n manual.	
Area seasonally ponded is > $\frac{1}{2}$ total area of wetland	points = 4	4
Area seasonally ponded is $> \frac{1}{4}$ total area of wetland	points = 2	
Area seasonally ponded is $< \frac{1}{4}$ total area of wetland	points = 0	
	in the boxes above	12

Rating of Site Potential If score is:  $\boxed{2}$  12 - 16 = H  $\boxed{6}$  - 11 = M  $\boxed{0}$  - 5 = L Record the rating on the first page

D 2.0. Does the landscape have the potential to support the wa	ter quality function of the si	te?	
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 u	uses that		1
generate pollutants?	Yes = 1	No = 0	I
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 we	land 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 boxe	s above	1

Rating of Landscape Potential If score is: 3 or 4 = H I I 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?	I		
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river,			0
lake, or marine water that is on the 303(d) list?	Yes = 1	No = 0	Ũ
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the	e 303(d) lis	t?	1
	Yes = 1	No = 0	I
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			2
which the unit is found)?	Yes = 2	No = 0	
Total for D 3 Add the points i	n the boxe	s above	3
Rating of Value If score is: $\boxed{2} \cdot 4 = H$ $\boxed{1} = M$ $\boxed{0} = L$			the first page

DEPRESSIONAL AND FLATS WETLANDS	
Hydrologic Functions - Indicators that the site functions to reduce flooding and stream of	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	f
the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, t	he
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	
D 4.3. Contribution of the wetland to storage in the watershed: Estimate the ratio of the area of	
upstream basin contributing surface water to the wetland to the area of the wetland unit itself.	
The area of the basin is less than 10 times the area of the unit points	= 5
The area of the basin is 10 to 100 times the area of the unit points	= 3
The area of the basin is more than 100 times the area of the unit points	= 0
Entire wetland is in the Flats class points	= 5
Total for D 4 Add the points in the boxes ab	ove 7
<b>Rating of Site Potential</b> If score is: $\Box$ 12 - 16 = H $\Box$ 6 - 11 = M $\Box$ 0 - 5 = L Record the ratin	
	g on the first page
D 5.0. Does the landscape have the potential to support hydrologic function of the site?	g 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	g on the first page = 0 0 f2
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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 D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runof Yes = 1 No 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 Total for D 5 Add the points in the boxes ab Rating of Landscape Potential If score is: 3 = H ✓ 1 or 2 = M 0 = L Record the rating 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 highes score if more than one condition is met. The wetland captures surface water that would otherwise flow down-gradient into are where flooding has damaged human or natural resources (e.g., houses or salmon redds ● Flooding occurs in a sub-basin that is immediately down-	g on the first page = 0   0   0   0   0   0   0   0   0   0
<ul> <li>D 5.0. Does the landscape have the potential to support hydrologic function of the site?</li> <li>D 5.1. Does the wetland unit receive stormwater discharges? Yes = 1 No</li> <li>D 5.2. Is &gt; 10% of the area within 150 ft of the wetland in land uses that generate excess runof Yes = 1 No</li> <li>D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at &gt;1 residence/ac, urban, commercial, agriculture, etc.)?</li> <li>Yes = 1 No</li> <li>Total for D 5</li> <li>Add the points in the boxes ab</li> <li>Rating of Landscape Potential If score is: 3 = H ✓ 1 or 2 = M 0 = L Record the ratin</li> <li>D 6.0. Are the hydrologic functions provided by the site valuable to society?</li> <li>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 highes score if more than one condition is met.</li> <li>The wetland captures surface water that would otherwise flow down-gradient into are where flooding has damaged human or natural resources (e.g., houses or salmon redds of unit.</li> </ul>	g on the first page = 0 0 f? 1 = 0 0 ove 1 g on the first page st as s): = 2
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         D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runof Yes = 1       No         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         Total for D 5       Add the points in the boxes ab         Rating of Landscape Potential If score is:       3 = H       I or 2 = M       0 = L       Record the ratin         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 highes score if more than one condition is met.         The wetland captures surface water that would otherwise flow down-gradient into are 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         • Surface flooding problems are in a sub-basin farther down-       •	$\begin{array}{c c} g \text{ on the first page} \\ \hline g \text{ on the first page} \\ \hline \\ = 0 & 0 \\ \hline \\ g \text{ on the first page} \\ \hline \\ \hline \\ g \text{ on the first page} \\ \hline \\ \hline \\ g \text{ on the first page} \\ \hline \\ \hline \\ g \text{ on the first page} \\ \hline \\ \hline \\ g \text{ on the first page} \\ \hline \\ \hline \\ \hline \\ g \text{ on the first page} \\ \hline \\ \hline \\ \hline \\ g \text{ on the first page} \\ \hline \\ \hline \\ \hline \\ g \text{ on the first page} \\ \hline \\ \hline \\ \hline \\ g \text{ on the first page} \\ \hline \\ \hline \\ \hline \\ g \text{ on the first page} \\ \hline \\ \hline \\ \hline \\ g \text{ on the first page} \\ \hline \\ \hline \\ \hline \\ \hline \\ g \text{ on the first page} \\ \hline \\ \hline \\ \hline \\ \hline \\ g \text{ on the first page} \\ \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ g \text{ on the first page} \\ \hline \\ \hline \\ \hline \\ \hline \\ g \text{ on the first page} \\ \hline \\ \hline \\ \hline \\ \hline \\ g \text{ on the first page} \\ \hline \\ \hline \\ \hline \\ \hline \\ g \text{ on the first page} \\ \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ g \text{ on the first page} \\ \hline \\ $
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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.	
<ul> <li>Aquatic bed</li> <li>Emergent</li> <li>Scrub-shrub (areas where shrubs have &gt; 30% cover)</li> <li>Forested (areas where trees have &gt; 30% cover)</li> <li>Istructures: points = 0</li> <li>If the unit has a Forested class, check if:</li> <li>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</li> </ul>	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 ( <i>see text for descriptions of</i> <i>hydroperiods</i> ).	
<ul> <li>Permanently flooded or inundated</li> <li>Seasonally flooded or inundated</li> <li>Seasonally flooded or inundated</li> <li>Occasionally flooded or inundated</li> <li>Saturated only</li> <li>Permanently flowing stream or river in, or adjacent to, the wetland</li> <li>Seasonally flowing stream in, or adjacent to, the wetland</li> <li>Lake Fringe wetland</li> <li>4 or more types present: points = 3 3 types present: points = 2 2 types present: points = 1 1 types present: points = 0</li> <li>Permanently flowing stream or river in, or adjacent to, the wetland</li> <li>Seasonally flowing stream in, or adjacent to, the wetland</li> </ul>	1
Image wettand       2 points         Image wettand       2 points <td< td=""><td></td></td<>	
have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle	2
If you counted: > 19 species points = 2 5 - 19 species points = 1 < 5 species points = 0	
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. <i>If you have four or more plant classes or three classes and open</i> <i>water, the rating is always high.</i>	
	1
None = 0 pointsLow = 1 pointModerate = 2 points	
All three diagrams in this row are HIGH = 3 points	

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

U.2.0. Deep the landscene have the notential to support the hel	vitet function of the site?	
H 2.0. Does the landscape have the potential to support the hat		
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%	
lf total accordible, babitat is.		0
If total accessible habitat is:		0
> ¹ / ₃ (33.3%) of 1 km Polygon	points = 3	
20 - 33% of 1 km Polygon	points = 2	
10 - 19% of 1 km Polygon	points = 1	
< 10 % of 1 km Polygon	points = 0	
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%	
		2
Undisturbed habitat > 50% of Polygon	points = 3	-
Undisturbed habitat 10 - 50% and in 1-3 patches	points = 2	
Undisturbed habitat 10 - 50% and > 3 patches	points = 1	
Undisturbed habitat < 10% of 1 km Polygon	points = 0	
H 2.3 Land use intensity in 1 km Polygon: If		
> 50% of 1 km Polygon is high intensity land use	points = (-2)	-2
≤ 50% of 1km Polygon is high intensity	points = 0	
Total for H 2	Add the points in the boxes above	0

Rating of Landscape Potential If Score is: 4 - 6 = H 1 - 3 = M 2 < 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 police	cies? Choose	
only the highest score that applies to the wetland being rated.		
Site meets ANY of the following criteria:	points = 2	
☐ It has 3 or more priority habitats within 100 m (see next page)		
It provides habitat for Threatened or Endangered species (any	plant	
or animal on the state or federal lists)		
It is mapped as a location for an individual WDFW priority specified	cies	0
It is a Wetland of High Conservation Value as determined by the second secon	ne	0
Department of Natural Resources		
It has been categorized as an important habitat site in a local of	or	
regional comprehensive plan, in a Shoreline Master Plan, or in	а	
watershed plan		
Site has 1 or 2 priority habitats (listed on next page) with in 100m	points = 1	
Site does not meet any of the criteria above	points = 0	
Rating of Value       If Score is:       I       I       I       I       I       I       Ref	ecord the rating on	the first page

## **WDFW Priority Habitats**

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

http://wdfw.wa.gov/publications/00165/wdfw00165.pdf_or access the list from here: http://wdfw.wa.gov/conservation/phs/list/

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

- Aspen Stands: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- □ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.
- Old-growth/Mature forests: Old-growth west of Cascade crest Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- □ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 see web link above*).
- **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.

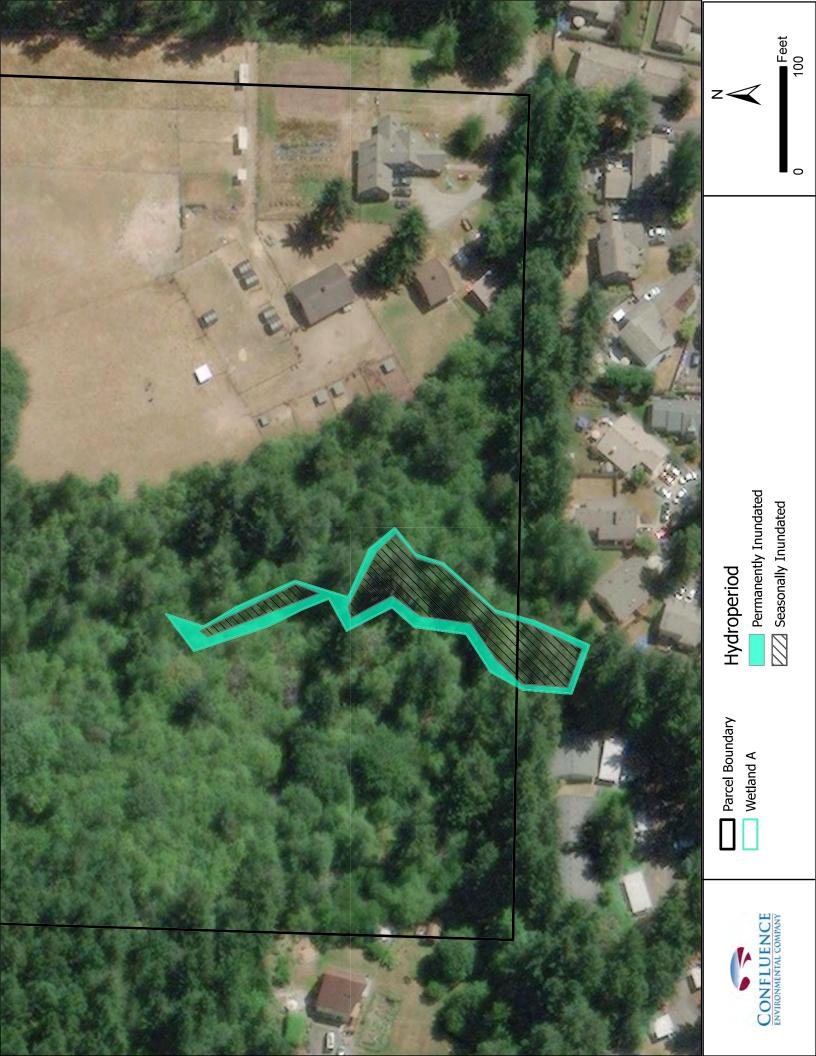
## **CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

