

FINAL WETLAND AND STREAM ASSESSMENT REPORT

US 101/SR 109 Grays Harbor/Jefferson/Clallam – Fish Barrier Removal Project 990731 – Unnamed Tributary (MP 111.34) Culvert ID 6

Grays Harbor/Jefferson/Clallam Counties, Washington

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Prepared By
Kiewit/KPFF/OSG Design-Build Team

December 28, 2021



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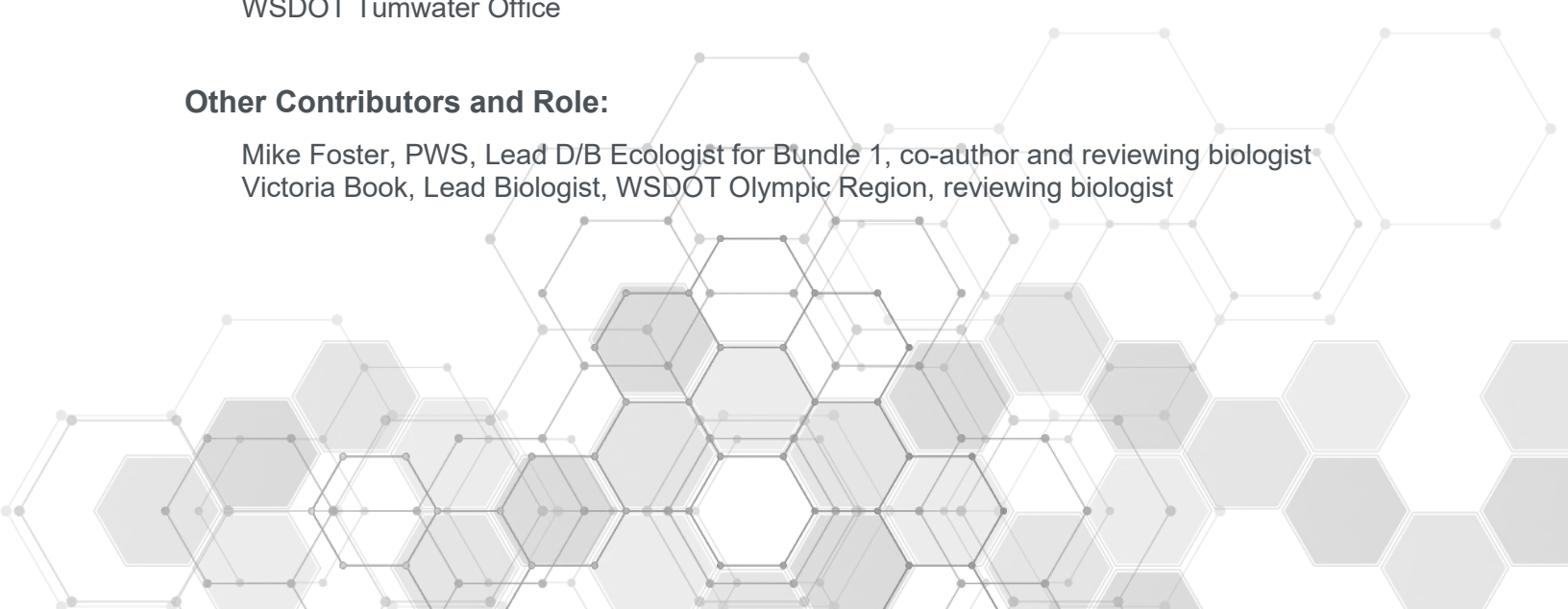
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Executive Summary

The Washington State Department of Transportation (WSDOT) proposes to remove a fish barrier within an unnamed tributary to Stevens Creek (herein referred to as Culvert 6) along United States Highway 101 (US 101) at Mile Post (MP) 111.34. The project is part of the larger US 101/SR 109 Grays Harbor/Jefferson/Clallam – Remove Fish Barriers package. Culvert 6 is in Grays Harbor County, two miles north of Humptulips, Washington, in Water Resource Inventory Area (WRIA) 22 (Lower Chehalis). The project will result in approximately 3,812 linear feet (LF) of habitat gain (WSDOT 2021d).

Four wetlands are identified and delineated in the study area. Wetland 1 (1,499 square feet (SF); 0.03 acres) is a depressional wetland located downstream of the subject culvert. It is classified as palustrine forested (Cowardin) and rates as Category II with 7 Habitat Function points (Hruby 2014). Wetland 2 (~43,213 SF; ~0.99 acres) is a riverine wetland located upstream of the subject culvert bordering Stream 1 (the subject Unnamed Tributary). Wetland 2 is classified as palustrine forested and scrub-shrub (Cowardin) and rates as Category II with 8 Habitat Function points (Hruby 2014). Wetland 2 extends outside of the anticipated area of impact and was partially evaluated on a reconnaissance-level. The boundaries are approximated in Appendix D. Wetland 3 (1,634 SF; 0.04 acres) is a depressional wetland located upstream of the culvert on the right bank of Stream 1. Wetland 3 is classified as a palustrine forested and scrub-shrub (Cowardin). It rates as Category III with 8 Habitat Function points (Hruby 2014). Wetland 4 (683 SF; 0.01 acres) is a depressional wetland located south of the subject culvert. Wetland 4 is classified as a palustrine scrub-shrub and emergent (Cowardin). It rates as Category III with 7 Habitat Function points (Hruby 2014).

Wetland 1 and Wetland 4 have a standard buffer width of 110 feet while Wetland 2 and Wetland 3 have a standard buffer width of 225 feet due to the high habitat score per Grays Harbor County Code (GHC) 18.06.380, Table 37.1. The vegetated buffers next to wetland boundaries are generally comprised of second or third-growth forest. All wetland buffer boundaries are truncated by US 101 to some extent (Appendix D).

Two streams are identified and delineated in the study area Stream 1 is the Unnamed Tributary to Stevens Creek that flows through the subject culvert identified for replacement. Stevens Creek is a tributary to the Humptulips River. Stream 1 is a Type F stream (DNR 2021a) and requires a 150-foot standard buffer per GHC 18.06.630 (A). Stream 2 is an additional Unnamed Tributary that is intermittently flowing and serves as both a hydrologic input and conveyance from Wetland 4 into Stream 1. Stream 2 is a Type Ns Stream (DNR 2021a) and requires a 50-foot standard buffer (GHC 2021).

Sensitive fish, wildlife, and unique habitats are known to occur within or adjacent to the study area as documented in Tables 9 and 10. WSDOT and the Federal Highway Administration will initiate consultation with U.S. Fish and Wildlife Service to address project impacts to species listed as threatened or endangered under the Endangered Species Act (ESA) as well as impacts to proposed or designated critical habitat. This consultation will document compliance with the requirements of the Non-Programmatic Reference Biological Assessment. A separate Project Notification Form (PNF) will be prepared to address impacts to ESA-listed threatened or endangered wildlife species and proposed and designated critical habitat.

Table of Contents

| | | |
|----|--|----|
| 1 | | |
| 2 | 1. Introduction | 1 |
| 3 | 2. Proposed Project | 2 |
| 4 | 2.1. Project Location..... | 2 |
| 5 | 2.2. Project Purpose and Description | 4 |
| 6 | 2.3. Wetland and Stream Boundary Documentation | 4 |
| 7 | 2.4. Study Area | 4 |
| 8 | 3. Methods..... | 6 |
| 9 | 3.1. Wetland Delineation, Classification, and Buffers..... | 6 |
| 10 | 3.2. Stream Delineation, Classification, and Buffers | 7 |
| 11 | 3.3. Species and Habitats of Interest..... | 7 |
| 12 | 4. Existing Conditions | 8 |
| 13 | 4.1. Landscape Setting..... | 8 |
| 14 | 4.2. Watershed Description | 8 |
| 15 | 4.3. Climate, Precipitation, and Growing Season..... | 9 |
| 16 | 4.3.1. Climate | 9 |
| 17 | 4.3.2. Precipitation | 9 |
| 18 | 4.3.3. Growing Season | 10 |
| 19 | 4.4. Wetlands | 10 |
| 20 | 4.4.1. Overview..... | 10 |
| 21 | 4.4.2. Vegetation | 11 |
| 22 | 4.4.3. Soils..... | 13 |
| 23 | 4.4.4. Hydrology | 13 |
| 24 | 4.4.5. Wetland Buffers | 13 |
| 25 | 4.5. Streams..... | 19 |
| 26 | 4.6. Species and Habitats of Interest..... | 22 |
| 27 | 5. Limitations..... | 23 |
| 28 | 6. References | 24 |
| 29 | | |
| 30 | | |

Figures

| | |
|---|----|
| Figure 1. Culvert 6 Vicinity Map | 3 |
| Figure 2. Wetland and stream locations within study area boundaries. | 5 |
| Figure 3. Landscape setting taken on June 25, 2021. | 9 |
| Figure 4. Typical understory vegetation at Culvert 6..... | 12 |
| Figure 5. Typical buffer in the study area. | 14 |

Tables

| | |
|---|----|
| Table 1. Wetlands within the project corridor..... | 11 |
| Table 2. Wetland 1 summary | 15 |
| Table 3. Wetland 2 summary | 16 |
| Table 4. Wetland 3 summary | 17 |
| Table 5. Wetland 4 summary | 18 |
| Table 6. Streams within the study area. | 19 |
| Table 7. Subject Unnamed Tributary to Stevens Creek summary. | 20 |
| Table 8. Unnamed Tributary to Stream 1 summary..... | 21 |
| Table 9. Federal and state listed species within half mile of study area..... | 22 |
| Table 10. WDFW priority habitats and species occurring within one mile of the study area..... | 22 |

Appendices

| | |
|--|--|
| Appendix A. Background Information | |
| Appendix A-1. Comparison of Observed and Normal Precipitation | |
| Appendix A-2. Daily Precipitation Data for 10 Days Preceding Fieldwork | |
| Appendix A-3. USGS Topographic Map | |
| Appendix A-4. National Wetland Inventory Map | |
| Appendix A-5. NRCS Soil Survey Map | |
| Appendix B. Wetland Delineation Data Sheets | |
| Appendix C. Wetland Rating Summaries and Figures | |
| Appendix D. Plan Sheets | |

Acronyms and Abbreviations

| | | |
|----|---------|--|
| 1 | | |
| 2 | CSGP | Construction Stormwater General Permit |
| 3 | CWA | Clean Water Act |
| 4 | DNR | Washington Department of Natural Resources |
| 5 | Ecology | Washington State Department of Ecology |
| 6 | ESA | Endangered Species Act |
| 7 | GHC | Grays Harbor County Code |
| 8 | GIS | Geographic Information System |
| 9 | HGM | Hydrogeomorphic Wetland Classification |
| 10 | HPA | Hydraulic Project Approval |
| 11 | LF | Linear Feet |
| 12 | LRR | Land Resource Area |
| 13 | LWM | Large Woody Material |
| 14 | MLRA | Major Land Resource Area |
| 15 | MP | Milepost |
| 16 | NOAA | National Oceanic and Atmospheric Administration |
| 17 | NPDES | Nation Pollution Discharge Elimination System |
| 18 | NRCS | Natural Resources Conservation Service |
| 19 | NWI | National Wetlands Inventory |
| 20 | OHWM | Ordinary High Water Mark |
| 21 | PEO | Project Engineer Office |
| 22 | PEM | Palustrine Emergent |
| 23 | PFO | Palustrine Forested |
| 24 | PSAT | Proposed Similarity of Appearance |
| 25 | PSS | Palustrine Scrub Shrub |
| 26 | PHS | Priority Habitats and Species |
| 27 | SF | Square Feet |
| 28 | TES | Threatened, Endangered, and Sensitive Species |
| 29 | USACE | U.S. Army Corps of Engineers |
| 30 | USFWS | U.S. Fish and Wildlife Service |
| 31 | USGS | U.S. Geological Survey |
| 32 | WDFW | Washington State Department of Fish and Wildlife |
| 33 | WSAR | Wetland and Stream Assessment Report |
| 34 | WSDOT | Washington State Department of Transportation |
| 35 | WRIA | Water Resource Inventory Area |

1. Introduction

Washington State Department of Transportation (WSDOT) Olympic Region proposes to remove the existing fish barrier, a 48-inch diameter corrugated metal pipe (CMP) culvert at US 101 MP 111.34 (referred to herein as Culvert 6) and replace it with a modern and fish passable structure. This project is part of the greater US 101/SR 109 Grays Harbor/Jefferson/Clallam – Fish Barrier Removal package. The final culvert structure and design at this location will meet stream design criteria established in the Water Crossing Design Guidelines (WDFW 2013). The project will result in a net increase of 3,812 LF of in-stream habitat (WSDOT 2021d). This includes improved spawning and rearing habitat for priority species present in the study area.

The purpose of this report is to identify and characterize wetlands and streams in the study area and to discuss sensitive plant, fish, and wildlife species that may occur there. This report will help the design/build team avoid and minimize impacts to critical areas. Culvert 6 is in Grays Harbor County, two miles north of Humptulips, Washington and has been identified as a barrier to fish passage by the Washington State Department of Fish and Wildlife (WDFW) and WSDOT. Correction of the barrier is necessary according to a federal permanent injunction requiring the State of Washington to accelerate fish barrier corrections for salmon and steelhead streams in Washington State (Federal Court Injunction 2013) and the WSDOT Fish Passage Performance Report (WSDOT 2021b).

This Wetland and Stream Assessment Report (WSAR) meets the requirements for wetland assessment as outlined in the WSDOT Environmental Manual (WSDOT 2021a). This report contains descriptions of the natural resources including wetlands and streams, buffers, and Priority Species and associated habitat. Information gathered in this report assists the design/builder and WSDOT to:

- Avoid and minimize impacts to wetlands and other waters during the project design process and construction.
- Document wetland and stream boundary determinations for review by regulatory authorities.
- Describe the anticipated aquatic resource habitat increase, a net benefit anticipated to offset impacts associated with construction.