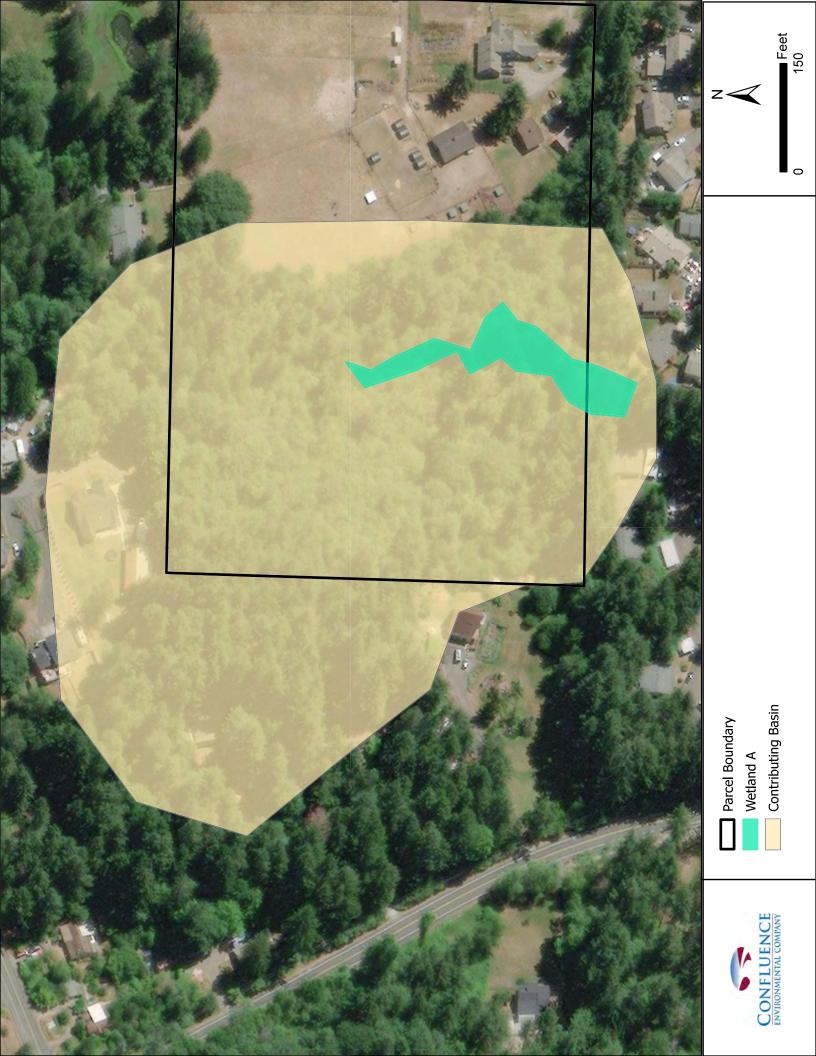
Wetland	Туре	Category	
	any criteria that apply to the wetland. List the category when the appropriate criteria are met.		
SC 1.0. I	Estuarine Wetlands		
	Does the wetland meet the following criteria for Estuarine wetlands?		
	The dominant water regime is tidal,		
	Vegetated, and		
	With a salinity greater than 0.5 ppt		
SC 1.1.	☐ Yes - Go to SC 1.1         ☑ No = Not an estuarine wetland           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?		
	$\Box \text{ Yes} = \text{Category I} \qquad \Box \text{ No - Go to SC 1.2}$		
SC 1.2.	Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?		
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing,		
	and has less than 10% cover of non-native plant species. (If non-native species are		
	Spartina, see page 25)		
	At least ³ / ₄ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-		
	grazed or un-mowed grassland.		
	The wetland has at least two of the following features: tidal channels, depressions with		
	open water, or contiguous freshwater wetlands.		
	□ Yes = Category I □ No = Category II		
SC 2.0. \	Vetlands of High Conservation Value (WHCV)		
SC 2.1.	Has the WA Department of Natural Resources updated their website to include the list		
	of Wetlands of High Conservation Value?		
	✓ Yes - Go to SC 2.2 No - Go to SC 2.3		
SC 2.2.	5		
	□ Yes = Category I		
SC 2.3.			
	http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf		
	□ Yes - Contact WNHP/WDNR and to SC 2.4 □ No = Not WHCV		
SC 2.4.	Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation		
	Value and listed it on their website?		
00.0.0	□ Yes = Category I □ No = Not WHCV		
SC 3.0. I	Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation		
	in bogs? Use the key below. If you answer YES you will still need to rate the		
	wetland based on its functions.		
SC 3.1.	Does an area within the wetland unit have organic soil horizons, either peats or mucks,		
00 5.1.	that compose 16 in or more of the first 32 in of the soil profile?		
	☐ Yes - Go to SC 3.3		
SC 3.2.	Does an area within the wetland unit have organic soils, either peats or mucks, that are		
000.2.	less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic		
	ash, or that are floating on top of a lake or pond?		
	□ Yes - Go to SC 3.3		
SC 3.3.	Does an area with peats or mucks have more than 70% cover of mosses at ground		
	level, AND at least a 30% cover of plant species listed in Table 4?		
	□ Yes = Is a Category I bog □ No - Go to SC 3.4		
	NOTE: If you are uncertain about the extent of mosses in the understory, you may		
	substitute that criterion by measuring the pH of the water that seeps into a hole dug at		
	least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present,		
	the wetland is a bog.		
SC 3.4.	Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir,		
	western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann		
	spruce, or western white pine, AND any of the species (or combination of species) listed		
	in Table 4 provide more than 30% of the cover under the canopy?		
	□ Yes = Is a Category I bog □ No = Is not a bog		

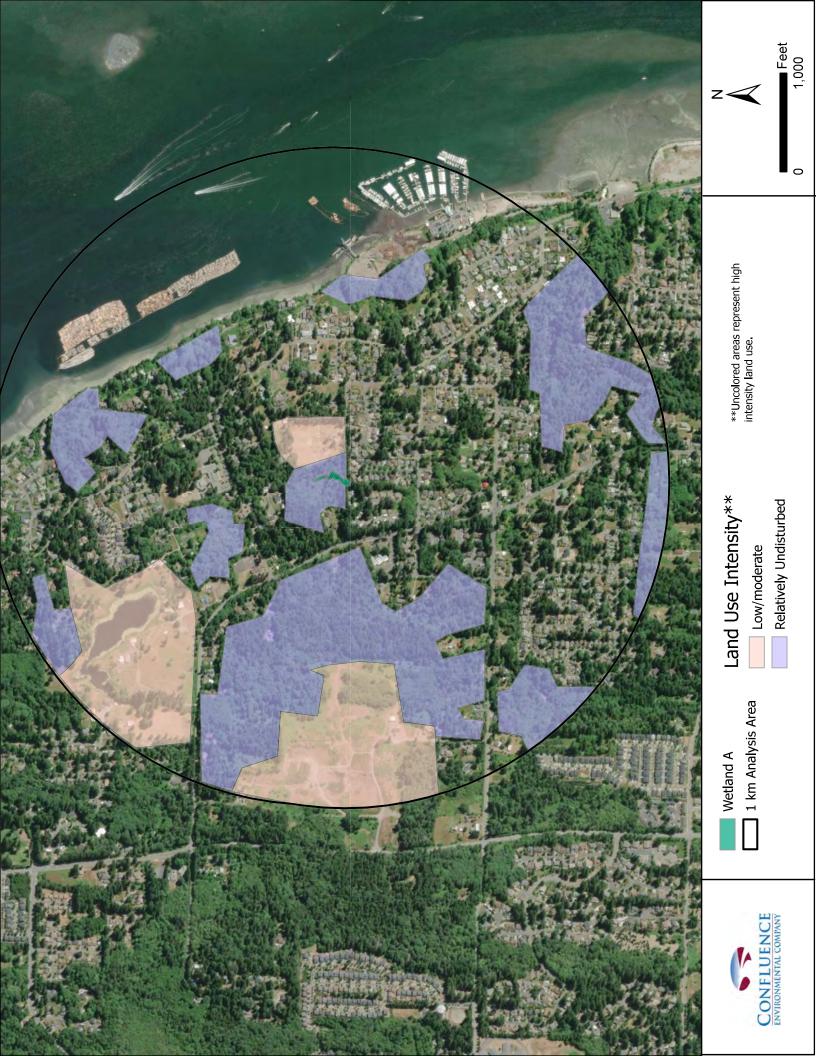
Wetland name or number A

SC 4 0 F	Forested Wetlands	
00 4.0.1	Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these	
	criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you</i>	
	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 Ves = No = Not a forested wetland for this section	
SC 5.0. \	Netlands 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 Wo = 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 ³ / ₄ 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 )	
50601	□ Yes = Category I □ No = Category II □ No = Category II	
30 0.0.1	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	
	$\Box$ Yes - Go to SC 6.1 $\Box$ 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)?	
	$\Box \text{ Yes} = \text{Category I} \qquad \Box \text{ No} - \text{Go to SC 6.2}$	
SC 6.2.	Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?	
	$\Box \text{ Yes} = \text{Category II} \qquad \Box \text{ No} - \text{Go to SC 6.3}$	
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	
	y of wetland based on Special Characteristics	
If you an	swered No for all types, enter "Not Applicable" on Summary Form	

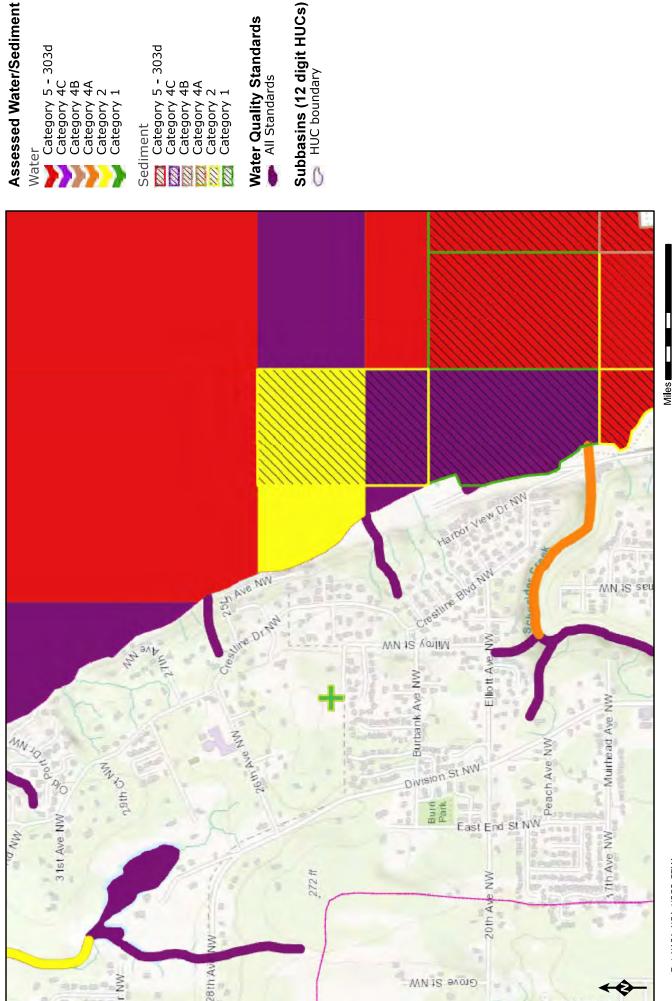








## WQA 303(d)





0.4

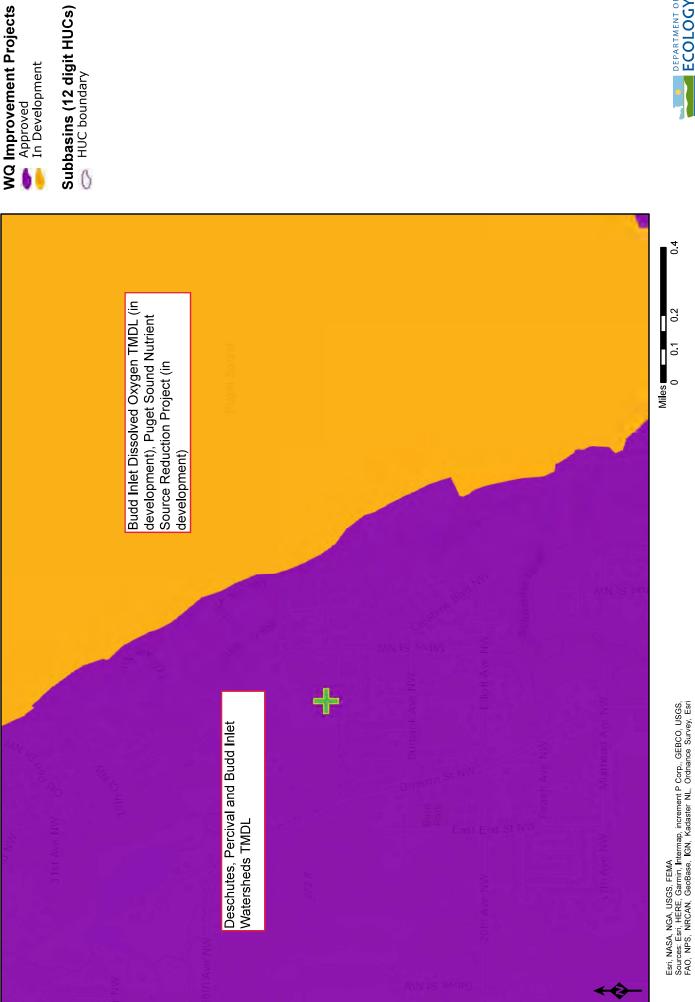
0.2

0.1

0

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

# WQA TMDLs





0.4

0.2

## **RATING SUMMARY – Western Washington**

Name of wetland (or ID #):	Wetland B				Date of site visit:	7/19/	2023
Rated by A. Michniak & K. M	<b>Ic</b> Arthur	Trained by Ecology?	⊠ Yes□	No	Date of training	3/23 8	3 6/16
HGM Class used for rating	Depressional & Flats	Wetl	and has n	nultipl	e HGM classes?□	Yes 🛛	No
NOTE: Form is no	ot complete with out	t the figures request	ed (figure	es car	be combined ).		

Source of base aerial photo/map Esri, Maxar, Earthstat Geographics

OVERALL WETLAND CATEGORY _____ (based on functions^{III} or special characteristics^{III} )

## 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 app	ropriate rating	1 (H, M, L)	
Site Potential	Н	L	L	
Landscape Potential	М	М	L	
Value	Н	L	L	Tota
Score Based on Ratings	8	4	3	15

Score for each
function based
on three
ratings
(order of ratings
is not
important)
9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

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

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

## Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	1
Hydroperiods	D 1.4, H 1.2	2
Location of outlet (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	H 2.1, H 2.2, H 2.3	
polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

## 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	H 2.1, H 2.2, H 2.3	
polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	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	S 4.1	
(can be added to another figure )		
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	H 2.1, H 2.2, H 2.3	
polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	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	HGM class to
being rated	use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream	Depressional
within boundary of depression	
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other	Treat as
class of freshwater wetland	ESTUARINE

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

NOTES and FIELD OBSERVATIONS:

DEPRESSIONAL AND FLATS WETLANDS	
Water Quality Functions - Indicators that the site functions to improve water	quality
D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the welland:	
Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). poin Wetland has an intermittently flowing stream or ditch, OR highly	nts = 3
constricted permanently flowing outlet. point	nts = 2 3
<ul> <li>Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing</li> <li>point</li> </ul>	its = 1
<ul> <li>Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch.</li> </ul>	its = 1
D 1.2. <u>The soil 2 in below the surface (or duff layer)</u> is true clay or true organic ( <i>use NRCS definitions</i> ). Yes = 4	No = 0
D 1.3. <u>Characteristics and distribution of persistent plants</u> (Emergent, Scrub-shrub, and/or Forested Cowardin classes):	
Wetland has persistent, ungrazed, plants > 95% of area point	nts = 5
Wetland has persistent, ungrazed, plants > ½ of area point	nts = 3 5
Wetland has persistent, ungrazed plants > ¹ / ₁₀ of area point	nts = 1
Wetland has persistent, ungrazed plants < ¹ / ₁₀ of area point	nts = 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 > 1/2 total area of wetland point	nts = 4 4
	nts = 2
Area seasonally ponded is < ¼ total area of wetland point	nts = 0
Total for D 1 Add the points in the boxes	above 12

Rating of Site Potential If score is: 2 12-16 = H 2 6-11 = M 2 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 generate pollutants?	l uses that 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 w 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 boxe	s above	1

Rating of Landscape Potential If score is 3 or 4 = H a 1 or 2 = M 0 = LRecord 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 ( <i>answer YES if there is a TMDL for the basin in</i> <i>which the unit is found</i> )? Yes = 2 No = 0	2	
Total for D 3 Add the points in the boxes above	3	
Rating of Value If score is:       2 - 4 = H       1 = M       0 = L       Record the rating on	the first page	

	DEPRESSIONAL AND FLATS WETLANDS	S	
Hydr	rologic Functions - Indicators that the site functions to reduce flooding an	d stream degra	dation
0 4.0. Do	es the site have the potential to reduce flooding and erosion?		
0 4.1. Ch	aracteristics 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	
	pth of storage during wet periods: Estimate the height of ponding above the		
he outlet	. For wetlands with no outlet, measure from the surface of permanent wate	er or if dry,	
the deepe	est 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	
0 4.3. <u>Co</u>	ntribution 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	0
	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	<u> </u>
Total for I	D 4 Add the points in the	boxes above	4

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?	1
Yes = 1 No = 0	I
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.)?	0
Yes = 1 No = 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

	and the second s
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 wettand captures surface water that would otherwise now down-gradient into	
areas where flooding has damaged human or natural resources (e.g., houses or salmon	
radde).	
<ul> <li>Flooding occurs in a sub-basin that is immediately down-</li> </ul>	
gradient of unit. points = 2	0
<ul> <li>Surface flooding problems are in a sub-basin farther</li> </ul>	0
down-gradient. points = 1	
Flooding from groundwater is an issue in the sub-basin.	
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	0
conveyance in a regional flood control plan? Yes = 2 No = 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: <i>Indicators are Cowardin classes and strata within the Forested class</i> . Check the Cowardin plant classes in the wetland. Up to 10 patches may be combined for each class to meet the threshold of 1⁄4 ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.	
<ul> <li>Aquatic bed</li> <li>Emergent</li> <li>Scrub-shrub (areas where shrubs have &gt; 30% cover)</li> <li>Forested (areas where trees have &gt; 30% cover)</li> <li>Istructure: points = 0</li> <li>If the unit has a Forested class, check if:</li> <li>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</li> </ul>	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 ( <i>see text for descriptions of</i> <i>hydroperiods</i> ).	
<ul> <li>Permanently flooded or inundated 4 or more types present: points = 3</li> <li>Seasonally flooded or inundated 3 types present: points = 2</li> <li>Occasionally flooded or inundated 2 types present: points = 1</li> <li>Saturated only 1 types present: points = 0</li> <li>Permanently flowing stream or river in, or adjacent to, the wetland</li> <li>Seasonally flowing stream in, or adjacent to, the wetland</li> <li>Lake Fringe wetland 2 points</li> </ul>	1
Image: Freshwater tidal wetland2 pointsH 1.3. Richness of plant speciesCount 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	1
If you counted: > 19 species points = 2 5 - 19 species points = 1 < 5 species points = 0	
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. <i>If you have four or more plant classes or three classes and</i> <i>open water, the rating is always high.</i> None = 0 points Low = 1 point Moderate = 2 points All three diagrams	0
in this row are HIGH = 3 points	

	Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) Standing snags (dbh > 4 in) within the wetland Undercut banks are present for at least 6.6 ft (2 m) <b>and/or</b> overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present ( <i>cut</i> <i>shrubs or trees that have not yet weathered where wood is exposed</i> ) At reast 74 ac or unit-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated ( <i>structures for egg-laying by</i> <i>amphibians</i> ) Invasive plants cover less than 25% of the wetland area in every stratum of plants	2
۵		
Total for	H 1 Add the points in the boxes above	5

Rating of Site Potential If Score is: D 15 - 18 = H D 7 - 14 = M D 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	of the site?	
H 2.1 Accessible habitat (include only habitat that directly abuts wetland unit	).	
Calculate:	,	
1 % undisturbed habitat + ( 1 % moderate & low intensity lar	nd uses / 2 ) = 1.5%	
· · · · · · · · · · · · · · · · · · ·	,,	
If total accessible habitat is:		0
> ¹ / ₃ (33.3%) of 1 km Polygon	points = 3	
20 - 33% of 1 km Polygon	points $= 2$	
10 - 19% of 1 km Polygon	points = $1$	
< 10 % of 1 km Polygon	points = $0$	
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.		
Calculate:		
21 % undisturbed habitat + (1 % moderate & low intensity lar	nd uses / 2 ) = 26.5%	
		2
Undisturbed habitat > 50% of Polygon	points = 3	2
Undisturbed habitat 10 - 50% and in 1-3 patches	points = $2$	
Undisturbed habitat 10 - 50% and > 3 patches	points = 1	
Undisturbed habitat < 10% of 1 km Polygon	points = 0	
H 2.3 Land use intensity in 1 km Polygon: If		
> 50% of 1 km Polygon is high intensity land use	points = $(-2)$	-2
≤ 50% of 1km Polygon is high intensity	points = 0	
Total for H 2 Add the points	in the boxes above	0

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

H 3.0. Is the habita	at provided by the site valuable to society?		
H 3.1. Does the sit	te provide habitat for species valued in laws, regulations, o	r policies? Choose	
only the highest so	core that applies to the wetland being rated .		
Site mee	ts ANY of the following criteria:	points = 2	
	It has 3 or more priority habitats within 100 m (see next pa	age)	
	It provides habitat for Threatened or Endangered species	(any	
	plant or animal on the state or federal lists)		
	It is mapped as a location for an individual WDFW priority	species	0
	It is a Wetland of High Conservation Value as determined	by the	0
	Department of Natural Resources		
	It has been categorized as an important habitat site in a lo	ocal or	
	regional comprehensive plan, in a Shoreline Master Plan,	or in a	
	watershed plan		
Site has	1 or 2 priority habitats (listed on next page) with in 100m	points = 1	
Site does	s not meet any of the criteria above	points = 0	
Rating of Value If S	Score is:□ 2 = H □ 1 = M □ 0 = L	Record the rating on	the first page

## **WDFW Priority Habitats**

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

http://wdfw.wa.gov/publications/00165/wdfw00165.pdf_or access the list from here: http://wdfw.wa.gov/conservation/phs/list/