This report provides supporting documentation for potential federal, state, and local permit applications including review by the U.S. Army Corp of Engineers (USACE), the Washington State Department of Ecology (Ecology), and WDFW. Required permits include the Clean Water Act (CWA) Section 404 permit, Section 401 water quality permit: National Pollution Discharge Elimination System (NPDES) and Construction Stormwater General Permit (CSGP), and Hydraulic Project Approval (HPA).

All waters identified in this report are assumed to be under USACE jurisdiction.

2. Proposed Project

2.1. Project Location

The crossing occurs at US 101 Milepost (MP) 111.34 in Grays Harbor County, approximately two miles north of Humptulips, Washington (Figure 1). The study area lies within Section 4, Township 20 North, Range 10 West. Culvert 6 is in Water Resource Inventory Area (WRIA) 22 (Lower Chehalis). The Land Resource Region (LRR) is Northwest Forest, Forage and Specialty Crop (A) while the Major Land Resource Area (MLRA) is the Sitka Spruce Belt (4A) (NRCS 2006).

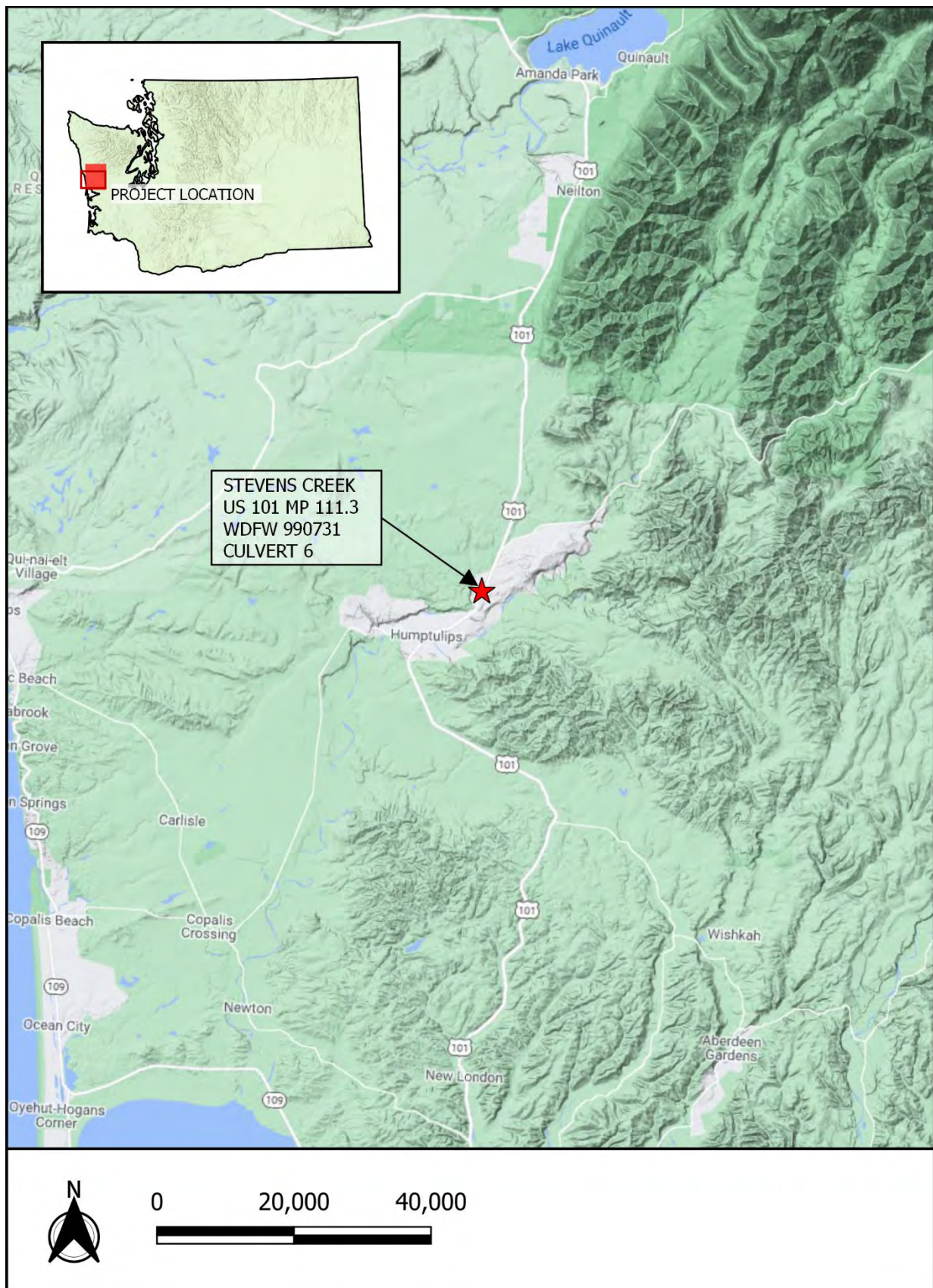


Figure 1. Culvert 6 Vicinity Map

2.2. Project Purpose and Description

WSDOT proposes replacing the fish barrier culvert with a larger, fish passable structure designed to eliminate a human-made barrier to fish migration, improve stream dynamics, and ease the routine maintenance burden. The specific structure will likely be a bridge that meets stream design criteria established in the Water Crossing Design Guidelines (WDFW 2013). Structure dimensions are not yet finalized as design is under way at the time of this report. A temporary traffic bypass will be constructed on one side of US 101 to allow vehicles to pass the work area with only minimal road closures. Work elements may include vegetation clearing, excavation, soil import/export, temporary fill, stream bypass, fish exclusion, culvert placement, dewatering, grading, paving, and roadside and riparian restoration.

Native streambank plantings, placement of suitable fish gravel, and large woody material (LWM) are additional items that are key to this habitat restoration project. These elements will help achieve the project goals of fish habitat improvement and no net loss of stream and riparian habitat over time. The project will gain 3,812 LF of fish habitat (WSDOT 2021b) once completed. Specific habitat structures and elements will be provided under separate design documents as the site design progresses.

2.3. Wetland and Stream Boundary Documentation

Boundaries of wetlands and streams were documented using WSDOT Sensitive Areas Naming & Flagging Conventions (WSDOT 2021g). Wetland sample point locations are marked using black-and-yellow-striped flagging; wetland boundaries are marked with alphanumeric characters on pink-and-black-striped flagging. Stream boundaries are marked with white-and-blue striped flagging.

Professional land surveyors located the flagging hung along boundaries and at data point locations within approximately two weeks of the field work at this site. Geospatial data was delivered to the project team in MicroStation and used to develop the figure that is attached to this report in Appendix D.

2.4. Study Area

The study area is shown in Figure 2 and Appendix D. The study area is based on the current level of design information and should be considered a draft; if the study area changes at a later stage of design, additional field delineation of wetlands and streams may be necessary. It includes the proposed work area needed for equipment to replace the culvert, the area for a proposed temporary bypass roadway, and adequate room for equipment clearance.

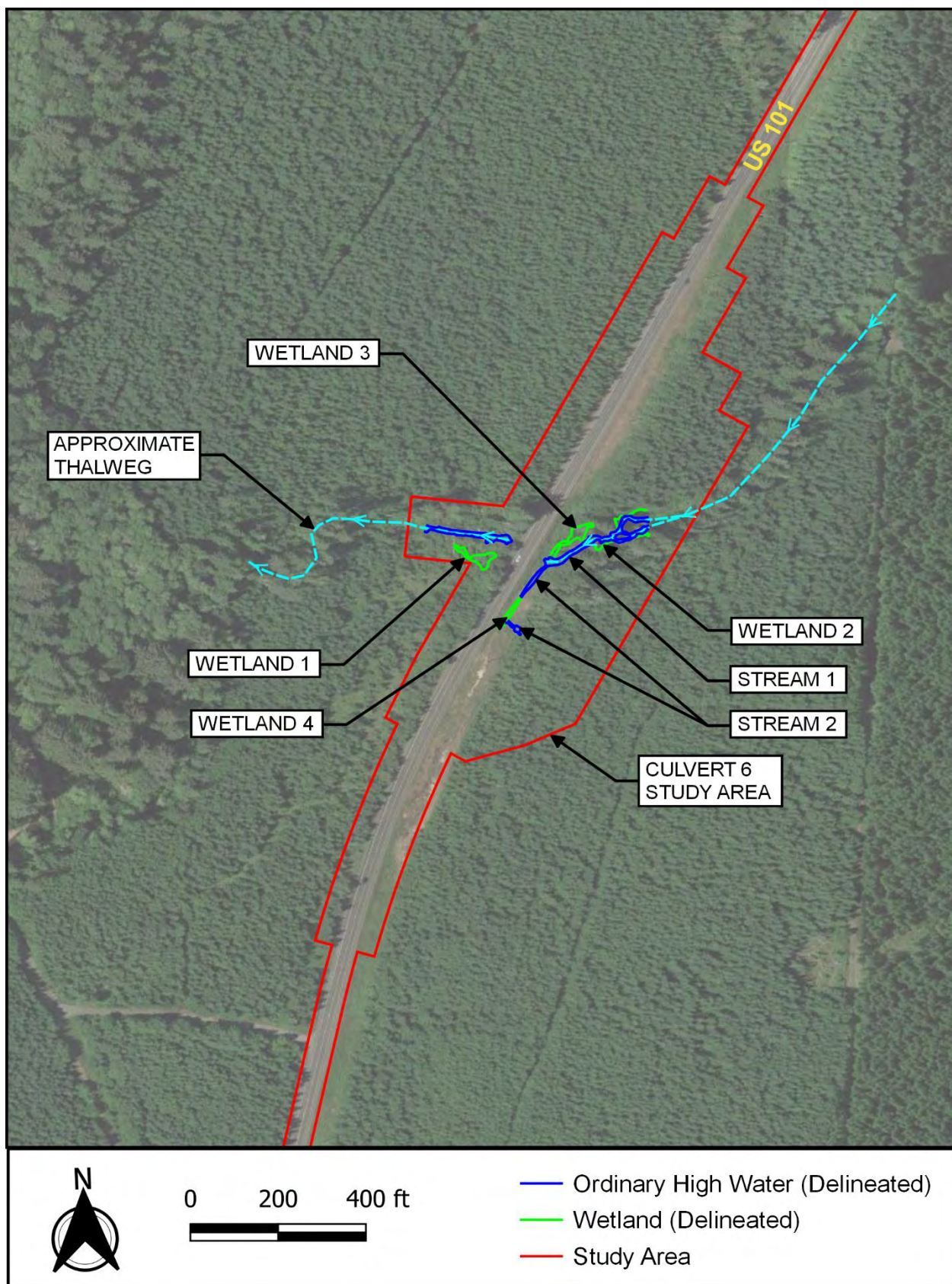


Figure 2. Wetland and stream locations within study area boundaries.

3. Methods

The following data sources were reviewed for information on precipitation, topography, drainage patterns, soils, vegetation, and potential or known wetlands and streams in the project vicinity:

- Natural Resources Conservation Service (NRCS) Climate Data for Grays Harbor County, Station HOQUIAM BOWERMAN AP, Washington (NRCS 2021a) (Appendix A-1 and A-2).
- U.S. Geological Survey (USGS) Digital Raster Graphics topographic maps (USGS 2021.) (Appendix A-3).
- National Wetlands Inventory (NWI) maps (USFWS 2017; FGDC 2013) (Appendix A-4).
- NRCS, Soil Survey of Grays Harbor County Washington (NRCS 2021b) and Washington State Hydric Soils (NRCS 2021c) (Appendix A-5).

Scientific plant names in this report are from the USACE National Wetland Plant List, version 3.4 (USACE 2018).

Wetlands, stream, and aquatic resources assessment field work was completed:

- July 24, July 25, July 29, and November 30, 2021.
- By O'Neill Service Group wetland biologists: Camille Felkins; Mike Foster, PWS; Shannon Ingebright, WPIT; and Alea McDonald, WPIT.
- While walking the extent of the study area.

Wetland and stream assessment and report preparation follows policy and guidance on the WSDOT Wetlands webpage (WSDOT 2021c).

3.1. Wetland Delineation, Classification, and Buffers

Wetlands were delineated using routine methods described in:

- Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987).
- Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0) (USACE 2010).

Wetland boundaries were delineated based on on-site observations of vegetation, soils, and hydrology in conjunction with background information listed above. If wetlands were judged to be a considerable distance from anticipated work, boundaries were approximated and depicted in Appendix D as "approximate".

Wetlands were classified using the U.S. Fish and Wildlife Service (USFWS) classification system (Cowardin) (USFWS 2017; FGDC 2013) and the hydrogeomorphic classification system (HGM) (Brinson 1993). Wetlands were rated using the Washington State Wetland Rating System for Western Washington – 2014 Update (Rating System) (Hruby 2014). The Grays Harbor County Code (GHC 2021) uses the current version (2014) of the Rating System for buffer sizing.

The Grays Harbor County wetland buffers as described in GHC Table 37.1 were applied to the wetlands shown in this report. Wetland buffers in Grays Harbor County are determined by four criteria as outlined in Section 18.06.380 of the GHC, as follows: 1) overall category as determined by the Rating System, 2) the specific Habitat Function Score component derived from the Rating System, 3) the use of mitigating best management practices (BMPs) during construction listed

under GHC Table 37.2., and 4) protections for nearby priority habitats. Buffer widths reported herein are derived from Table 37.1 as the BMPs listed in Table 37.2 are anticipated to be implemented during the construction phase. Buffer widths range from 40 to 300 feet depending on the variables mentioned above. Wetland buffer conditions within the study area were assessed using the following criteria:

- Land use (e.g., agriculture, residential, commercial, industrial).
- Buffer vegetation structure (tree, shrub, herb, vine, un-vegetated).
- Buffer vegetation community (dominant plant species per strata, native vs. non-native dominants, and description of invasive species or noxious weeds).