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

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

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

## **CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

Wetland	Type	Category
Check of	f any criteria that apply to the wetland. List the category when the appropriate criteria are met.	
	Estuarine Wetlands	
	Does the wetland meet the following criteria for Estuarine wetlands?	
	The dominant water regime is tidal,	
	Vegetated, and	
	With a salinity greater than 0.5 ppt	
	Yes - Go to SC 1.1 No = Not an estuarine wetland	
SC 1.1.	Is the wetland within a National Wildlife Refuge, National Park, National Estuary	
	Reserve, Natural Area Preserve, State Park or Educational, Environmental, or	
	Scientific Reserve designated under WAC 332-30-151?	
	Yes = Category I No - Go to SC 1.2	-
SC 1.2.		
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation,	
	grazing, and has less than 10% cover of non-native plant species. (If non-native	
	species are Spartina , see page 25)	
	At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or	-
	un-grazed or un-mowed grassland.	
	The wetland has at least two of the following features: tidal channels, depressions with	
	open water, or contiguous freshwater wetlands.	
00.00	Yes = Category I     No = Category II     No = Category II	
SC 2.0. SC 2.1.	Wetlands of High Conservation Value (WHCV) Has the WA Department of Natural Resources updated their website to include the list	
30 2.1.	of Wetlands of High Conservation Value?	
	I Yes - Go to SC 2.2 □ No - Go to SC 2.3	
SC 2.2.		
00 2.2.	□ Yes = Category I □ No = Not WHCV	
SC 2.3.		
	http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf	
	Yes - Contact WNHP/WDNR and to SC 2.4 No = Not WHCV	
SC 2.4.		
	Value and listed it on their website?	
	Yes = Category I No = Not WHCV	
SC 3.0.	•	
	Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation	
	in bogs? Use the key below. If you answer YES you will still need to rate the	
	wetland based on its functions.	
SC 3.1.	Does an area within the wetland unit have organic soil horizons, either peats or mucks,	
	that compose 16 in or more of the first 32 in of the soil profile?	
	□ Yes - Go to SC 3.3 □ No - Go to SC 3.2	
SC 3.2.	Does an area within the wetland unit have organic soils, either peats or mucks, that	
	are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or	
	volcanic ash, or that are floating on top of a lake or pond?	
00.2.2	□ Yes - Go to SC 3.3 □ No = Is not a bog	
SC 3.3.	Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4?	
	<ul> <li>Yes = Is a Category I bog</li> <li>No - Go to SC 3.4</li> <li>NOTE: If you are uncertain about the extent of mosses in the understory, you may</li> </ul>	
	substitute that criterion by measuring the pH of the water that seeps into a hole dug at	
	least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are	
	present, the wetland is a bog.	
SC 3.4.	Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir,	
	western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann	
	spruce, or western white pine, AND any of the species (or combination of species)	
	listed in Table 4 provide more than 30% of the cover under the canopy?	
	□ Yes = Is a Category I bog □ No = Is not a bog	

C 4.0.	Forested Wetlands	
	Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these	
	criteria for the WA Department of Fish and Wildlife's forests as priority habitats? 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 ( <i>needs</i> to be measured near the bottom)	
	□ Yes - Go to SC 5.1 □ No = Not a wetland in a coastal lagoon	
C 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 ³ / ₄ 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. I	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	
SC 6 1	□ Yes - Go to SC 6.1 □ No = Not an interdunal wetland for rating Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form	
50 0.1.	(rates H,H,H or H,H,M for the three aspects of function)?	
	P 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?	
0.2.	P 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 Point No = Category IV	



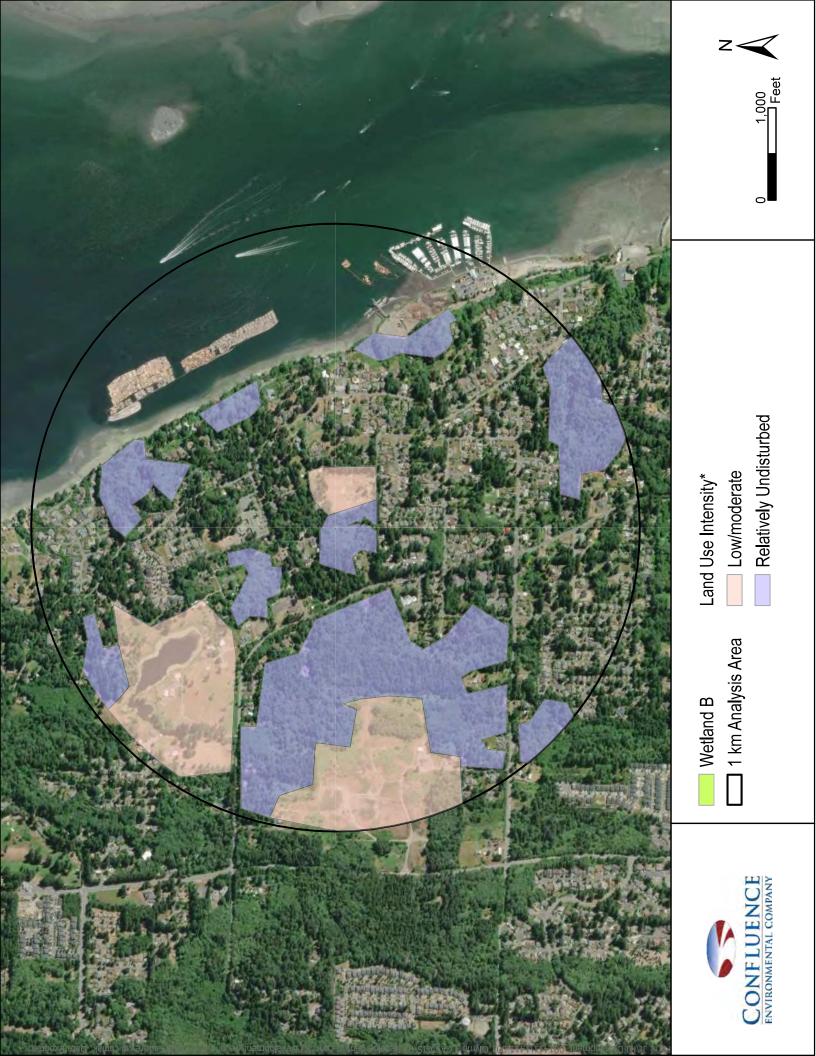
The Forested class has 3 out 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

CONFLUENCE ENVIRONMENTAL COMPANY

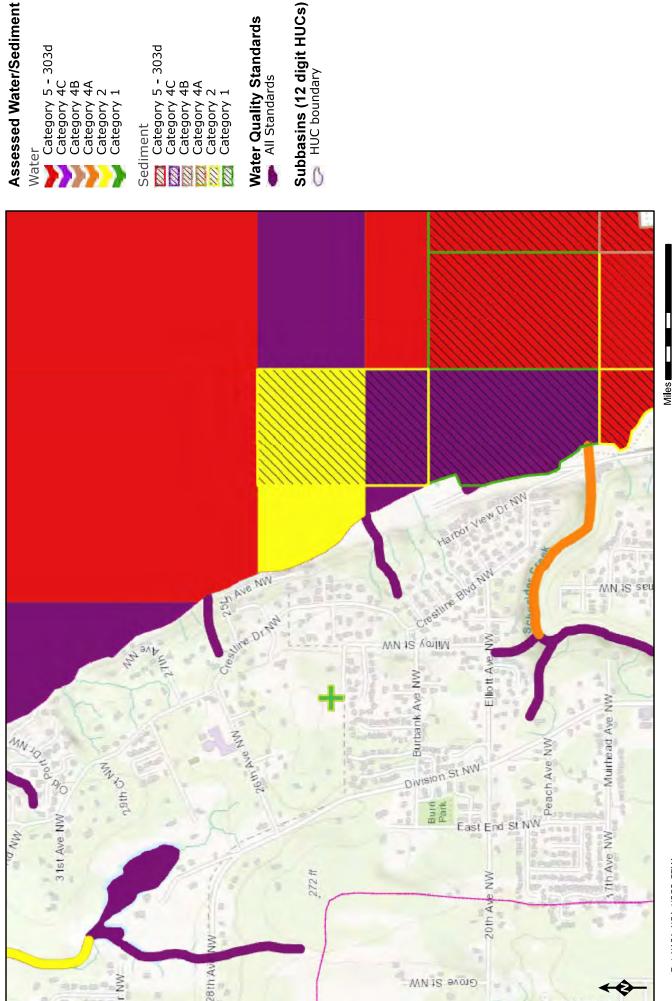








# WQA 303(d)





0.4

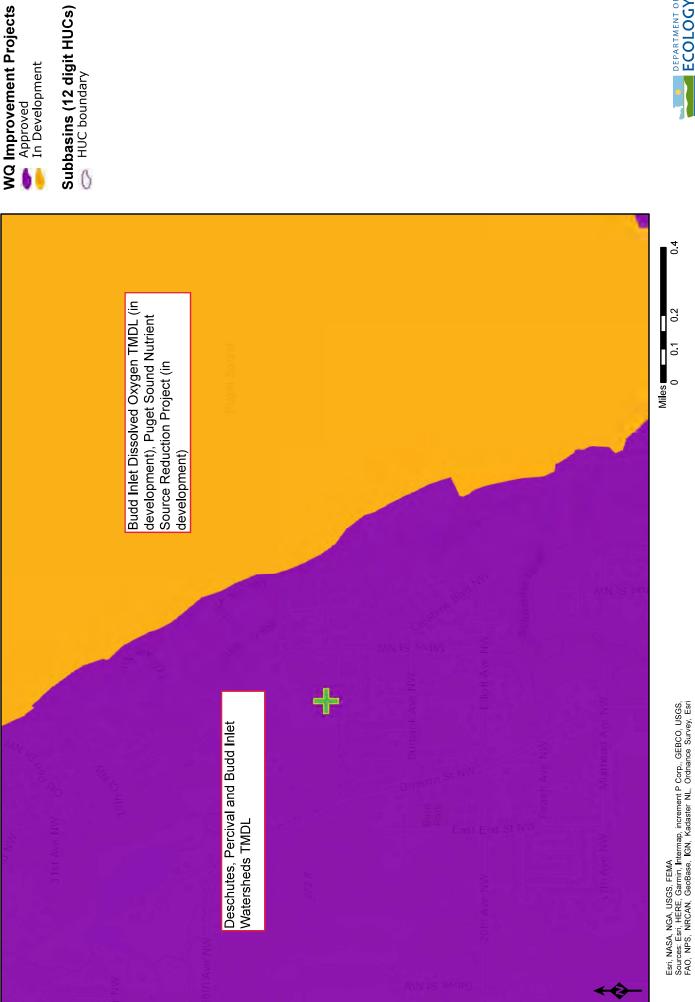
0.2

0.1

0

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

# WQA TMDLs





0.4

0.2

# **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 r	nultiple HGM classes? ^D	Yes⊠ No
NOTE: Form is not complete with out Source of base aerial photo/n		,	

OVERALL WETLAND CATEGORY _____ (based on functions^{III} or special characteristics^{III} )

### 1. Category of wetland based on FUNCTIONS

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

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List app	ropriate rating	7 (H, M, L)	
Site Potential	М	L	L	
Landscape Potential	М	М	L	
Value	Н	L	L	Tota
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	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	H 2.1, H 2.2, H 2.3	
polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

#### 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	H 2.1, H 2.2, H 2.3	
polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	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	S 4.1	
(can be added to another figure )		
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	H 2.1, H 2.2, H 2.3	
polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	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 class to
use in rating
Riverine
Depressional
Lake Fringe
Depressional
Depressional
Riverine
Treat as
ESTUARINE

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

NOTES and FIELD OBSERVATIONS:

DEPRESSIONAL AND FLATS WETLANDS	
Water Quality Functions - Indicators that the site functions to improve water q	uality
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). point	s = 3
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. point	s = 2 3
<ul> <li>Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points</li> </ul>	5 = 1
<ul> <li>Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch.</li> </ul>	5 = 1
D 1.2. <u>The soil 2 in below the surface (or duff layer)</u> is true clay or true organic ( <i>use NRCS definitions</i> ). Yes = 4 N	0 = 0
D 1.3. <u>Characteristics and distribution of persistent plants</u> (Emergent, Scrub-shrub, and/or Forested Cowardin classes):	
Wetland has persistent, ungrazed, plants > 95% of area point	s = 5
Wetland has persistent, ungrazed, plants > ½ of area point	s = 3 3
Wetland has persistent, ungrazed plants > ¹ / ₁₀ of area point	s = 1
Wetland has persistent, ungrazed plants $< 1/10$ of area point	s = 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 > $\frac{1}{2}$ total area of wetland point	s = 4 4
Area seasonally ponded is > $\frac{1}{4}$ total area of wetland point	s = 2
Area seasonally ponded is < ¼ total area of wetland point	s = 0
Total for D 1 Add the points in the boxes a	bove 10

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

D 2.0. Does the landscape have the potential to support the v	vater 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 generate pollutants?	l uses that 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 w 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 boxe	s above	1

Rating of Landscape Potential If score is 3 or 4 = H a 1 or 2 = M 0 = LRecord 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 ( <i>answer YES if there is a TMDL for the basin in</i> <i>which the unit is found</i> )? Yes = 2 No = 0				
Total for D 3 Add the points in the boxes above	3			
Rating of Value If score is: III       2 - 4 = H       I = M       I = M       0 = L       Record the rating on	the first page			

	Irologic Functions - Indicators that the site functions to reduce flooding an	u stream uegra	Jation	
	oes the site have the potential to reduce flooding and erosion?			
D 4.1. <u>C</u>	haracteristics 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		
	epth of storage during wet periods: Estimate the height of ponding above th			
	t. For watlands with no outlet, measure from the surface of permanent wate	er or if dry,		
the deep	pest 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		
	ontribution of the wetland to storage in the watershed: Estimate the ratio of			
upstrear	n 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	0	
	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	

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?	1
Yes = 1 No = 0	I
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.)?	0
Yes = 1 No = 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

<ul> <li>0 6.1. <u>The unit is in a landscape that has flooding problems</u>. Choose the description that best hatches conditions around the wetland unit being rated. Do not add points. <u>Choose the highest core if more than one condition is met.</u></li> <li>The wetland captures surface water that would otherwise now down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon gradient of unit.</li> <li>Flooding occurs in a sub-basin that is immediately down-gradient of unit.</li> <li>Surface flooding problems are in a sub-basin farther down-gradient.</li> <li>Flooding from groundwater is an issue in the sub-basin.</li> <li>points = 1</li> <li>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</li> <li>points = 0</li> <li>6.2. Has the site been identified as important for flood storage or flood onveyance in a regional flood control plan?</li> <li>Yes = 2 No = 0</li> </ul>		and the second second second from the second se				
<ul> <li>atches conditions around the wetland unit being rated. Do not add points. <u>Choose the highest</u></li> <li><u>Core if more than one condition is met.</u></li> <li>The wetland captures surface water that would otherwise now down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redde).</li> <li>Flooding occurs in a sub-basin that is immediately down-gradient of unit.</li> <li><u>Surface flooding problems are in a sub-basin farther down-gradient.</u></li> <li><u>Surface flooding problems are in a sub-basin farther down-gradient.</u></li> <li><u>Plooding from groundwater is an issue in the sub-basin.</u></li> <li><u>Plooding 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</u></li> <li><u>Ploot.2. Has the site been identified as important for flood storage or flood onveyance in a regional flood control plan?</u></li> <li><u>O</u></li> </ul>	D 6.0. Are the hydrologic functions provided by the site valuable to society?					
core if more than one condition is met.         The wetrand captures surface water that would otherwise now down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redde).         •       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       0         •       Flooding from groundwater is an issue in the sub-basin.       points = 1       0         •       Flooding 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       0         •       O       There are no problems with flooding downstream of the wetland.       points = 0       0         •       0       Add the points in the boxes above       0	D 6.1. The unit is in a landscape that has flooding problems. Choose the description that I	best				
<ul> <li>Flooding has damaged human or natural resources (e.g., houses or salmon reade).</li> <li>Flooding occurs in a sub-basin that is immediately down-gradient of unit.</li> <li>Surface flooding problems are in a sub-basin farther down-gradient.</li> <li>Plooding from groundwater is an issue in the sub-basin.</li> <li>Flooding 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</li> <li>There are no problems with flooding downstream of the wetland.</li> <li>Plooding for groundwater of the wetland.</li> <li>There are no problems with flooding downstream of the wetland.</li> <li>Plooding for ground for ground output for flood storage or flood onveyance in a regional flood control plan?</li> <li>Add the points in the boxes above</li> </ul>	matches conditions around the wetland unit being rated. Do not add points. Choose the h	<u>nighest</u>				
<ul> <li>areas where flooding has damaged human or natural resources (e.g., houses or salmon redde).</li> <li>Flooding occurs in a sub-basin that is immediately down-gradient of unit.</li> <li>Surface flooding problems are in a sub-basin farther down-gradient.</li> <li>Plooding from groundwater is an issue in the sub-basin.</li> <li>Flooding 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</li> <li>There are no problems with flooding downstream of the wetland.</li> <li>Plooding for groundwater is a regional flood control plan?</li> <li>Yes = 2</li> <li>No = 0</li> <li>Add the points in the boxes above</li> </ul>	score if more than one condition is met.					
<ul> <li>Flooding occurs in a sub-basin that is immediately down-gradient of unit.</li> <li>Surface flooding problems are in a sub-basin farther down-gradient.</li> <li>Surface flooding problems are in a sub-basin farther down-gradient.</li> <li>Flooding from groundwater is an issue in the sub-basin.</li> <li>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</li> <li>There are no problems with flooding downstream of the wetland.</li> <li>Points = 0</li> <li>Add the points in the boxes above</li> </ul>						
<ul> <li>Flooding occurs in a sub-basin that is immediately down-gradient of unit.</li> <li>Surface flooding problems are in a sub-basin farther down-gradient.</li> <li>Flooding from groundwater is an issue in the sub-basin.</li> <li>Flooding from groundwater is an issue in the sub-basin.</li> <li>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</li> <li>There are no problems with flooding downstream of the wetland.</li> <li>Flooding for groundwater is an important for flood storage or flood onveyance in a regional flood control plan?</li> <li>Yes = 2 No = 0</li> <li>Add the points in the boxes above</li> </ul>	areas where flooding has damaged human or natural resources (e.g., houses or s	salmon				
gradient of unit.       points = 2       0         • Surface flooding problems are in a sub-basin farther down-gradient.       points = 1       0         • Flooding from groundwater is an issue in the sub-basin.       points = 1       0         • 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       0         • There are no problems with flooding downstream of the wetland.       points = 0       0         • 6.2. Has the site been identified as important for flood storage or flood onveyance in a regional flood control plan?       Yes = 2       No = 0         • Otal for D 6       Add the points in the boxes above       0						
<ul> <li>Surface flooding problems are in a sub-basin farther down-gradient.</li> <li>Flooding from groundwater is an issue in the sub-basin.</li> <li>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</li> <li>There are no problems with flooding downstream of the wetland.</li> <li>6.2. Has the site been identified as important for flood storage or flood onveyance in a regional flood control plan?</li> <li>Yes = 2 No = 0</li> <li>Add the points in the boxes above</li> </ul>						
<ul> <li>Surface flooding problems are in a sub-basin farther down-gradient.</li> <li>Flooding from groundwater is an issue in the sub-basin.</li> <li>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</li> <li>There are no problems with flooding downstream of the wetland.</li> <li>Points = 0</li> <li>There are no problems with flooding downstream of the wetland.</li> <li>Points = 0</li> <li>Po</li></ul>	gradient of unit. poi	ints = 2				
<ul> <li>Flooding from groundwater is an issue in the sub-basin.</li> <li>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</li> <li>There are no problems with flooding downstream of the wetland.</li> <li>Points = 0</li> <li>There are no problems with flooding downstream of the wetland.</li> <li>Points = 0</li> <li>O 6.2. Has the site been identified as important for flood storage or flood onveyance in a regional flood control plan?</li> <li>Yes = 2 No = 0</li> <li>O atl for D 6</li> </ul>	<ul> <li>Surface flooding problems are in a sub-basin farther</li> </ul>					
<ul> <li>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</li> <li>There are no problems with flooding downstream of the wetland. points = 0</li> <li>Add the points in the boxes above 0</li> </ul>	down-gradient. poi	ints = 1				
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 6.2. Has the site been identified as important for flood storage or flood onveyance in a regional flood control plan? Yes = 2 No = 0 Otal for D 6 Add the points in the boxes above 0	<ul> <li>Flooding from groundwater is an issue in the sub-basin.</li> </ul>	ints = 1				
cannot reach areas that flood. Explain why       points = 0         There are no problems with flooding downstream of the wetland.       points = 0         6.2. Has the site been identified as important for flood storage or flood       0         onveyance in a regional flood control plan?       Yes = 2       No = 0         otal for D 6       Add the points in the boxes above       0	The existing or potential outflow from the wetland is so constrained					
□       There are no problems with flooding downstream of the wetland.       points = 0         0       6.2. Has the site been identified as important for flood storage or flood onveyance in a regional flood control plan?       Yes = 2       No = 0         0       otal for D 6       Add the points in the boxes above       0	by human or natural conditions that the water stored by the wetland					
0 6.2. Has the site been identified as important for flood storage or flood onveyance in a regional flood control plan?       0       0         0 otal for D 6       Add the points in the boxes above       0	cannot reach areas that flood. Explain why poi	ints = 0				
onveyance in a regional flood control plan?     Yes = 2     No = 0       otal for D 6     Add the points in the boxes above     0	There are no problems with flooding downstream of the wetland.	ints = 0				
onveyance in a regional flood control plan?       Yes = 2       No = 0         otal for D 6       Add the points in the boxes above       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					
ating of Value If score is:  2 - 4 = H I = M I = M I = 0 = L Record the rating on the first page	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 relationships the second terms of the relation of the second terms of	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: <i>Indicators are Cowardin classes and strata within the Forested class.</i> Check the Cowardin plant classes in the wetland. <i>Up to 10 patches may be combined for each class to meet the threshold of 1</i> /4 ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.	
<ul> <li>Aquatic bed</li> <li>Emergent</li> <li>Scrub-shrub (areas where shrubs have &gt; 30% cover)</li> <li>Forested (areas where trees have &gt; 30% cover)</li> <li>Istructure: points = 0</li> <li>If the unit has a Forested class, check if:</li> <li>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</li> </ul>	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 ( <i>see text for descriptions of</i> <i>hydroperiods</i> ).	
<ul> <li>Permanently flooded or inundated</li> <li>Seasonally flooded or inundated</li> <li>Seasonally flooded or inundated</li> <li>Occasionally flooded or inundated</li> <li>Occasionally flooded or inundated</li> <li>Saturated only</li> <li>Permanently flowing stream or river in, or adjacent to, the wetland</li> <li>Seasonally flowing stream in, or adjacent to, the wetland</li> </ul>	1
Lake Fringe wetland       2 points         Freshwater tidal wetland       2 points	
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 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	1
5 - 19 species         points = 1           < 5 species	
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. <i>If you have four or more plant classes or three classes and</i> <i>open water, the rating is always high.</i>	
	0
None = 0 pointsLow = 1 pointModerate = 2 points	
All three diagrams in this row are HIGH = 3 points	

	pecial habitat features: The habitat features that are present in the wetland. <i>The number of checks is the number</i>	
of points		
Ø	Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long)	
	Standing snags (dbh > 4 in) within the wetland	
	Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends	
	at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at	
	least 33 ft (10 m)	2
	Stable steep banks of fine material that might be used by beaver or muskrat for	
	denning (> 30 degree slope) OR signs of recent beaver activity are present (cut	
	shrubs or trees that have not yet weathered where wood is exposed) At least 74 ac of thing-stemmed persistent plants of woody plantices are present in	
	areas that are permanently or seasonally inundated ( <i>structures for egg-laying by</i>	
	Invasive plants cover less than 25% of the wetland area in every stratum of plants	
	(see H 1.1 for list of strata)	
Total for	H 1 Add the points in the boxes above	5