3.2. Stream Delineation, Classification, and Buffers

The ordinary high water mark (OHWM) of each stream was delineated using USACE guidance for OHWM identification (USACE 2014).

Fish presence was determined based on available WDFW Fish Passage Inventory (WDFW 2021a) and Fish Distribution data (WDFW 2021b; WDFW 2021c; WDFW 2021d). Background information in the Preliminary Hydraulic Design Report (PHD) (WSDOT 2020) was also referenced to confirm the presence or absence of fish or fish habitat in the study area.

Grays Harbor County standard stream buffers (GHC 2021) were applied to streams in the project, in conjunction with Washington State Department of Natural Resources (DNR) Forest Practices Rules water type classifications (DNR 2021). Buffer widths range from 50 to 150 feet depending on Water Type (GHC 2021). When wetland and stream buffers overlap, they are treated only as wetland buffer (Appendix D).

3.3. Species and Habitats of Interest

A separate PNF will address impacts to ESA-listed threatened or endangered wildlife species and proposed and designated critical habitat. The PNF form was not complete at the time this WSAR was prepared. This report includes preliminary information regarding potential ESA species and habitat, Washington State threatened, endangered, or sensitive species, and habitats of interest that may occur in or near the study area. The following data sources were reviewed for information on federal and state listed threatened, endangered, candidate, sensitive species, and species of concern (TES), as well as habitats of interest:

- Federally listed threatened, endangered, or candidate wildlife species (NOAA 2021c) (USFWS 2021a) and proposed and designated critical habitat (NOAA 2021b).
- Washington State threatened, endangered, and sensitive plants (DNR 2021b).
- Wetlands of High Conservation Value (DNR 2021).
- WDFW Priority Habitats and Species (PHS) (WDFW 2021b).
- WDFW Stream Specific Fish and Habitat Data (SalmonScape) (WDFW 2021c).
- USFWS Information for Planning and Conservation (IPaC) (USFWS 2021).

4. Existing Conditions

4.1. Landscape Setting

Culvert 6 is in the southern foothills of the Olympic Mountains along the Stevens Creek reach. Stream 1 (the subject Unnamed Tributary) flows eastward through the study area towards Stevens Creek (Figure 2). US 101 runs in a generally north/south orientation where it intersects with Stream 1 at US 101 MP 111.34.

Stream 1 originates approximately 4,800 feet northeast of the US 101 crossing. The landscape near the culvert is characterized by undulating hills with dense conifer forest. The topography of the work area is gently rolling hills with Stream 1 set in a shallow, forested ravine.

The watershed is largely undeveloped except for the US 101 crossing and a network of forest roads. Land cover is predominantly composed of coniferous forest in various successional stages. The parcels surrounding Culvert 6 are currently owned by a commercial timber company, as such historical disturbances in the basin are characterized by a steady rotation of clearcutting followed by a period of recovery (Figure 3). The last logging cycle occurred in 2021 and shows a forested riparian buffer retained around Stream 1.

Culvert 6 is in LRR, Northwest Forest, Forage and Specialty Crop Region within the Sitka Spruce Belt (MLRA) (NRCS 2006). Alluvium and glacial drift are generally the parent material of soils found in the basin (DNR 2021).

4.2. Watershed Description

The project is in the Lower Chehalis watershed (WRIA 22) located within the southwest portion of the state. It is located in the Grays Harbor subbasin (HUC 17100105) which encompasses the Olympic mountains and lower coast range. Principal streams and rivers in the basin include the Humptulips River, the three forks of the Hoquiam River, and the Wishkah River.

The contributing basin for the subject stream at the culvert crossing is approximately 0.34 square miles (WSDOT 2020). Stream 1 flows into Stevens Creek which joins the Humptulips River and ultimately outfalls into Grays Harbor, an estuary in the Pacific Ocean.

The project will result in a net increase of 3,812 linear feet (FT) of in-stream habitat. This includes improved spawning and rearing habitat for priority species present in the project vicinity.



Figure 3. Landscape setting taken on June 25, 2021.

4.3. Climate, Precipitation, and Growing Season

4.3.1. Climate

Climate in the vicinity is typical of the Olympic Peninsula and is generally very wet, humid, and maritime. Rainfall is abundant but generally low intensity, consisting of Pacific frontal storms which average approximately 52 to 60 inches annually for the area. Precipitation is evenly distributed throughout fall, winter, and spring. Snowfall occurs infrequently. This site lies within the coastal fog belt zone, and heavy fogs are common in summer, providing supplemental moisture to the landscape. The average annual temperature ranges from 45°F to 55°F (NRCS 2006).

4.3.2. Precipitation

The Regional Delineation Supplement Version 2.0 (USACE 2010) recommends using methods described in Chapter 19 in the Engineering Field Handbook (NRCS 2015) to determine if precipitation occurring in the three full months prior to the site visit was normal, drier than normal, or wetter than normal. Actual rainfall is compared to the normal range of the 30-year average. Climate conditions for the three months prior to field work is considered “normal”.

The field survey began on June 24, 2021. The study area received 0.17 inches of precipitation in the ten-day period (June 14 to June 23) prior to the field survey as measured at the HOQUIAM BOWERMAN AP (NRCS 2021a). Normal precipitation conditions were present for the months of

1 April, May, and June prior to July field work (Appendix A-1). The precipitation for the ten days
2 prior to field work is considered “light” (Appendix A-1, A-2) (NRCS 2021a).

3 Additional field work took place on November 30, 2021. The study area received 4.49 inches of
4 precipitation in the ten-day period prior to fieldwork. Wetter than normal precipitation conditions
5 were present for the months of September, October, and November (Appendix A-1). The
6 precipitation for the ten days (November 20 to November 29) prior to field work is considered
7 “heavy” (Appendix A-1, A-2) (NRCS 2021a).

8 **4.3.3. Growing Season**

9 In the Pacific Northwest coast region, the beginning and ending dates of the growing season can
10 be defined by biological activity that is readily observable in the field based on above ground
11 growth of vascular plants and soil temperature. However, due to seasonal fluctuations, this can
12 be estimated by the number of frost-free days over a 30-year period. This is defined as the time
13 from the last freezing temperature in spring to the first freezing temperature in fall. Based on data
14 from the HOQUIAM BOWERMAN AP over a 20-year period. The average start and end dates for
15 the growing season are April 23 and October 24 (NRCS 2021a). This is consistent with biological
16 indicators in the field at the time of the site visit which included the presence of deciduous leaves
17 on shrubs and various phenological stages of shrubs and herbaceous plants, including flowering,
18 fruiting, and seed set.

19 **4.4. Wetlands**

20 **4.4.1. Overview**

21 Wetland 1, Wetland 2, Wetland 3, and Wetland 4 are identified and delineated within the study
22 area (Table 1, Appendix D). Wetland 1 contains forested plant communities; Wetland 2 and
23 Wetland 3 contain both forested and scrub-shrub plant communities; and Wetland 4 contains
24 scrub shrub and emergent plant communities. Wetland 1 is a Category II wetland with 7 points
25 for Habitat Function, Wetland 2 is a Category II with 8 points for Habitat Function, Wetland 3 is a
26 Category III with 8 points for Habitat Function, and Wetland 4 is a Category III with 7 points for
27 Habitat Function per the 2014 rating form.

28 Wetland 2 contains additional wetland area outside of the study area boundary evaluated on a
29 reconnaissance level. The approximated wetland area is depicted in Appendix D. The anticipated
30 project will not directly impact the area or the unique buffer that would likely extend from the
31 boundaries.

32 Biologists completed wetland determination data sheets (Appendix B) and wetland rating forms
33 (Appendix C) for the delineated wetlands. Plan sheets showing wetland locations are provided in
34 Appendix D.

Table 1. Wetlands within the project corridor.

| Wetland ^a | Wetland Classification | | | | Wetland Size (acre) | Buffer Width (feet) |
|----------------------|------------------------|--------------|----------------------|---------------------------|---------------------|---------------------|
| | Cowardin ^b | HGM | Ecology ^c | Local Rating ^d | | |
| 1 | PFO | Depressional | II | II | 0.03 | 110 |
| 2 | PFO, PSS | Riverine | II | II | ~0.99 ^e | 225 |
| 3 | PFO, PSS | Depressional | III | III | 0.04 | 225 |
| 4 | PSS, PEM | Depressional | III | III | 0.01 | 110 |
| Total | | | | | ~1.05 ^e | |

^a Wetland identifier

^b NWI Class based on vegetation: PFO = palustrine forested, PSS = palustrine scrub-shrub, PEM=palustrine emergent

^c Ecology rating (Hruby 2014)

^d Grays Harbor County wetland rating (GHC 2021).

^e The portion of Wetland 2 evaluated on a reconnaissance level is included in wetland size based on rating form figure estimations.

4.4.2. Vegetation

Red alder (*Alnus rubra*, FAC), Douglas-fir (*Pseudotsuga menziesii*, FACU), cascara (*Frangula purshiana*, FAC), Pacific ninebark (*Physocarpus capitatus*, FACW), salmonberry (*Rubus spectabilis*, FAC), arctic sweet-colt's-foot (*Petasites frigidus*, FACW), and slough sedge (*Carex obnupta*, OBL) form the dominant vegetation in the delineated wetlands in the study area (Figure 4).

A hydrophytic plant association is dominant in each delineated wetland in the study area. Dominant vegetation in each wetland meets the dominance Test for Hydric Vegetation. See the data sheets for more information on hydrophytic vegetation (Appendix B).



Figure 4. Typical understory vegetation at Culvert 6.

4.4.3. Soils

Soils within the study area are mapped as O'Brien silt loam, 1 to 15 percent slopes (103), Willaby silt loam, 1 to 15 percent slopes (154), and Nordby very gravelly loam, 1 to 8 percent slopes (98). According to the NRCS hydric soil list, no hydric soils were listed in the study area (NRCS 2021c). Diagnostic soils sampled in the study area reveal hydric soil indicators Depleted Matrix (F3) in Wetlands 1, 2, and 4 and Redox Dark Surface (F6) in Wetland 3. See data sheets provided in Appendix B.

4.4.4. Hydrology

Wetland 1 is saturated and occasionally flooded from adjacent upland runoff and precipitation. Wetland 1 may also interact with a shallow groundwater table. Wetland 2 is saturated and occasionally flooded by overbank flooding and a high water table from Stream 1. Wetland 3 is saturated and occasionally flooded from adjacent upland runoff, precipitation, and Stream 1. The Wetland 3 outlet connects to the right bank of Stream 1, adjacent to the upstream culvert opening. Wetland 4 is occasionally flooded from runoff, precipitation, and hydrologic inputs from Stream 2. Hydrologic indicators Saturation (A3), Geomorphic Position (D2), and Dry Season Water Table (C2) are present in Wetland 1. High Water Table (A2), Geomorphic Position (D2), and Saturation (A3) are present in Wetlands 2 and 4. Surface Water (A1), Saturation (A3), Dry Season Water Table (C2), and Geomorphic Position (D2) are present in Wetland 3.

4.4.5. Wetland Buffers

The buffer adjacent to Wetland 1 is predominantly composed of a Douglas-fir, salal (*Gaultheria shallon*, FACU), and sword fern (*Polystichum munitum*, FACU) association. A vine maple (*Acer circinatum*, FAC), salmonberry, and hardhack (*Spiraea douglasii*, FACW) association replaces the Douglas-fir forest within the riparian fringe (Figure 5). The Wetland 2 and 3 buffers are composed of red alder, cascara, and salmonberry along the riparian fringe. Individual, large-diameter (over 30-inch diameter at breast height [DBH]) Sitka spruce (*Picea sitchensis*, FAC) are also rooted adjacent to the riparian zone. The Wetland 4 buffer consists of a large slope to the east and US 101 to the west. Stream 2 encompasses the north buffer.


The buffers provide good overstory; contributing shade and organic matter inputs with dense swaths of sword fern and salal that act as habitat for small mammals. Each wetland buffer is truncated by US 101 to an extent. Limited invasive species were detected within the wetlands. Buffer widths are shown in Appendix D and summarized below.




1
2

Figure 5. Typical buffer in the study area.

1 Table 2. Wetland 1 summary


| WETLAND 1 – INFORMATION SUMMARY | | | |
|---|--|---------------------|-----------------------------------|
| Location: | | Southeast of US 101 | |
|  | Local Jurisdiction | | Grays Harbor County |
| | Ecology Rating (2014) | | II |
| | Local Rating | | II |
| | Local Buffer Width | | 110 feet |
| | Wetland Size | | 0.03 acres |
| | Cowardin Class | | PFO |
| | HGM Class | | Depressional |
| | Wetland Data Sheet(s) | | Appendix B; Sampling Point W1-SP1 |
| | Upland Data Sheet(s) | | Appendix B; Sampling Point W1-SP2 |
| Wetland Delineation | | | |
| Dominant Vegetation | Trees – red alder (<i>Alnus rubra</i> FAC) Shrubs – salmonberry (<i>Rubus spectabilis</i> , FAC); Pacific ninebark (<i>Physocarpus capitatus</i> , FACW) Herbaceous – slough sedge (<i>Carex obnupta</i> , OBL), arctic sweet-colt's-foot (<i>Petasites frigidus</i> , FACW) | | |
| Soils | W1-SP1 consists of one soil layer. The layer is a gray (10YR 5/1) silty clay loam with 5 percent, prominent, dark yellowish brown (10YR 4/6) redoximorphic concentrations from 0 to 16 inches. Depleted Matrix indicator (F3) met. | | |
| Hydrology | Soils were saturated 10 inches below the soil surface and the water table was present at 14 inches below the soil surface. Precipitation, runoff, and a shallow groundwater table are the sources of hydrology. Indicators Saturation (A3), Dry-Season Water Table (C2), and Geomorphic Position (D2) met. | | |
| Rationale for Delineation | The boundaries of this depressional wetland are flagged where indicators of wetland vegetation, hydric soils, and wetland hydrology were present. These indicators correspond to small, ponded interior and a wetland boundary exhibiting saturated soils. | | |
| Wetland Rating | | | |
| Rationale for Local Rating | The Grays Harbor County Code classifies wetlands based on the 2014 Washington State Wetland Rating System (Grays Harbor, 2021). Wetland 1 rates as a Category II wetland with 7 points for Habitat Function. | | |
| Wetland Buffers | | | |
| Buffer Condition | The buffer is composed of mature Douglas-fir and Sitka spruce with an understory of salmonberry, hardhack, sword fern, and salal. | | |

1 **Table 3. Wetland 2 summary**


| WETLAND 2 – INFORMATION SUMMARY | | | |
|---|--|---------------------|-----------------------------------|
| Location: | | East side of US 101 | |
|  | Local Jurisdiction | | Grays Harbor County |
| | Ecology Rating (2014) | | II |
| | Local Rating | | II |
| | Local Buffer Width | | 225 feet |
| | Wetland Size ^a | | ~0.99 acres |
| | Cowardin Class | | PFO, PSS |
| | HGM Class | | Riverine |
| | Wetland Data Sheet(s) | | Appendix B; Sampling Point W2-SP1 |
| | Upland Data Sheet(s) | | Appendix B; Sampling Point W2-SP2 |
| Wetland Delineation | | | |
| Dominant Vegetation | Trees – western hemlock (<i>Tsuga heterophylla</i> , FACU); cascara (<i>Frangula purshiana</i> , FAC) Shrubs – salmonberry (<i>Rubus spectabilis</i> , FAC) Herbaceous – slough sedge (<i>Carex obnupta</i> , OBL) | | |
| Soils | W2-SP1 consists of one soil layer. The layer is a dark gray (10YR 4/1) sandy loam with large cobbles from 0 to 18 inches. Redox features assumed masked. Depleted Matrix (F3) assumed to meet. | | |
| Hydrology | At the time of the visit, soils were saturated to the surface and a water table was present at 9 inches. Overbank flooding and high-water table contribute to hydrology for this wetland. Indicators Saturation (A3), High Water Table (A2), and Geomorphic Position (D2) met. | | |
| Rationale for Delineation | The boundaries of this wetland are flagged where indicators of wetland vegetation, hydric soils, and wetland hydrology were present. These indicators correspond to large, flooded areas and a saturated wetland boundary. | | |
| Wetland Rating | | | |
| Rationale for Local Rating | The Grays Harbor County Code classifies wetlands based on the 2014 Washington State Wetland Rating System (Grays Harbor, 2021). Wetland 2 rates as a Category II wetland with 8 points for Habitat Function. | | |
| Wetland Buffers | | | |
| Buffer Condition | The buffer is composed of mature Douglas-fir and Sitka spruce with an understory of cascara, salmonberry, spirea, sword fern, and salal. | | |

2 ^b Reconnaissance level portion of Wetland 2 is included in wetland size based on rating form figure estimations.

1 Table 4. Wetland 3 summary

| WETLAND 3 – INFORMATION SUMMARY | | |
|---|--|-----------------------------------|
| Location: | East side of US 101, north side of Stream 1 | |
|  | Local Jurisdiction | Grays Harbor County |
| | Ecology Rating (2014) | III |
| | Local Rating | III |
| | Local Buffer Width | 225 feet |
| | Wetland Size | 0.04 acres |
| | Cowardin Class | PFO, PSS |
| | HGM Class | Depressional |
| | Wetland Data Sheet(s) | Appendix B; Sampling Point W3-SP1 |
| Upland Data Sheet(s) | Appendix B; Sampling Point W3-SP2 | |
| Wetland Delineation | | |
| Dominant Vegetation | Trees – cascara (<i>Frangula purshiana</i> , FAC) Shrubs – salmonberry (<i>Rubus spectabilis</i> , FAC) Herbaceous – arctic sweet-colt's-foot (<i>Petasites frigidus</i> , FACW), coastal hedge nettle (<i>Stachys chamissonis</i> , FACW). | |
| Soils | W3-SP1 consists of one soil layer. It is a very dark grayish brown (10YR 3/2) silt loam with 2 percent prominent redoximorphic concentrations (7.5YR 5/6) observed throughout the 16-inch-thick soil layer. Indicator Redox Dark Surface (F6) met. | |
| Hydrology | Soils were saturated at the surface with a water table present at 15 inches below ground surface. The wetland is saturated and occasionally flooded from adjacent upland runoff, precipitation, and the adjacent stream. The Wetland 3 outlet connects to the right bank of Stream 1. Indicators Saturation (A3), Dry-Season Water Table (C2), and Geomorphic Position (D2) met. | |
| Rationale for Delineation | The boundaries of the wetland were flagged where indicators of wetland vegetation, hydric soils, and wetland hydrology were present. This corresponds to a large, depressional area with an outlet connecting to the Stream 1. | |
| Wetland Rating | | |
| Rationale for Local Rating | The Grays Harbor County Code classifies wetlands based on the 2014 Washington State Wetland Rating System (Grays Harbor, 2021). Wetland 3 rates as a Category III wetland with 8 points for Habitat Function. | |
| Wetland Buffers | | |
| Buffer Condition | The buffer is composed of mature Douglas-fir and Sitka spruce with an understory of vine maple, salmonberry, spirea, sword fern, salal, and some evidence of invasive species. | |

1 Table 5. Wetland 4 summary

| WETLAND 4 – INFORMATION SUMMARY | | |
|---|---|-----------------------------------|
| Location: | East side of US 101, south side of Stream 2 | |
|  | Local Jurisdiction | Grays Harbor County |
| | Ecology Rating (2014) | III |
| | Local Rating | III |
| | Local Buffer Width | 110 feet |
| | Wetland Size | 0.01 acres |
| | Cowardin Class | PSS, PEM |
| | HGM Class | Depressional |
| | Wetland Data Sheet(s) | Appendix B; Sampling Point W4-SP1 |
| Upland Data Sheet(s) | Appendix B; Sampling Point W4-SP2 | |
| Wetland Delineation | | |
| Dominant Vegetation | Shrubs – black cottonwood (<i>Populus balsamifera</i> , FAC) Herbaceous – slough sedge (<i>Carex obnupta</i> , OBL) | |
| Soils | W4-SP1 consists of one soil layer. The layer is a dark gray (10YR 4/1) silt loam with 5 percent prominent redoximorphic concentrations (7.5YR 4/4) observed throughout the 12-inch-thick soil layer. Indicator Depleted Matrix (F3) met. | |
| Hydrology | Water was ponded 4 inches above the soil surface and a water table was present at ground surface. The wetland is occasionally flooded from adjacent upland runoff, precipitation, and the adjacent stream. The Wetland 4 outlet connects to Stream 2. Indicators Surface Water (A1), High Water Table (A2), and Geomorphic Position (D2) met. | |
| Rationale for Delineation | The boundaries of the wetland are flagged where indicators of wetland vegetation, hydric soils, and wetland hydrology were present. This corresponds to a channelized depression, with Stream 2 entering the wetland to the east and an outlet connecting to Stream 2 to the north. | |
| Wetland Rating | | |
| Rationale for Local Rating | The Grays Harbor County Code classifies wetlands based on the 2014 Washington State Wetland Rating System (Grays Harbor, 2021). Wetland 3 rates as a Category III wetland with 7 points for Habitat Function. | |
| Wetland Buffers | | |
| Buffer Condition | The buffer is composed of an understory of vine maple, salmonberry, spirea, sword fern, salal to the east, US 101 to the south, and Stream 2 to the north. There is some evidence of invasive species. | |

4.5. Streams

Two streams are identified and delineated in the study area (Table 6).

Stream 1 is the Unnamed Tributary (WDFW Site ID 990731) that flows southwest under US 101 at MP 111.34 and will be subject to proposed habitat improvement. The tributary is a Type F stream (DNR 2021a) as there are documented fish species in Stevens Creek that are presumed to travel up this branch. The stream also meets criteria for fish habitat. Stream 1 requires a 150-foot standard buffer (GHC 2021). The delineated subject stream is a tributary to Stevens Creek. It generally flows southwest to its confluence with Stevens Creek, which joins the Humptulips River and ultimately drains into Grays Harbor.

Stream 2 originates southeast of the subject culvert and flows down a short slope for approximately 30-feet before entering the channelized portion of Wetland 4. Stream 2 then flows northeast through Wetland 4 (parallel to US 101) for approximately 125-feet before out falling into Stream 1. Surface water was observed in the upstream channel in July 2021 after a period of light rain suggesting the feature carries discharged groundwater in addition to stormwater runoff. Heavy flow was observed during the site visit in November. The stream likely does not provide habitat for fish as there is a natural drop into the edge of Stream 1, and the stream exhibits a narrow and incised channel that dips below the minimum width criteria for a fish habitat stream at several points. Stream 2 is a DNR Type Ns stream requiring a 50-foot standard buffer (GHC 2021).

Table 6. Streams within the study area.

| Stream Name | DNR Water Type ^a | Local Buffer Width (feet) ^b |
|--|-----------------------------|--|
| Stream 1 - Unnamed Tributary to Stevens Creek | F | 150 |
| Stream 2 –Unnamed Tributary to Stream 1 | Ns | 50 |

^a DNR Water Types: Type F = Streams and waterbodies that are known to be used by fish or meet the physical criteria to be potentially used by fish. Fish streams may or may not have flowing water all year; they may be perennial or seasonal. Type Ns = Streams that do not have surface flow during at least some portion of the year, and do not meet the physical criteria of a Type F stream (DNR 2021a).


^b GHC buffers applied (GHC 2021)

1 **Table 7. Subject Unnamed Tributary to Stevens Creek summary.**

| STREAM 1 - INFORMATION SUMMARY | | |
|---|---|--|
|  | Stream Name | Unnamed Tributary to Steven Creek / Stream 1 |
| | Long./Lat. ID Number | 47.150269, -123.554006 |
| | WRIA Name/Stream # | WRIA 22 / Unnamed Tributary |
| | WDFW Site ID | 990731 |
| | Local Jurisdiction | Grays Harbor County |
| | DNR Water Type | F |
| | Local Stream Rating | Type F |
| | Buffer Width | 150 feet |
| Presumed Fish Use^a | | Rainbow Trout/ Winter Steelhead/ Humptulips <i>Oncorhynchus mykiss</i> ; Coastal cutthroat trout (Resident, Humptulips) <i>Oncorhynchus clarki</i> ; Coho salmon / Humptulips <i>Oncorhynchus kisutch</i> ; Fall Chum salmon <i>Oncorhynchus keta</i> ; Fall Chinook/ Humptulips <i>Oncorhynchus tshawytscha</i> ; Bull Trout <i>Salvelinus confluentus</i> ; and Dolly Vardan <i>Salvelinus malma</i> |
| Location of Stream Relative to Project | Stream 1 flows southwest under US 101 at MP 111.34 through an existing culvert (WDFW site 990731). | |
| Connectivity | Stream 1 generally runs diagonal from the northeast to the southwest through the study area. It flows into Stevens Creek, which joins the Humptulips River and ultimately discharges into Grays Harbor. | |
| Fish Habitat | Stream 1 flows through a mature forest and shrub cover, providing good shading, nutrient inputs, and potential for LWM recruitment. Both the upstream and downstream reach are overgrown with vegetation. The stream substrate consists of small gravel and fines. LWM and log jams are found in several locations spanning both banks. The downstream reach is lacking suitable spawning habitat but can adequately serve as a migratory corridor during periods of higher flows. Some rearing habitat is present in the upstream reach, and instream cover is provided by the woody material, but the lack of pools and habitat complexity reduce this function in general. | |
| Riparian/Buffer Condition | The existing buffers east and west of the Unnamed Tributary are in good condition with predominantly deciduous forest. Large diameter Sitka spruce and Douglas-fir are also located in the buffer. There is a dense shrub understory with native species including cascara, salmonberry, salal, vine maple, hardhack, and sword fern. | |

2 ^a Documented fish species known to occur in Stevens Creek and presumed to occur in Stream 1 based on available
3 data sources (WDFW 2021a, WDFW 2021b, WDFW 2021c, WDFW 2021d, SWIFD 2021).

1 **Table 8. Unnamed Tributary to Stream 1 summary**

| STREAM 2 - Unnamed Tributary to Stream 1 | | |
|---|--|--|
|  | Stream Name | Unnamed Tributary to Stream 1 / Stream 2 |
| | Long./Lat. ID Number | 47.150196 / -123.554067 |
| | WRIA Name/Stream # | WRIA 22 / Unnamed |
| | WDFW Site ID | 991501 |
| | Local Jurisdiction | Grays Harbor County |
| | DNR Water Type | Ns |
| | Local Stream Rating | Type Ns |
| | Buffer Width | 50 feet |
| | Documented Fish Use^a | None |
| Location of Stream Relative to Project Corridor | Stream 2 flows west down a large slope and enters the western boundary of Wetland 4 before flowing northeast and converging with Stream 1 near the upstream subject culvert opening. | |
| Connectivity | Stream 2 flows north for approximately 125-feet before out falling into Stream 1, which flows into Stevens Creek, which joins the Humptulips River and ultimately discharges into Grays Harbor. | |
| Fish Habitat | Stream 2 likely does not support fish and does not provide fish habitat. Stream 2 exhibits low and seasonal flow, exhibits a natural barrier to migration up stream at the edge of Stream 1, and has a narrow channel that dips below the minimum criteria for fish a habitat stream at several points. The lower portion of this stream is measured at 5 percent grade. Stream 2 is a Type Ns stream (DNR 2021a; GHC 2021). | |
| Riparian/Buffer Condition | The existing buffers east and north of Stream 2 are in good condition with predominantly deciduous forest consisting of a dense shrub understory with native species including salmonberry, red alder, vine maple, and sword fern. The mature forest and shrub cover provides good shading, nutrient inputs, and some potential for LWM recruitment. US 101 borders Stream 2 to the west. | |

2 ^a No documented fish species known to occur in Stream 2 based on available data sources (WSDOT 2020, WDFW
3 2021a; WDFW 2021b; WDFW 2021c; WDFW 2021d).