Rating of Site Potential If Score is: D 15-18 = H D 7-14 = M D 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	of the site?	
H 2.1 Accessible habitat (include only habitat that directly abuts wetland unit	).	
Calculate:	, 	
1 % undisturbed habitat + ( 1 % moderate & low intensity lar	nd uses / 2 ) = 1.5%	
·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·, ·	,	
If total accessible habitat is:		0
> ¹ / ₃ (33.3%) of 1 km Polygon	points = 3	
20 - 33% of 1 km Polygon	points = 2	
10 - 19% of 1 km Polygon	points $= 1$	
< 10 % of 1 km Polygon	points $= 0$	
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.		
Calculate:		
21 % undisturbed habitat + (1 % moderate & low intensity lar	nd uses / 2 ) = 26.5%	
		2
Undisturbed habitat > 50% of Polygon	points = 3	2
Undisturbed habitat 10 - 50% and in 1-3 patches	points = 2	
Undisturbed habitat 10 - 50% and > 3 patches	points = 1	
Undisturbed habitat < 10% of 1 km Polygon	points = 0	
H 2.3 Land use intensity in 1 km Polygon: If		
> 50% of 1 km Polygon is high intensity land use	points = $(-2)$	-2
≤ 50% of 1km Polygon is high intensity	points = 0	
Total for H 2 Add the points	in the boxes above	0

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

H 3.0. Is the habita	at provided by the site valuable to society?				
H 3.1. Does the si	te provide habitat for species valued in laws, regulations, o	r policies? Choose			
only the highest se	core that applies to the wetland being rated .				
Site mee	ets ANY of the following criteria:	points = 2			
	It has 3 or more priority habitats within 100 m (see next pa	age)			
	It provides habitat for Threatened or Endangered species	(any			
	plant or animal on the state or federal lists)				
It is mapped as a location for an individual WDFW priority species					
	It is a Wetland of High Conservation Value as determined by the				
Department of Natural Resources					
	It has been categorized as an important habitat site in a lo	ocal or			
	regional comprehensive plan, in a Shoreline Master Plan, or in a				
	watershed plan				
Site has	1 or 2 priority habitats (listed on next page) with in 100m	points = 1			
Site doe	s not meet any of the criteria above	points = 0			
Rating of Value If	Score is:□ 2 = H □ 1 = M □ 0 = L	Record the rating on	the first page		

## **WDFW Priority Habitats**

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

http://wdfw.wa.gov/publications/00165/wdfw00165.pdf_or access the list from here: http://wdfw.wa.gov/conservation/phs/list/

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

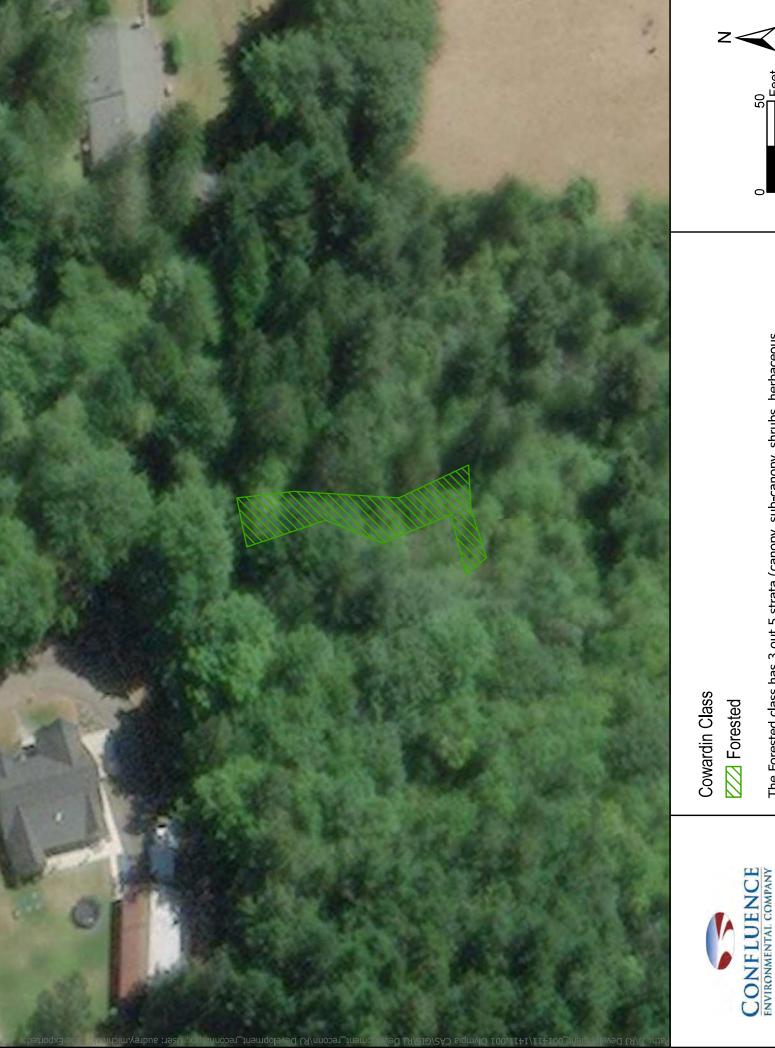
- Aspen Stands: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- Biodiversity Areas and Corridors: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- B Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.
- Old-growth/Mature forests: <u>Old-growth west of Cascade crest</u> 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. <u>Mature forests</u> 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	Туре	Category
Check off	any criteria that apply to the wetland. List the category when the appropriate criteria are met.	
	stuarine Wetlands	
	Does the wetland meet the following criteria for Estuarine wetlands?	
	The dominant water regime is tidal,	
	Vegetated, and	
	With a salinity greater than 0.5 ppt	
	Yes - Go to SC 1.1 No = Not an estuarine wetland	
SC 1.1.	Is the wetland within a National Wildlife Refuge, National Park, National Estuary	
	Reserve, Natural Area Preserve, State Park or Educational, Environmental, or	
	Scientific Reserve designated under WAC 332-30-151?	
	Yes = Category I No - Go to SC 1.2	_
SC 1.2.	Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?	
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation,	
	grazing, and has less than 10% cover of non-native plant species. (If non-native	
	species are Spartina, see page 25)	
	At least 3/4 of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or	
	un-grazed or un-mowed grassland.	
	The wetland has at least two of the following features: tidal channels, depressions with	
	open water, or contiguous freshwater wetlands.	
	Yes = Category I No = Category II	
	Vetlands of High Conservation Value (WHCV)	
SC 2.1.	Has the WA Department of Natural Resources updated their website to include the list	
	of Wetlands of High Conservation Value?	
	Yes - Go to SC 2.2 No - Go to SC 2.3	
SC 2.2.	Is the wetland listed on the WDNR database as a Wetland of High Conservation Value	
	Yes = Category I No = Not WHCV	
SC 2.3.	Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?	
	http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf	
	Yes - Contact WNHP/WDNR and to SC 2.4 D No = Not WHCV	
SC 2.4.	Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation	
	Value and listed it on their website?	
	Yes = Category I     No = Not WHCV	
SC 3.0. E		
	Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in base? Use the low below. If you argues YES you will still pased to rate the	
	in bogs? Use the key below. If you answer YES you will still need to rate the wetland based on its functions.	
00.04		
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?	
SC 3.2.	<ul> <li>Yes - Go to SC 3.3</li> <li>No - Go to SC 3.2</li> <li>Does an area within the wetland unit have organic soils, either peats or mucks, that</li> </ul>	
30 3.2.	are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or	
	volcanic ash, or that are floating on top of a lake or pond?	
	□ Yes - Go to SC 3.3 □ No = Is not a bog	
SC 3.3.	Does an area with peats or mucks have more than 70% cover of mosses at ground	
50 5.5.	level, AND at least a 30% cover of plant species listed in Table 4?	
	<ul> <li>Yes = Is a Category I bog</li> <li>No - Go to SC 3.4</li> <li>NOTE: If you are uncertain about the extent of mosses in the understory, you may</li> </ul>	
	substitute that criterion by measuring the pH of the water that seeps into a hole dug at	
	least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are	
	present, the wetland is a bog.	
SC 3.4.	Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir,	
000.4	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?	
1		
	Yes = Is a Category I bog No = Is not a bog	

C 4.0.	Forested Wetlands	
	Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these	
	criteria for the WA Department of Fish and Wildlife's forests as priority habitats? 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	
C 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	
C 5.1. I	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	
C 6.0. I	nterdunal 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, on is it in a mosaic of wetlands that is between 0.1	
	and 1 ac?	
	Yes = Category III No = Category IV	
	y of wetland based on Special Characteristics	