4.6. Species and Habitats of Interest

The following data is intended to be a preliminary desktop review of priority habitat and species of interest using publicly available data sets. The PNF will be developed to identify species and habitats of interest more accurately within the draft study area defined herein. In addition to ESA species and habitats, information on sensitive or unique wildlife, plants, and habitats occurring in Washington State is provided.

Table 9. Federal and state listed species within half mile of study area

| Common Name | Scientific Name | Federal Status ^{a,c} | State Status ^b |
|----------------------|--------------------------------------|-------------------------------|---------------------------|
| Marbled Murrelet | <i>Brachyramphus marmoratus</i> | Threatened | Endangered |
| Streaked horned lark | <i>Eremophila alpestris strigata</i> | Threatened | Endangered |
| Yellow-billed Cuckoo | <i>Coccyzus americanus</i> | Threatened | Endangered |
| Bull Trout | <i>Salvelinus confluentus</i> | Threatened | Candidate |
| Monarch Butterfly | <i>Danaus plexippus</i> | Candidate | - |

^a USFWS (IPaC) 2021

^b WDFW 2021b

^c NOAA 2021c

Table 10. WDFW priority habitats and species occurring within one mile of the study area

| Common Name ^a | Scientific Name | Location in Relation to Project ^b |
|--|---------------------------------|---|
| Rainbow Trout | <i>Oncorhynchus mykiss</i> | Stevens Creek (Documented), Stream 1 (Presumed) |
| Winter Steelhead / Humptulips | <i>Oncorhynchus mykiss</i> | Stevens Creek (Documented), Stream 1 (Presumed) |
| Coastal cutthroat trout / Resident/ Humptulips | <i>Oncorhynchus clarki</i> | Stevens Creek (Documented), Stream 1 (Presumed) |
| Coho salmon / Humptulips | <i>Oncorhynchus kisutch</i> | Stevens Creek (Documented), Stream 1 (Presumed) |
| Fall Chum salmon | <i>Oncorhynchus keta</i> | Stevens Creek (Documented), Stream 1 (Presumed) |
| Fall Chinook / Humptulips | <i>Oncorhynchus tshawytscha</i> | Stevens Creek (Documented), Stream 1 (Presumed) |
| Bull Trout | <i>Salvelinus confluentus</i> | Stevens Creek (Documented), Stream 1 (Presumed) |
| Dolly Vardan | <i>Salvelinus malma</i> | Stevens Creek (Documented), Stream 1 (Presumed) |
| Wetlands | N/A | Generalized Locations. |

^a WDFW (PHS) 2021b

^b WDFW (SalmonScape) 2021c

5. Limitations

This WSAR documents the investigation, best professional judgment, and conclusions of the design/build environmental team based on the site conditions encountered at the time of this study. The wetland and stream delineations were performed in compliance with accepted standards for professional wetland biologists and applicable federal, state, and local laws and ordinances, and WSDOT policies and guidance. The information contained in this report is correct and complete to the best of our knowledge. It should be considered a preliminary jurisdictional determination of wetlands and other waters until it has been reviewed and approved in writing by the appropriate jurisdictional authorities. The final determination of the wetland boundary, classification, and required setback and buffer will be made by local, state, and federal jurisdictions.

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Appendix A. Background Information

Appendix A includes the following sub-appendices:

- A-1 Comparison of Observed and Normal Precipitation for June 2021 and November 2021
- A-2 Daily Precipitation for 10 Days Preceding Fieldwork for June 2021 and November 2021
- A-3 USGS Topographic Map
- A-4 National Wetland Inventory Map
- A-5 NRCS Soil Survey Map

Appendix A-1. Comparison of Observed and Normal Precipitation

The Regional Delineation Supplement Version 2.0 (USACE 2010) recommends using methods described in Chapter 19 in Engineering Field Handbook (NRCS 2015) to determine if precipitation occurring in the three full months prior to the site visit was normal, drier than normal, or wetter than normal. Actual rainfall is compared to the normal range of the 30-year average. The following table shows this information.

Monthly precipitation data for June 24, 2021, at HOQUIAM BOWERMAN AP, Washington.

| | | Long-term rainfall records ^a | | | Rain fall ^a | Condition dry, wet, normal ^b | Condition Value | Month weight value | Product of previous two columns |
|-----------------------------|-------|---|---------|------------------------|------------------------|---|-----------------|--------------------|---------------------------------|
| | Month | 3 yrs. in 10 less than | Average | 3 yrs. in 10 more than | | | | | |
| 1 st prior month | JUN | 1.72 | 2.39 | 2.82 | 2.93 | W | 3 | 3 | 9 |
| 2 nd prior month | MAY | 2.16 | 3.34 | 4.02 | 1.52 | D | 1 | 2 | 2 |
| 3 rd prior month | APR | 3.62 | 4.98 | 5.86 | 1.57 | D | 1 | 1 | 1 |
| Sum | | | | | | | | 12 | |

^a NRCS 2021a

^b Conditions are considered normal if they fall within the low and high range around the average.

| | | |
|-------|--|-------------------------|
| Note: | <u>If sum is</u> | <u>Condition value:</u> |
| | 6 - 9 then prior period has been drier than normal | Dry (D) = 1 |
| | 10 - 14 then period has been normal | Normal (N) = 2 |
| | 15 - 18 then period has been wetter than normal | Wet (W) = 3 |

Conclusions: Normal precipitation conditions were present prior to the June 24, 2021, field visit.

Monthly precipitation data for November 30, 2021, at HOQUIAM BOWERMAN AP, Washington

| | | Long-term rainfall records ^a | | | | | | | |
|-----------------------------|-------|---|---------|------------------------|------------------------|---|-----------------|--------------------|---------------------------------|
| | Month | 3 yrs. in 10 less than | Average | 3 yrs. in 10 more than | Rain fall ^a | Condition dry, wet, normal ^b | Condition Value | Month weight value | Product of previous two columns |
| 1 st prior month | NOV | 7.82 | 10.60 | 12.44 | 17.23 | W | 3 | 3 | 9 |
| 2 nd prior month | OCT | 3.68 | 6.40 | 7.79 | 7.64 | N | 2 | 2 | 4 |
| 3 rd prior month | SEPT | 1.09 | 2.85 | 3.45 | 5.68 | W | 3 | 1 | 3 |
| Sum | | | | | | | | | 16 |

^a NRCS 2021a

^b Conditions are considered normal if they fall within the low and high range around the average.

| | | |
|-------|--|-------------------------|
| Note: | <u>If sum is</u> | <u>Condition value:</u> |
| | 6 - 9 then prior period has been drier than normal | Dry (D) = 1 |
| | 10 - 14 then period has been normal | Normal (N) = 2 |
| | 15 - 18 then period has been wetter than normal | Wet (W) = 3 |

Conclusions: Normal precipitation conditions were present prior to the June 24, 2021, field visit while wetter than normal conditions occurred prior to the November 30, 2021, field visit.

Appendix A-2. Daily Precipitation Data for 10 Days Preceding Fieldwork

Daily Precipitation for 10 Days Preceding Fieldwork, HOQUIAM BOWERMAN AP Washington

To determine if light, moderate, or heavy precipitation occurred in the 10 days prior to field work, the 10-day total is compared to 1/3 of the monthly average precipitation for the month evaluated (NRCS 2021a).

Daily precipitation data preceding the July 24, 2021, field visit for HOQUIAM BOWERMAN AP, Washington.

| Date (2021) | Daily Precipitation (inches) ^a |
|----------------|---|
| 2021-06-23 | 0.01 |
| 2021-06-22 | 0 |
| 2021-06-21 | 0 |
| 2021-06-20 | 0 |
| 2021-06-19 | 0 |
| 2021-06-18 | 0 |
| 2021-06-17 | 0 |
| 2021-06-16 | 0 |
| 2021-06-15 | 0.16 |
| 2021-06-14 | 0 |
| Sum | 0.17 |

^a NRCS 2021a

Conclusions: Light precipitation was recorded in the ten days preceding field work.

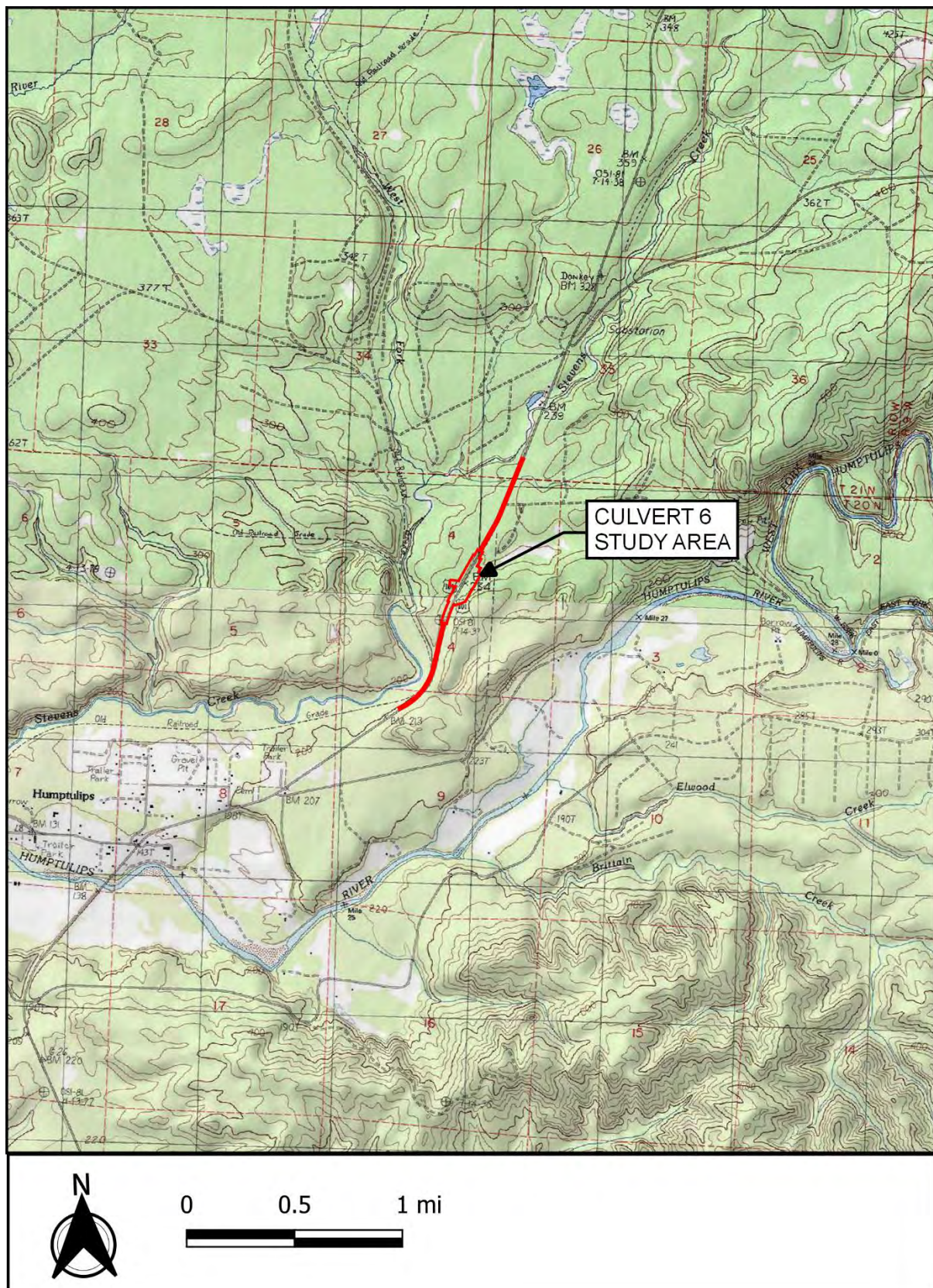
Daily precipitation data preceding the November 30, 2021, field visit for HOQUIAM BOWERMAN AP, Washington.

| Date (2021) | Daily Precipitation (inches)^a |
|------------------------|---|
| 2021-11-29 | 0.60 |
| 2021-11-28 | 1.47 |
| 2021-11-27 | 0.09 |
| 2021-11-26 | 1.41 |
| 2021-11-25 | 0.32 |
| 2021-11-24 | 0.02 |
| 2021-11-23 | 0.56 |
| 2021-11-22 | 0.01 |
| 2021-11-21 | 0.0 |
| 2021-11-20 | 0.01 |
| Sum | 4.49 |

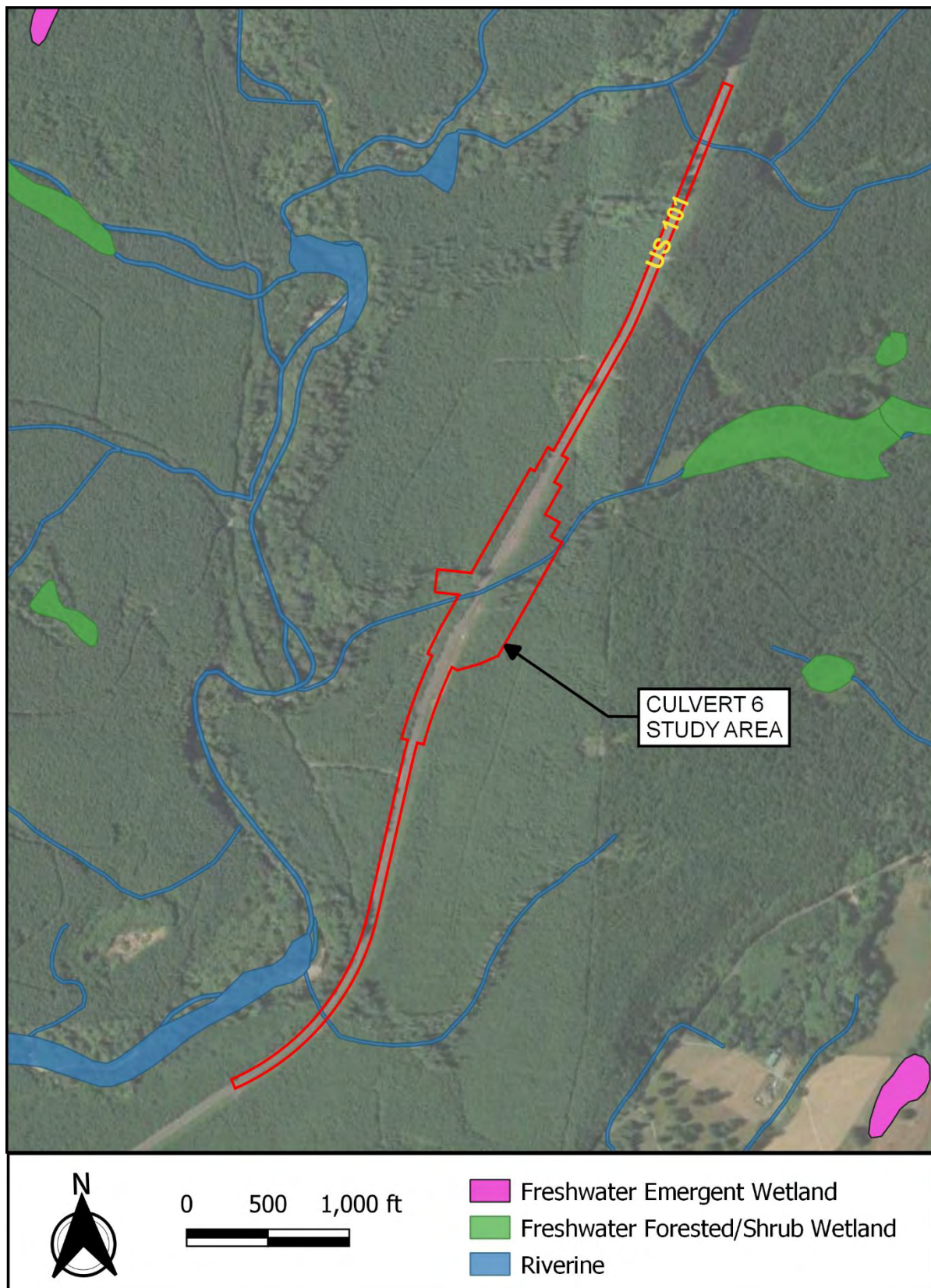
^a NRCS 2021a

Conclusions: Heavy precipitation was recorded in the ten days preceding field work.

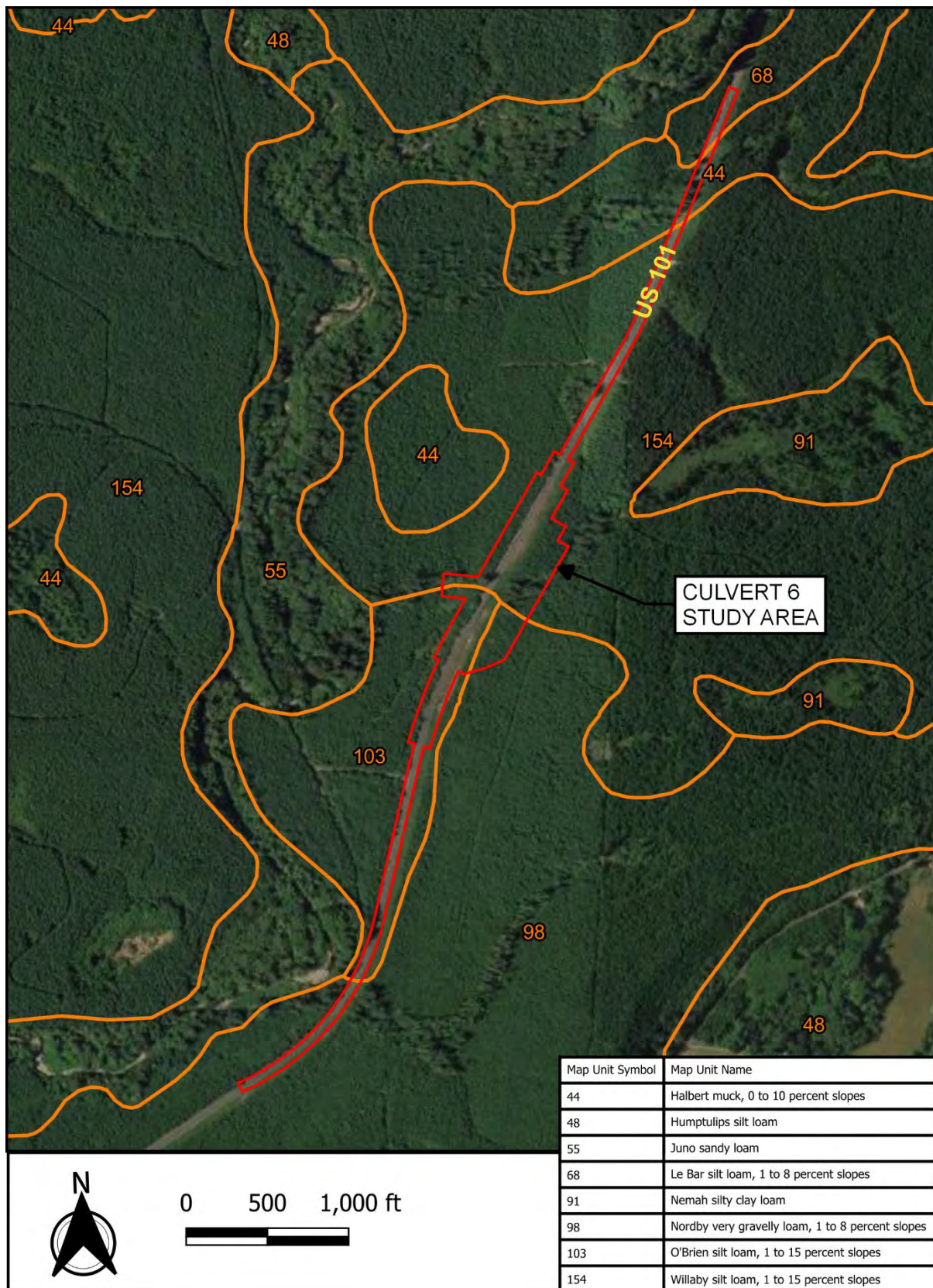
Appendix A-3. USGS Topographic Map



Appendix A-4. National Wetland Inventory Map



Appendix A-5. NRCS Soil Survey Map



Appendix B. Wetland Delineation Data Sheets

Appendix B includes the following sample point data sheets:

W1-SP1

W1-SP2

W2-SP1

W2-SP2

W3-SP1

W3-SP2

W4-SP1

W4-SP2

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

Project/Site: Bundle 1/Culvert 6/WDFW ID 990731 City/County: Grays Harbor Sampling Date: 6/24/21
 Applicant/Owner: WSDOT State: WA Sampling Point: W1-SP1
 Investigator(s): Alee McDonald & Shannon Ingebright Section, Township, Range: 4-20N-10W
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): None
 Subregion (LRR): LRR A Lat: 47.150236 Long: -123.554277 Datum: WGS1984
 Soil Map Unit Name: Willaby silt loam, 1 to 15 percent slopes (154) / O'Brien silt loam 1 to 15 percent slopes (103) NWI classification: _____

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

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

| | | |
|--|--|---|
| Hydrophytic Vegetation Present? | Yes <input checked="" type="checkbox"/> No _____ | Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____ |
| Hydric Soil Present? | Yes <input checked="" type="checkbox"/> No _____ | |
| Wetland Hydrology Present? | Yes <input checked="" type="checkbox"/> No _____ | |
| Remarks: -Wetland 1 paired in pit. -Pit located in depression 20' south of Stream 1. | | |

VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: <u>5m</u>) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B) |
|---|------------------|----------------------|------------------|---|
| 1. <u>Alnus rubra</u> | <u>10</u> | <u>Y</u> | <u>FAC</u> | |
| 2. _____ | _____ | _____ | _____ | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | <u>10</u> | <u>= Total Cover</u> | | Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____ |
| Sapling/Shrub Stratum (Plot size: <u>3m</u>) | | | | |
| 1. <u>Physocarpus capitatus</u> | <u>15</u> | <u>Y</u> | <u>FACW</u> | |
| 2. <u>Rubus spectabilis</u> | <u>10</u> | <u>Y</u> | <u>FAC</u> | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is 50 % ___ 3 - Prevalence Index is $\leq 3.0^1$ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. |
| 5. _____ | <u>25</u> | <u>= Total Cover</u> | | |
| Herb Stratum (Plot size: <u>1m</u>) | | | | |
| 1. <u>Petasites frigidus</u> | <u>90</u> | <u>Y</u> | <u>FACW</u> | |
| 2. <u>Carex obnupta</u> | <u>40</u> | <u>Y</u> | <u>OBL</u> | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| 6. _____ | _____ | _____ | _____ | |
| 7. _____ | _____ | _____ | _____ | |
| 8. _____ | _____ | _____ | _____ | |
| 9. _____ | _____ | _____ | _____ | |
| 10. _____ | _____ | _____ | _____ | Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ |
| 11. _____ | <u>130</u> | <u>= Total Cover</u> | | |
| Woody Vine Stratum (Plot size: <u>3m</u>) | | | | |
| 1. _____ | _____ | _____ | _____ | |
| 2. _____ | _____ | _____ | _____ | |
| _____ | <u>0</u> | <u>= Total Cover</u> | | |
| % Bare Ground in Herb Stratum <u>0</u> Remarks: | | | | |

SOIL

Sampling Point: W1-SP1

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

[illegible]

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

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

Indicators for Problematic Hydric Soils³:

| | |
|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input checked="" type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) |

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes X No _____ Depth (inches): 14"

Saturation Present? Yes X No _____ Depth (inches): 10"
(includes capillary fringe)

Wetland Hydrology Present? Yes ^X No

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

Remarks:

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

Project/Site: Bundle 1/Culvert 6/WDFW ID 990731 City/County: Grays Harbor Sampling Date: 6/24/21
 Applicant/Owner: WSDOT State: WA Sampling Point: W1-SP2
 Investigator(s): Alee McDonald & Shannon Ingebright Section, Township, Range: 4-20N-10W
 Landform (hillslope, terrace, etc.): Slight Slope Local relief (concave, convex, none): None Slope (%): 1
 Subregion (LRR): LRR A Lat: 47.150248 Long: -123.554203 Datum: WGS1984
 Soil Map Unit Name: Willaby silt loam, 1 to 15 percent slopes (154) / O'Brien silt loam 1 to 15 percent slopes (103) NWI classification: _____

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

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

| | |
|---|--|
| Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/> | Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> |
| Remarks: -Wetland 1 paired out pit. Please be aware additional field work completed in November 2021 resulted in the Wetland 1 eastern boundary expanding to encompass W1-SP2. The data pit remains incorporated in the WSAR since it accurately depicts conditions observed during the June field work. | |

VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: <u>5m</u>) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: |
|---|------------------|-------------------|------------------|--|
| 1. <u>Alnus rubra</u> | 25 | Y | FAC | Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80%</u> (A/B) |
| 2. <u>Picea sitchensis</u> | 15 | Y | FAC | |
| 3. <u>Tsuga heterophylla</u> | 10 | Y | FACU | |
| 4. _____ | _____ | _____ | _____ | |
| | | 50 | = Total Cover | Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____ |
| Sapling/Shrub Stratum (Plot size: <u>3m</u>) | | | | |
| 1. <u>Rubus spectabilis</u> | 60 | Y | FAC | |
| 2. <u>Gaultheria shallon</u> | trace | | FACU | |
| 3. _____ | _____ | _____ | _____ | |
| | | 60 | = Total Cover | Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is 50 % <input type="checkbox"/> 3 - Prevalence Index is $\leq 3.0^1$ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. |
| Herb Stratum (Plot size: <u>1m</u>) | | | | |
| 1. <u>Carex obnupta</u> | 20 | Y | OBL | |
| 2. _____ | _____ | _____ | _____ | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| 6. _____ | _____ | _____ | _____ | |
| 7. _____ | _____ | _____ | _____ | |
| 8. _____ | _____ | _____ | _____ | |
| 9. _____ | _____ | _____ | _____ | |
| | | 20 | = Total Cover | |
| Woody Vine Stratum (Plot size: <u>3m</u>) | | | | |
| 1. <u>Rubus ursinus</u> | trace | | FACU | Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ |
| 2. _____ | _____ | _____ | _____ | |
| | | 0 | = Total Cover | |
| % Bare Ground in Herb Stratum <u>80</u> | | | | |
| Remarks: | | | | |

SOIL

Sampling Point: W1-SP2

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

[illegible]

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

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

Indicators for Problematic Hydric Soils³:

- | | | |
|--|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> 2 cm Muck (A10) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input checked="" type="checkbox"/> Depleted Matrix (F3) | ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) | |

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No

Remarks:

Depleted Matrix technically met, however redox barely present and very difficult to find.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes ^x No _____ Depth (inches): 16"

Saturation Present? Yes ^x No Depth (inches): 14"

(includes capillary fringe)

Wetland Hydrology Present? Yes No ^X

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

Remarks:

This entire area was marginal. Used hydrology differential to identify the wetland boundaries. Saturation was 4 inches higher and water table was 2 inches higher in W1-SP1 (in-pit).