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



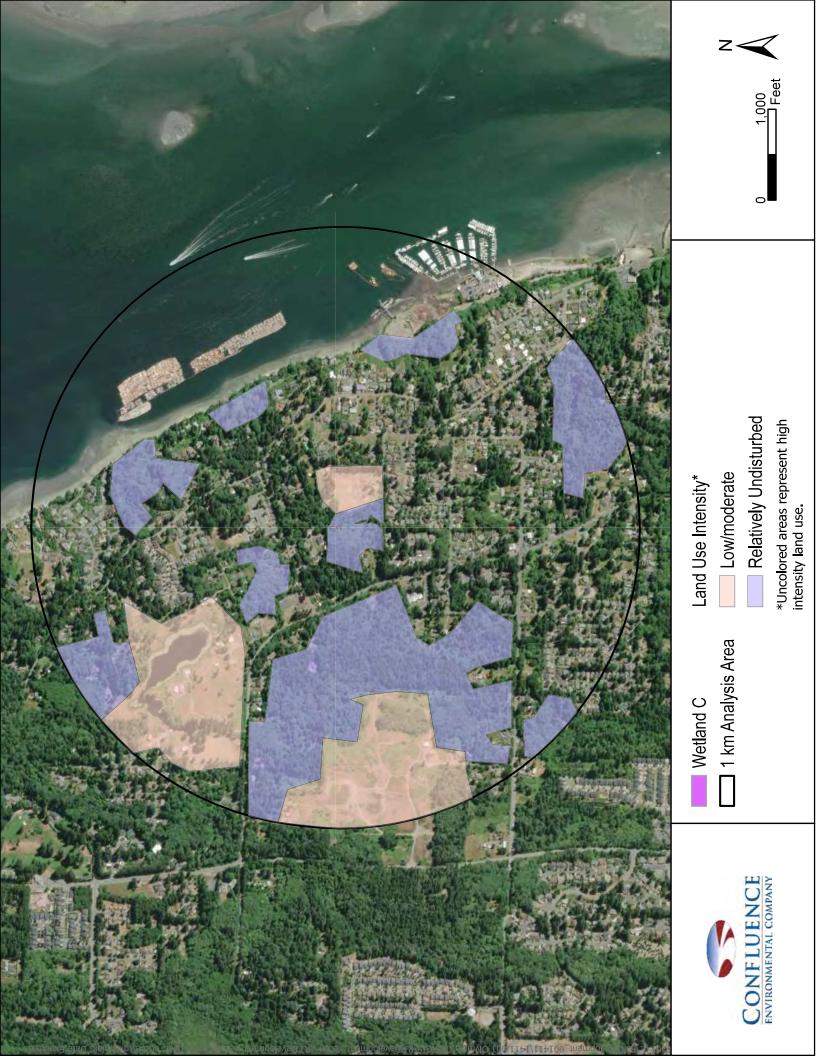




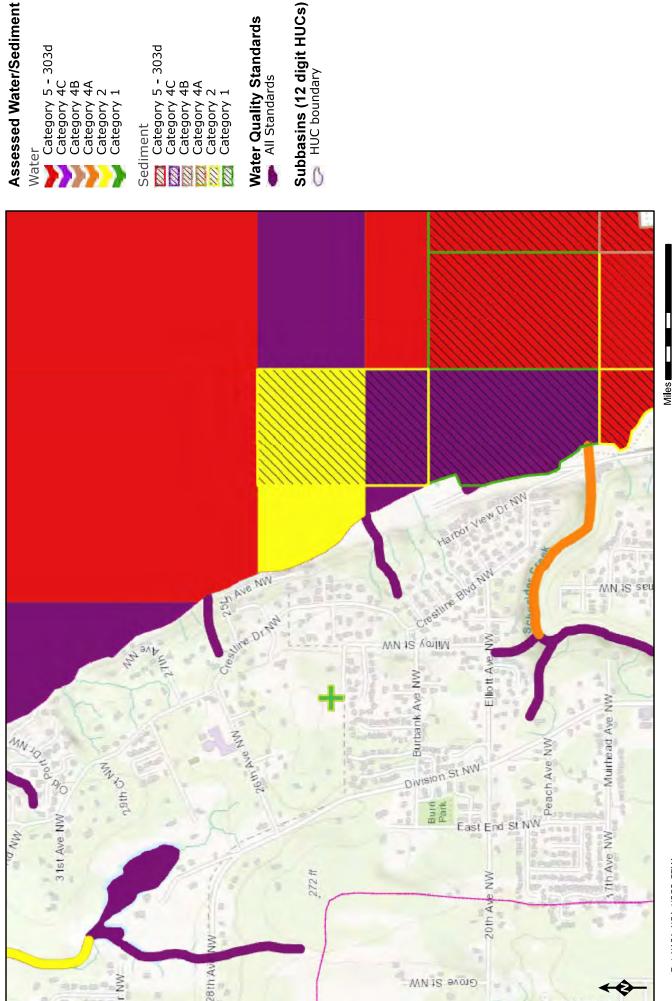
Wetland C
 Contributing Basin







# WQA 303(d)





0.4

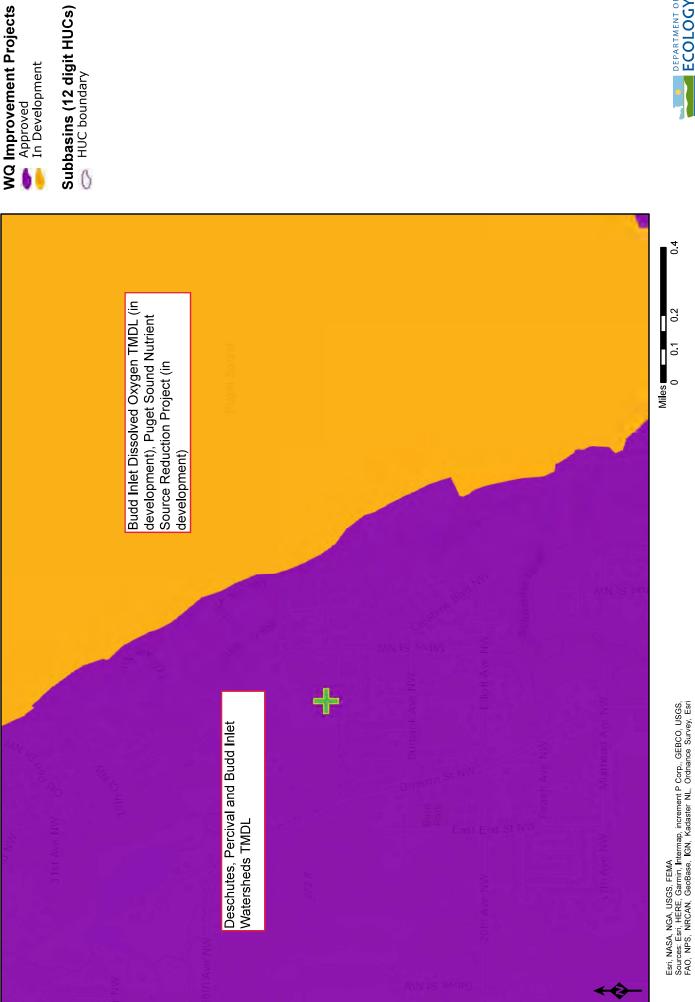
0.2

0.1

0

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

# WQA TMDLs





0.4

0.2

# **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	I. Dietsch	Trained by Ecology? 🗹 Yes 🗌 No	Date of training	Mar-21			
HGM Class used for rating	Depressional & Flats	Wetland has multip	e HGM classes? 🗌	Yes 🗹 No			
	ot complete with out of base aerial photo/n	<b>the figures requested</b> ( <i>figures can</i> nap	be combined).				
<b>OVERALL WETLAND CATEGORY IV</b> (based on functions <b>I</b> or special characteristics <b>D</b> )							
1. Category of wetland	l based on FUNCTI Category I - Total sc		Score for each				
	Cotomorry II. Totolo		function bood				

ON		proving er Quality	Hydrologic	Habitat	
	Х		IV - Total scor		
		Category III - Total score = 16		re = 16 - 19	)
	Category II - Total score = 20 - 2			e = 20 - 22	

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List app	ropriate rating	т (Н, М, L)	
Site Potential	М	М	L	
Landscape Potential	М	L	L	
Value	Н	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	H 2.1, H 2.2, H 2.3	
polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

#### 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	H 2.1, H 2.2, H 2.3	
polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	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	S 4.1	
(can be added to another figure )		
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	H 2.1, H 2.2, H 2.3	
polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	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	nd in Western Washingtoı	n
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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?

  - 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) 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.

- 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.* 

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

□ NO - go to 8 □ YES - The wetland class is Depressional

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

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

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

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

NOTES and FIELD OBSERVATIONS:

DEPRESSIONAL AND FLATS WETLA	NDS	
Water Quality Functions - Indicators that the site functions to im	prove water quality	
D 1.0. Does the site have the potential to improve water quality?		
D 1.1. Characteristics of surface water outflows from the wetland:		
Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet).	points = 3	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet.	points = 2	3
<ul> <li>Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing</li> <li>Wetland is a flat depression (QUESTION 7 on key), whose outlet is</li> </ul>	points = 1	
a permanently flowing ditch.	points = 1	
D 1.2. <u>The soil 2 in below the surface (or duff layer)</u> is true clay or true organic ( <i>use NRCS definitions</i> ).	Yes = 4 No = 0	0
D 1.3. <u>Characteristics and distribution of persistent plants</u> (Emergent, Scrub-sh Forested Cowardin classes):	rub, and/or	
Wetland has persistent, ungrazed, plants > 95% of area	points = 5	1
Wetland has persistent, ungrazed, plants > $\frac{1}{2}$ of area	points = 3	I
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 > $\frac{1}{2}$ total area of wetland	points = 4	4
Area seasonally ponded is > $\frac{1}{4}$ total area of wetland	points = 2	
Area seasonally ponded is $< \frac{1}{4}$ total area of wetland	points = 0	
Total for D 1 Add the points	in the boxes above	8

Rating of Site Potential If score is:  $\Box$  12 - 16 = H  $\overline{\bigcirc}$  6 - 11 = M  $\Box$  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 u	uses that		0
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 we	tland 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 boxe	s above	1

Rating of Landscape Potential If score is: 3 or 4 = H I I 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 lake, or marine water that is on the 303(d) list?	a stream, river, Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic re	esource 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 ( <i>answer YES if there is a TMDL for the basin in which the unit is found</i> )? 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 second term second the second term		the first page

DEPRESSIONAL AND FLATS WETLANDS		
Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degra	adation	
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	3	
$\square$ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3	5	
$\square \text{ marks are at least 0.5 ft to < 2 ft from surface of bottom of outlet} \qquad \qquad \text{points = 3}$ $\square \text{ The wetland is a "headwater" wetland} \qquad \qquad \text{points = 3}$		
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. <u>Contribution of the wetland to storage in the watershed</u> : <i>Estimate the ratio of the area of</i>		
upstream basin contributing surface water to the wetland to the area of the wetland unit itself.		
$\Box$ The area of the basin is less than 10 times the area of the unit points = 5		
The area of the basin is 10 to 100 times the area of the unit points = 3	3	
The area of the basin is more than 100 times the area of the unit points = 0		
$\Box$ Entire wetland is in the Flats class points = 5		
Total for D 4 Add the points in the boxes above	10	
<b>Rating of Site Potential</b> If score is: $\Box 12 - 16 = H$ $\Box 6 - 11 = M$ $\Box 0 - 5 = L$ Record the rating on		
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.)?	0	
Yes = 1 No = 0		
Total for D 5 Add the points in the boxes above	0	
<b>Rating of Landscape Potential</b> If score is: $\Box 3 = H$ $\Box 1$ or $2 = M$ $\Box 0 = L$ 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):		
<ul> <li>Flooding occurs in a sub-basin that is immediately down-</li> </ul>		
gradient of unit. points = 2	0	
<ul> <li>Surface flooding problems are in a sub-basin farther down-</li> </ul>	0	
gradient. points = 1		
$\Box$ 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	0	
conveyance in a regional flood control plan? Yes = 2 No = 0		
Total for D 6Add the points in the boxes aboveRating of Value If score is:Q - 4 = HI = MI = MI = MImage: Construction of Value If score is:Image: Cons	0	
	the tiret hade	

0
1
1
0
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-

<ul> <li>H 1.5. Special habitat features:</li> <li>Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i></li> <li>□ Large, downed, woody debris within the wetland (&gt; 4 in diameter and 6 ft long)</li> <li>□ Standing snags (dbh &gt; 4 in) within the wetland</li> <li>□ 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)</li> <li>□ Stable steep banks of fine material that might be used by beaver or muskrat for denning (&gt; 30 degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>)</li> <li>□ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>)</li> <li>□ Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see</i></li> </ul>	1
<ul> <li>Invasive plants cover less than 25% of the wetland area in every stratum of plants (see H 1.1 for list of strata)</li> <li>Total for H 1</li> <li>Add the points in the boxes above</li> </ul>	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 w	vetland unit).	
Calculate:		
1 % undisturbed habitat + ( 1 % moderate & low intensity land uses / 2 ) = 1.5%		
If total accessible habitat is:		0
> ¹ / ₃ (33.3%) of 1 km Polygon	points = 3	
20 - 33% of 1 km Polygon	points = 2	
10 - 19% of 1 km Polygon	points = 1	
< 10 % of 1 km Polygon	points = 0	
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.		
Calculate:		
19 % undisturbed habitat + (8 % moderate & k	ow intensity land uses / 2 ) = 23%	
Undisturbed behittet $> 50\%$ of Delygen	points = 3	2
Undisturbed habitat > $50\%$ of Polygon		
Undisturbed habitat 10 - 50% and in 1-3 patches	points = $2$	
Undisturbed habitat 10 - 50% and > 3 patches	points = 1	
Undisturbed habitat < 10% of 1 km Polygon	points = 0	
H 2.3 Land use intensity in 1 km Polygon: If		
> 50% of 1 km Polygon is high intensity land use	points = $(-2)$	-2
≤ 50% of 1km Polygon is high intensity	points = 0	
Total for H 2	Add the points in the boxes above	0