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

Project/Site: Bundle 1/Culvert 6/WDFW ID 990731 City/County: Grays Harbor Sampling Date: 6/25/21
 Applicant/Owner: WSDOT State: WA Sampling Point: W2-SP1
 Investigator(s): Alee McDonald & Shannon Ingebright Section, Township, Range: 4-20N-10W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): None
 Subregion (LRR): LRR A Lat: 47.150433 Long: -123.553268 Datum: WGS1984
 Soil Map Unit Name: Willaby silt loam, 1 to 15 percent slopes (154) / Nordby very gravelly loam 1 to 8 percent slopes (98) NWI classification: _____

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

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

| | | |
|--|--|---|
| Hydrophytic Vegetation Present? | Yes <input checked="" type="checkbox"/> No _____ | Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____ |
| Hydric Soil Present? | Yes <input checked="" type="checkbox"/> No _____ | |
| Wetland Hydrology Present? | Yes <input checked="" type="checkbox"/> No _____ | |
| Remarks: -Wetland 2 in pit. -Pit located 15' south of WM1 left bank. | | |

VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: <u>5m</u>) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75%</u> (A/B) |
|---|------------------|----------------------|------------------|--|
| 1. <u>Frangula purshiana</u> | <u>70</u> | <u>Y</u> | <u>FAC</u> | |
| 2. <u>Tsuga heterophylla</u> | <u>30</u> | <u>Y</u> | <u>FACU</u> | |
| 3. <u>Alnus rubra</u> | <u>15</u> | | <u>FAC</u> | |
| 4. <u>Pseudotsuga menziesii</u> | <u>trace</u> | | <u>FACU</u> | |
| | <u>115</u> | <u>= Total Cover</u> | | |
| Sapling/Shrub Stratum (Plot size: <u>3m</u>) | | | | |
| 1. <u>Rubus spectabilis</u> | <u>90</u> | <u>Y</u> | <u>FAC</u> | Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____ |
| 2. <u>Gaultheria shallon</u> | <u>10</u> | | <u>FACU</u> | |
| 3. _____ | | | | |
| 4. _____ | | | | |
| 5. _____ | | | | |
| | <u>100</u> | <u>= Total Cover</u> | | |
| Herb Stratum (Plot size: <u>1m</u>) | | | | |
| 1. <u>Carex obnupta</u> | <u>70</u> | <u>Y</u> | <u>OBL</u> | Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>X</u> <u>2</u> - Dominance Test is 50 % <u>3</u> - Prevalence Index is $\leq 3.0^1$ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u>5</u> - Wetland Non-Vascular Plants ¹ <u>Problematic Hydrophytic Vegetation¹ (Explain)</u> ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. |
| 2. _____ | | | | |
| 3. _____ | | | | |
| 4. _____ | | | | |
| 5. _____ | | | | |
| 6. _____ | | | | |
| 7. _____ | | | | |
| 8. _____ | | | | |
| 9. _____ | | | | |
| 10. _____ | | | | |
| 11. _____ | | | | |
| | <u>70</u> | <u>= Total Cover</u> | | |
| Woody Vine Stratum (Plot size: <u>3m</u>) | | | | |
| 1. _____ | | | | Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ |
| 2. _____ | | | | |
| | <u>0</u> | <u>= Total Cover</u> | | |
| % Bare Ground in Herb Stratum <u>30</u> | | | | |
| Remarks: | | | | |

SOIL

Sampling Point: W2-SP1

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

[illegible]

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

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

Indicators for Problematic Hydric Soils³:

- | | | |
|--|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> 2 cm Muck (A10) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input checked="" type="checkbox"/> Depleted Matrix (F3) | ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) | |

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No

Remarks:

No redox detected, however, veg and hydro are in. Chroma is very low, but no redox detected. It is assumed that redox is masked by strong hydrology in this soil and that hydrix soil indicator F3 is met.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

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)
- ☒ **X** Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

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

Water Table Present? Yes X No Depth (inches): 9"

Saturation Present? Yes X No Depth (inches): 0"
(includes capillary fringe)

Wetland Hydrology Present? Yes X No

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

Remarks:

Hydrology appears to be influenced by nearby stream.

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

Project/Site: Bundle 1/Culvert 6/WDFW ID 990731 City/County: Grays Harbor Sampling Date: 6/29/21
 Applicant/Owner: WSDOT State: WA Sampling Point: W2-SP2
 Investigator(s): Alee McDonald & Shannon Ingebright Section, Township, Range: 4-20N-10W
 Landform (hillslope, terrace, etc.): Slight Slope Local relief (concave, convex, none): None Slope (%): 2
 Subregion (LRR): LRR A Lat: 47.150337 Long: -123.553136 Datum: WGS1984
 Soil Map Unit Name: Willaby silt loam, 1 to 15 percent slopes (154) / Nordby very gravelly loam 1 to 8 percent slopes (98) NWI classification: _____

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

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

| | | |
|---------------------------------|--|---|
| Hydrophytic Vegetation Present? | Yes _____ No <input checked="" type="checkbox"/> | Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> |
| Hydric Soil Present? | Yes _____ No <input checked="" type="checkbox"/> | |
| Wetland Hydrology Present? | Yes _____ No <input checked="" type="checkbox"/> | |
| Remarks: -Wetland 2 out pit. | | |

VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: <u>5m</u>) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>40%</u> (A/B) |
|---|---------------------|----------------------|---------------------|---|
| 1. <u>Alnus rubra</u> | <u>70</u> | <u>Y</u> | <u>FAC</u> | |
| 2. <u>Thuja plicata</u> | <u>30</u> | <u>Y</u> | <u>FAC</u> | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____ |
| 100 = Total Cover | | | | |
| Sapling/Shrub Stratum (Plot size: <u>3m</u>) 1. <u>Gaultheria shallon</u> <u>60</u> <u>Y</u> <u>FACU</u> 2. <u>Vaccinium parvifolium</u> <u>20</u> <u>Y</u> <u>FACU</u> 3. <u>Rubus spectabilis</u> <u>5</u> _____ <u>FAC</u> 4. _____ 5. _____ | | | | |
| 85 = Total Cover | | | | |
| Herb Stratum (Plot size: <u>1m</u>) 1. <u>Polystichum munitum</u> <u>10</u> <u>Y</u> <u>FACU</u> 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ 11. _____ | | | | Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is 50 % ___ 3 - Prevalence Index is $\leq 3.0^1$ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain) <small>¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</small> |
| 10 = Total Cover | | | | |
| Woody Vine Stratum (Plot size: <u>3m</u>) 1. _____ 2. _____ | | | | |
| 0 = Total Cover | | | | |
| % Bare Ground in Herb Stratum <u>90</u> | | | | Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> |
| Remarks: | | | | |

SOIL

Sampling Point: W2-SP2

[illegible]

HYDROLOGY

| Wetland Hydrology Indicators: | | | Secondary Indicators (2 or more required) | |
|--|--|---|--|--|
| Primary Indicators (minimum of one required; check all that apply) | | | | |
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) | <input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) | | |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Salt Crust (B11) | <input type="checkbox"/> Drainage Patterns (B10) | | |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Aquatic Invertebrates (B13) | <input type="checkbox"/> Dry-Season Water Table (C2) | | |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) | | |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) | <input type="checkbox"/> Geomorphic Position (D2) | | |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Shallow Aquitard (D3) | | |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> FAC-Neutral Test (D5) | | |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A) | <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A) | | |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Other (Explain in Remarks) | <input type="checkbox"/> Frost-Heave Hummocks (D7) | | |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | | | | |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | | | | |
| Field Observations: | | | | |
| Surface Water Present? | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | Depth (inches): _____ | | |
| Water Table Present? | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | Depth (inches): _____ | | |
| Saturation Present? | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | Depth (inches): _____ | Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | |
| (includes capillary fringe) | | | | |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: | | | | |
| Remarks: | | | | |

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

Project/Site: Bundle 1/Culvert 6/WDFW ID 990731 City/County: Grays Harbor Sampling Date: 6/25/2021
 Applicant/Owner: WSDOT State: WA Sampling Point: W3-SP1
 Investigator(s): Alee McDonald & Shannon Ingebright Section, Township, Range: 4-20N-10W
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0
 Subregion (LRR): LRR A Lat: 47.150295 Long: -123.553916 Datum: WGS1984
 Soil Map Unit Name: Willaby silt loam, 1 to 15 percent slopes (154) / Nordby very gravelly loam 1 to 8 percent slopes (98) NWI classification: _____

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

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

| | | |
|--|--|---|
| Hydrophytic Vegetation Present? | Yes <input checked="" type="checkbox"/> No _____ | Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____ |
| Hydric Soil Present? | Yes <input checked="" type="checkbox"/> No _____ | |
| Wetland Hydrology Present? | Yes <input checked="" type="checkbox"/> No _____ | |
| Remarks: -Wetland 3 in pit. -Taken 20' north of R-bank WM1 | | |

VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: <u>5m</u>) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B) Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____ |
|--|------------------|-------------------|------------------|---|
| 1. <u>Frangula purshiana</u> | <u>100</u> | <u>Y</u> | <u>FAC</u> | |
| 2. _____ | _____ | _____ | _____ | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| <u>100</u> = Total Cover | | | | |
| Sapling/Shrub Stratum (Plot size: <u>3m</u>) | | | | |
| 1. <u>Rubus spectabilis</u> | <u>80</u> | <u>Y</u> | <u>FAC</u> | |
| 2. _____ | _____ | _____ | _____ | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| <u>80</u> = Total Cover | | | | |
| Herb Stratum (Plot size: <u>1m</u>) | | | | |
| 1. <u>Petasites frigidus</u> | <u>70</u> | <u>Y</u> | <u>FACW</u> | |
| 2. <u>Stachys chamissonis</u> | <u>15</u> | | <u>FACW</u> | |
| 3. <u>Polystichum munitum</u> | <u>10</u> | | <u>FACU</u> | |
| 4. <u>Galium aparine</u> | <u>trace</u> | | <u>FACU</u> | |
| 5. _____ | _____ | _____ | _____ | |
| 6. _____ | _____ | _____ | _____ | |
| 7. _____ | _____ | _____ | _____ | |
| 8. _____ | _____ | _____ | _____ | |
| 9. _____ | _____ | _____ | _____ | |
| 10. _____ | _____ | _____ | _____ | |
| 11. _____ | _____ | _____ | _____ | |
| <u>95</u> = Total Cover | | | | |
| Woody Vine Stratum (Plot size: <u>3m</u>) | | | | |
| 1. _____ | _____ | _____ | _____ | |
| 2. _____ | _____ | _____ | _____ | |
| <u>0</u> = Total Cover | | | | |
| % Bare Ground in Herb Stratum <u>5</u> | | | | |
| Remarks: | | | | Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is 50 % ___ 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. |
| | | | | Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ |

SOIL

Sampling Point: W3-SP1

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

[illegible]

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

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

Indicators for Problematic Hydric Soils³:

| | |
|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) |

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No

Remarks:

Soil was saturated at the time of sampling. Redox features assumed more abundantly visible when dry. Organic matter is likely masking redox concentrations as well, assume more than 5% concentration.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes X No Depth (inches): 15"

Saturation Present? Yes X No Depth (inches): 0"
(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

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

Project/Site: Bundle 1/Culvert 6/WDFW ID 990731 City/County: Grays Harbor Sampling Date: 06/29/2021
 Applicant/Owner: WSDOT State: WA Sampling Point: W3-SP2
 Investigator(s): Alee McDonald & Shannon Ingebright Section, Township, Range: 4-20N-10W
 Landform (hillslope, terrace, etc.): Hummock Local relief (concave, convex, none): Convex Slope (%): 1
 Subregion (LRR): LRR A Lat: 47.150270 Long: -123.553861 Datum: WGS1984
 Soil Map Unit Name: Willaby silt loam, 1 to 15 percent slopes (154) / Nordby very gravelly loam 1 to 8 percent slopes (98) NWI classification: _____

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

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

| | | |
|---|--|---|
| Hydrophytic Vegetation Present? | Yes <input checked="" type="checkbox"/> No _____ | Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> |
| Hydric Soil Present? | Yes _____ No <input checked="" type="checkbox"/> | |
| Wetland Hydrology Present? | Yes _____ No <input checked="" type="checkbox"/> | |
| Remarks: -Wetland 3 out pit. -Pit located 8' north of WM1 right bank. | | |

VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: <u>5m</u>) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66%</u> (A/B) |
|---|------------------|-------------------|------------------|--|
| 1. <u>Acer circinatum</u> | <u>60</u> | <u>Y</u> | <u>FAC</u> | |
| 2. _____ | _____ | _____ | _____ | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| <u>60</u> = Total Cover | | | | |
| Sapling/Shrub Stratum (Plot size: <u>3m</u>) | Absolute % Cover | Dominant Species? | Indicator Status | Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____ |
| 1. <u>Rubus spectabilis</u> | <u>30</u> | <u>Y</u> | <u>FAC</u> | |
| 2. _____ | _____ | _____ | _____ | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| <u>30</u> = Total Cover | | | | |
| Herb Stratum (Plot size: <u>1m</u>) | Absolute % Cover | Dominant Species? | Indicator Status | Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is 50 % ___ 3 - Prevalence Index is $\leq 3.0^1$ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. |
| 1. <u>Polystichum munitum</u> | <u>50</u> | <u>Y</u> | <u>FACU</u> | |
| 2. <u>Maianthemum dilatatum</u> | <u>trace</u> | _____ | <u>FAC</u> | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| 5. _____ | _____ | _____ | _____ | |
| 6. _____ | _____ | _____ | _____ | |
| 7. _____ | _____ | _____ | _____ | |
| 8. _____ | _____ | _____ | _____ | |
| 9. _____ | _____ | _____ | _____ | |
| 10. _____ | _____ | _____ | _____ | |
| 11. _____ | _____ | _____ | _____ | |
| <u>50</u> = Total Cover | | | | |
| Woody Vine Stratum (Plot size: <u>3m</u>) | Absolute % Cover | Dominant Species? | Indicator Status | Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ |
| 1. <u>Rubus ursinus</u> | <u>trace</u> | _____ | <u>FACU</u> | |
| 2. _____ | _____ | _____ | _____ | |
| <u>0</u> = Total Cover | | | | |
| % Bare Ground in Herb Stratum <u>20</u> | | | | |
| Remarks: Dense moss layer | | | | |