Rating of Landscape Potential If Score is: 4 - 6 = H 1 - 3 = M I < 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 policie	es? Choose	
only the highest score that applies to the wetland being rated.		
Site meets ANY of the following criteria:	points = 2	
It has 3 or more priority habitats within 100 m (see next page)		
It provides habitat for Threatened or Endangered species (any p	ant	
or animal on the state or federal lists)		
It is mapped as a location for an individual WDFW priority specie	es	0
It is a Wetland of High Conservation Value as determined by the		0
Department of Natural Resources		
☐ It has been categorized as an important habitat site in a local or		
regional comprehensive plan, in a Shoreline Master Plan, or in a		
watershed plan		
Site has 1 or 2 priority habitats (listed on next page) with in 100m	points = 1	
Site does not meet any of the criteria above	points = 0	
	ord the rating on	the first page

# **WDFW Priority Habitats**

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

http://wdfw.wa.gov/publications/00165/wdfw00165.pdf_or access the list from here: http://wdfw.wa.gov/conservation/phs/list/

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

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

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

# **CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

Wetland Type		Category
01		
	any criteria that apply to the wetland. List the category when the appropriate criteria are met.	
SC 1.0. I	Estuarine Wetlands	
	Does the wetland meet the following criteria for Estuarine wetlands?	
	The dominant water regime is tidal,	
	Vegetated, and	
	With a salinity greater than 0.5 ppt	
SC 1.1.	□ Yes - Go to SC 1.1       ☑ No = Not an estuarine wetland         Is the wetland within a National Wildlife Refuge, National Park, National Estuary	
30 1.1.	Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific	
	Reserve designated under WAC 332-30-151?	
	$\Box \text{ Yes} = \text{Category I} \qquad \Box \text{ No} - \text{Go to SC 1.2}$	
SC 1.2.	Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?	
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing,	
	and has less than 10% cover of non-native plant species. (If non-native species are	
	Spartina, see page 25)	
	At least ³ / ₄ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-	
	grazed or un-mowed grassland.	
	The wetland has at least two of the following features: tidal channels, depressions with	
	open water, or contiguous freshwater wetlands.	
	□ Yes = Category I □ No = Category II	
SC 2.0. \	Netlands of High Conservation Value (WHCV)	
	Has the WA Department of Natural Resources updated their website to include the list	
	of Wetlands of High Conservation Value?	
	✓ Yes - Go to SC 2.2 □ No - Go to SC 2.3	
SC 2.2.	5	
	□ Yes = Category I	
SC 2.3.	Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?	
	http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf	
	Yes - Contact WNHP/WDNR and to SC 2.4 D No = Not WHCV	
SC 2.4.	Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation	
	Value and listed it on their website?	
	□ Yes = Category I □ No = Not WHCV	
SC 3.0. I		
	Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation	
	in bogs? Use the key below. If you answer YES you will still need to rate the	
	wetland based on its functions	
SC 3.1.	Does an area within the wetland unit have organic soil horizons, either peats or mucks,	
	that compose 16 in or more of the first 32 in of the soil profile?	
	☐ Yes - Go to SC 3.3 ☑ No - Go to SC 3.2	
SC 3.2.	Does an area within the wetland unit have organic soils, either peats or mucks, that are	
	less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond?	
	$\Box \text{ Yes - Go to SC 3.3} \qquad \blacksquare \text{ No = Is not a bog}$	
SC 3.3.	Does an area with peats or mucks have more than 70% cover of mosses at ground	
30 3.3.	level, AND at least a 30% cover of plant species listed in Table 4?	
	Yes = Is a Category I bog □ No - Go to SC 3.4	
	<b>NOTE</b> : If you are uncertain about the extent of mosses in the understory, you may	
	substitute that criterion by measuring the pH of the water that seeps into a hole dug at	
	least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present,	
	the wetland is a bog.	
SC 3.4.	Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir,	
	western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann	
spruce, or western white pine, AND any of the species (or combination of species) listed		
	in Table 4 provide more than 30% of the cover under the canopy?	
	🗌 Yes = Is a Category I bog 👘 🗌 No = Is not a bog	

SC 4.0.	Forested Wetlands	
	Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these	
	criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you</i>	
	answer YES you will still need to rate the wetland based on its functions.	
	<b>Old-growth forests</b> (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 Vo = Not a forested wetland for this section	
SC 5.0. \	Netlands 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 Wo = 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. I	nterdunal 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	
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	
Categor	y of wetland based on Special Characteristics	
If you an	swered No for all types, enter "Not Applicable" on Summary Form	

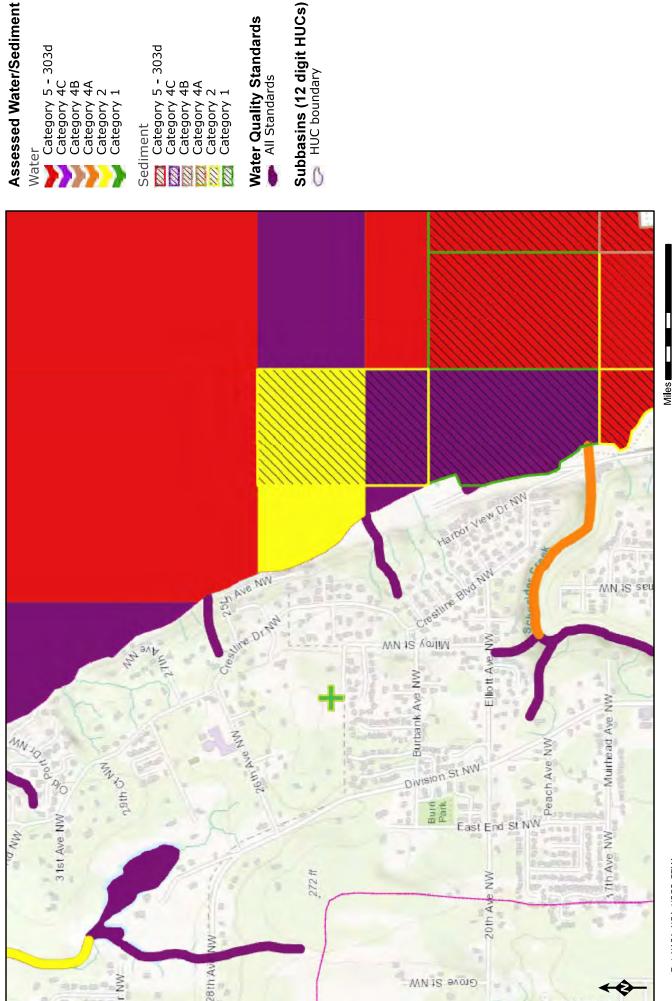








## WQA 303(d)





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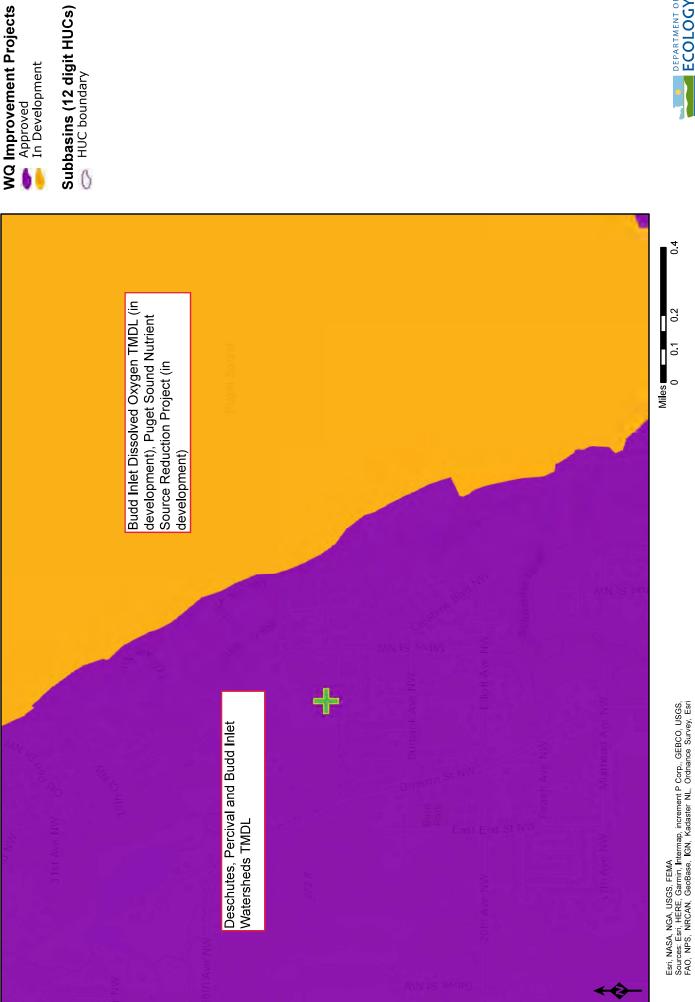
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Esri, INASA, NGA, USGS, FEMA Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri

## WQA TMDLs





0.4

0.2

## 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



Critical Areas Mitigation							
Bond Quantity Worksheet							
Project Name: West Olympia Development		Date: 4/3/24		Prepared by:	Kerrie McArthu	r	
Project Number: 2023100650	Project Description: 34 lot subdivision						
Location: 2000 24th Avenue NW, Olympia, WA	Applicant: RJ Developn			oment	Contact Information:		
					information.		
PLANT MATERIAL COSTS (Includes labor cost for plant installation)							
Туре	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	s for General Co	ntractor Overhead	d and Profit)				
Туре	Unit Price	Unit	Quantity	Description		Cost	
Compost, vegetable, delivered and spread	\$95.00			6 inches topsoi		\$	9,595.00
4-inch thick woodchip mulch, delivered and spread	\$1.75	SF				\$	9,625.00
Temporary irrigation (assume 3,000 – 10,000SF)	\$1.95	SF				\$	10,725.00
Fencing, split rail, 3' high (2-rail)	\$95.00	LF				\$	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	n Cost Subtotal)	\$	112,429.00
OTHER	Percentage of			(00//01/00/00		,	,
ITEMS	Construction						
TTEMS	Cost	Unit	Quantity	Description		Cost	
	<u> </u>					1	
Mobilization/Demobilization	10%	ALLOWANCE	1			\$	11,242.90
					TOTAL	\$	11,242.90
	NOTES: 1) P	rojects with multiple	permit requireme	ents may be require	d to have longer		
		d maintenance terms					
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-bui total of 6 units	ilt year as well, such	that a five year p	lan includes an as-l	ouilt and therefore a		
Maintenance, Min. 3 visits annual (by owner or contrac			Quantity				
Larger than 5,000 SF but < 1 AC	\$ 4,560.00	EACH		(3 X 16 hrs per	visit @ 05/br)	\$	136,800.00
Monitoring and Report, per growing season "year" p	, ,			· · ·	visit (@ 95/11)	ψ	130,000.00
Annual monitoring for sites larger than 5,000 SF but <		Source of the					
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	φ +,000.00		0.00			Ψ	57,440.00
5,000 SF but < 1 AC - enhancement only	\$ 1,040.00	EACH	2.00	(8 hrs @ \$130/hr)		\$	2,080.00
						<u> </u>	
					TOTAL	\$	176,320.00
					Total		\$200 004 00
					Total		\$299,991.90
						1	