SOIL

Sampling Point: W3-SP2

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

| Depth (inches) | Matrix | | Redox Features | | | | Texture | Remarks |
|-------------------|---------------|-----|----------------|---|-------------------|------------------|-----------|-----------|
| | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ² | | |
| 0-16 | 10 YR 3/4 | 100 | | | | | silt loam | some grit |
| | | | | | | | | |
| | | | | | | | | |
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| | | | | | | | | |

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

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

- | | |
|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils³:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ^X _____

Remarks:

Soil is too bright to meet any hydric soil criteria

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ^X _____

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

Remarks:

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

Project/Site: Bundle 1/Culvert 6/WDFW ID 990731 City/County: Grays Harbor Sampling Date: 11/30/2021
 Applicant/Owner: WSDOT State: WA Sampling Point: W4-SP1
 Investigator(s): Mike Foster and Alea McDonald Section, Township, Range: 4-20N-10W
 Landform (hillslope, terrace, etc.): Depressional channel Local relief (concave, convex, none): Concave Slope (%): 0
 Subregion (LRR): LRR A Lat: 47.145936 Long: 123.554258 Datum: WGS1984
 Soil Map Unit Name: O'Brien silt loam 1 to 15 percent slopes (103) NWI classification: _____

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

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

| | | | | | |
|---|--------------|----------|--|--------------|----------|
| Hydrophytic Vegetation Present? | Yes <u>X</u> | No _____ | Is the Sampled Area within a Wetland? | Yes <u>X</u> | No _____ |
| Hydric Soil Present? | Yes <u>X</u> | No _____ | | | |
| Wetland Hydrology Present? | Yes <u>X</u> | No _____ | | | |
| Remarks: -W4 in pit located between US101 north and adjacent slope within a ditched, depressional channel. -Climatic conditions are wetter than normal. | | | | | |

VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: <u>5m</u>) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B) | |
|---|---------------------|----------------------|---------------------|--|---|
| 1. _____ | _____ | _____ | _____ | | Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____ |
| 2. _____ | _____ | _____ | _____ | | |
| 3. _____ | _____ | _____ | _____ | | |
| 4. _____ | _____ | _____ | _____ | | |
| 0 = Total Cover | | | | | |
| Sapling/Shrub Stratum (Plot size: <u>3m</u>) | | | | | |
| 1. <u>Populus balsamifera*</u> | 15 | Y | FAC | Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is 50 % ___ 3 - Prevalence Index is $\leq 3.0^1$ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. | |
| 2. <u>Rubus spectabilis</u> | trace | _____ | _____ | | |
| 3. <u>Gaultheria shallon</u> | trace | _____ | _____ | | |
| 4. _____ | _____ | _____ | _____ | | |
| 5. _____ | _____ | _____ | _____ | | |
| 15 = Total Cover | | | | | |
| Herb Stratum (Plot size: <u>1m</u>) | | | | | |
| 1. <u>Carex obnupta</u> | 70 | Y | OBL | | |
| 2. _____ | _____ | _____ | _____ | | |
| 3. _____ | _____ | _____ | _____ | | |
| 4. _____ | _____ | _____ | _____ | | |
| 5. _____ | _____ | _____ | _____ | | |
| 6. _____ | _____ | _____ | _____ | | |
| 7. _____ | _____ | _____ | _____ | | |
| 8. _____ | _____ | _____ | _____ | | |
| 9. _____ | _____ | _____ | _____ | | |
| 10. _____ | _____ | _____ | _____ | | |
| 11. _____ | _____ | _____ | _____ | | |
| 70 = Total Cover | | | | | |
| Woody Vine Stratum (Plot size: <u>3m</u>) | | | | | |
| 1. _____ | _____ | _____ | _____ | Hydrophytic Vegetation Present? Yes <u>X</u> No _____ | |
| 2. _____ | _____ | _____ | _____ | | |
| 0 = Total Cover | | | | | |
| % Bare Ground in Herb Stratum <u>30</u> | | | | | |
| Remarks: *sapling | | | | | |

SOIL

Sampling Point: W4-SP1

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

[illegible]

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

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

Indicators for Problematic Hydric Soils³:

- | | | |
|--|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> 2 cm Muck (A10) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input checked="" type="checkbox"/> Depleted Matrix (F3) | ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) | |

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

Restrictive Layer (if present):

Type: cobbles

Depth (inches): 12"

Hydric Soil Present? Yes X No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes X No _____ Depth (inches): 4"

Water Table Present? Yes X No _____ Depth (inches): 0"

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

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

- Located at outfall of WM2 and WM3.
- Hydrology inputs appear to be precipitation, stormwater runoff, and WM2.

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

Project/Site: Bundle 1/Culvert 6/WDFW ID 990731 City/County: Grays Harbor Sampling Date: 11/30/2021
 Applicant/Owner: WSDOT State: WA Sampling Point: W4-SP2
 Investigator(s): Mike Foster and Alea McDonald Section, Township, Range: 4-20N-10W
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): None Slope (%): 5
 Subregion (LRR): LRR A Lat: 47.145921 Long: 123.554283 Datum: WGS1984
 Soil Map Unit Name: O'Brien silt loam 1 to 15 percent slopes (103) NWI classification: _____

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

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

| | | |
|--|-----------------------|--|
| Hydrophytic Vegetation Present? | Yes _____ No <u>X</u> | Is the Sampled Area within a Wetland? Yes _____ No <u>X</u> |
| Hydric Soil Present? | Yes _____ No <u>X</u> | |
| Wetland Hydrology Present? | Yes <u>X</u> No _____ | |
| Remarks: -W4 out pit taken near WM2 left bank on slope. -Climatic conditions are wetter than normal. | | |

VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: <u>5m</u>) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33%</u> (A/B) |
|---|------------------|-------------------|------------------|---|
| 1. _____ | _____ | _____ | _____ | |
| 2. _____ | _____ | _____ | _____ | |
| 3. _____ | _____ | _____ | _____ | |
| 4. _____ | _____ | _____ | _____ | |
| 0 = Total Cover | | | | Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____ |
| Sapling/Shrub Stratum (Plot size: <u>3m</u>) 1. <u>Gaultheria shallon</u> 30 Y FACU 2. <u>Populus balsamifera*</u> trace FAC 3. <u>Thuja plicata*</u> trace FAC 4. _____ 5. _____ | | | | |
| 30 = Total Cover | | | | |
| Herb Stratum (Plot size: <u>1m</u>) 1. <u>Blechnum spicatum</u> 30 Y FAC 2. <u>Rubus ursinus</u> 10 Y FACU 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ 11. _____ | | | | |
| 40 = Total Cover | | | | |
| Woody Vine Stratum (Plot size: <u>3m</u>) 1. _____ 2. _____ 0 = Total Cover % Bare Ground in Herb Stratum <u>60</u> | | | | Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is 50 % ___ 3 - Prevalence Index is $\leq 3.0^1$ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. |
| Hydrophytic Vegetation Present? Yes _____ No <u>X</u> | | | | |
| Remarks: *sapling | | | | |

SOIL

Sampling Point: W4-SP2

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

[illegible]

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

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

Indicators for Problematic Hydric Soils³:

- | | | |
|--|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> 2 cm Muck (A10) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) | |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) | |
- ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

-Matrix too bright to meet indicators.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes X No Depth (inches): 16"

Saturation Present? Yes X No Depth (inches): 0"
(includes capillary fringe)

Wetland Hydrology Present? Yes X No

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

Remarks:

-Hydrology likely attributed to proximity to WM3 and greater than normal precipitation.

Appendix C. Wetland Rating Summaries and Figures

Appendix C includes wetland rating forms and all required figures for each wetland:

Wetland 1

Wetland 2

Wetland 3

Wetland 4

Wetland name or number W1

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Culvert 6, Wetland 1 Date of site visit: 6/25/21

Rated by Alee McDonald & S. Ingebright Trained by Ecology? ☒ Yes ☐ No Date of training 10/2019

HGM Class used for rating Depressional Wetland has multiple HGM classes? ☐ Y ☒ N

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

Source of base aerial photo/map Google Earth 2021

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

1. Category of wetland based on FUNCTIONS

 Category I – Total score = 23 - 27

 X Category II – Total score = 20 - 22

 Category III – Total score = 16 - 19

 Category IV – Total score = 9 - 15

| FUNCTION | Improving Water Quality | Hydrologic | Habitat | |
|--------------------------------|----------------------------|--------------|--------------|--------------|
| Circle the appropriate ratings | | | | |
| Site Potential | H <u>M</u> L | H <u>M</u> L | H M <u>L</u> | |
| Landscape Potential | H <u>M</u> L | H <u>M</u> L | <u>H</u> M L | |
| Value | <u>H</u> M L | H <u>M</u> L | <u>H</u> M L | TOTAL |
| Score Based on Ratings | 7 | 6 | 7 | 20 |

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 | I II |
| Wetland of High Conservation Value | I |
| Bog | I |
| Mature Forest | I |
| Old Growth Forest | I |
| Coastal Lagoon | I II |
| Interdunal | I II III IV |
| None of the above | |

Wetland name or number W1

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

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

Riverine Wetlands

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

Lake Fringe Wetlands

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

Slope Wetlands

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

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

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

1. Are 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.

Wetland name or number W1

NO – go to 6

YES – The wetland class is **Riverine**

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

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

NO – go to 7

YES – The wetland class is **Depressional**

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

NO – go to 8

YES – The wetland class is **Depressional**

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

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

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

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

Wetland name or number W1

| DEPRESSIONAL AND FLATS WETLANDS | |
|---|----------|
| Water Quality Functions - Indicators that the site functions to improve water quality | |
| D 1.0. Does the site have the potential to improve water quality? | |
| D 1.1. Characteristics of surface water outflows from the wetland: <div style="border: 1px solid red; padding: 2px;">Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3</div> Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1 | 3 |
| D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions). Yes = 4 No = 0 | 0 |
| D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): <div style="border: 1px solid red; padding: 2px;">Wetland has persistent, ungrazed, plants > 95% of area points = 5</div> Wetland has persistent, ungrazed, plants > 1/2 of area points = 3 Wetland has persistent, ungrazed plants > 1/10 of area points = 1 Wetland has persistent, ungrazed plants < 1/10 of area points = 0 | 5 |
| D 1.4. Characteristics of seasonal ponding or inundation: <i>This is the area that is ponded for at least 2 months. See description in manual.</i> Area seasonally ponded is > 1/2 total area of wetland points = 4 Area seasonally ponded is > 1/4 total area of wetland points = 2 <div style="border: 1px solid red; padding: 2px;">Area seasonally ponded is < 1/4 total area of wetland points = 0</div> | 0 |
| Total for D 1 | 8 |

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

| | |
|--|----------|
| D 2.0. Does the landscape have the potential to support the water quality function of the site? | |
| D 2.1. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0 | 1 |
| D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? 10.5% Yes = 1 No = 0 | 1 |
| D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 No = 0 | 0 |
| D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? Source _____ Yes = 1 No = 0 | 0 |
| Total for D 2 | 2 |

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

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

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

Wetland name or number W1

DEPRESSIONAL AND FLATS WETLANDS

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

| | | | |
|--|------------|-----------------------------------|---|
| D 4.0. Does the site have the potential to reduce flooding and erosion? | | | |
| D 4.1. Characteristics of surface water outflows from the wetland: | | | |
| Wetland is a depression or flat depression with no surface water leaving it (no outlet) | points = 4 | 4 | |
| Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet | points = 2 | | |
| Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch | points = 1 | | |
| Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing | points = 0 | | |
| D 4.2. Depth of storage during wet periods: Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part. | | | |
| Marks of ponding are 3 ft or more above the surface or bottom of outlet | points = 7 | 0 | |
| Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet | points = 5 | | |
| Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet | points = 3 | | |
| The wetland is a "headwater" wetland | points = 3 | | |
| Wetland is flat but has small depressions on the surface that trap water | points = 1 | | |
| Marks of ponding less than 0.5 ft (6 in) | points = 0 | | |
| D 4.3. Contribution of the wetland to storage in the watershed: Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself. | | | |
| The area of the basin is less than 10 times the area of the unit | points = 5 | 3 | |
| The area of the basin is 10 to 100 times the area of the unit | points = 3 | | |
| The area of the basin is more than 100 times the area of the unit | points = 0 | | |
| Entire wetland is in the Flats class | points = 5 | | |
| Total for D 4 | | Add the points in the boxes above | 7 |

Rating of Site Potential If score is: 12-16 = H X 6-11 = M 0-5 = L

Record the rating on the first page

| | | | |
|---|----------------|-----------------------------------|---|
| D 5.0. Does the landscape have the potential to support hydrologic functions of the site? | | | |
| D 5.1. Does the wetland receive stormwater discharges? | Yes = 1 No = 0 | 1 | |
| D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff? | Yes = 1 No = 0 | 1 | |
| D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)? | Yes = 1 No = 0 | 0 | |
| Total for D 5 | | Add the points in the boxes above | 2 |

Rating of Landscape Potential If score is: 3 = H X 1 or 2 = M 0 = L

Record the rating on the first page

| | | | |
|---|------------|-----------------------------------|---|
| D 6.0. Are the hydrologic functions provided by the site valuable to society? | | | |
| D 6.1. The unit is in a landscape that has flooding problems. Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met. | | | |
| The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds): | | | |
| • Flooding occurs in a sub-basin that is immediately down-gradient of unit. | points = 2 | 1 | |
| • Surface flooding problems are in a sub-basin farther down-gradient. | points = 1 | | |
| Flooding from groundwater is an issue in the sub-basin. | points = 1 | | |
| The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why _____ | points = 0 | | |
| There are no problems with flooding downstream of the wetland. | | points = 0 | |
| D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? | | | |
| Yes = 2 No = 0 | | 0 | |
| Total for D 6 | | Add the points in the boxes above | 1 |

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

Record the rating on the first page

Wetland name or number W1

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

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

H 1.2. Hydroperiods

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

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

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft².

Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle

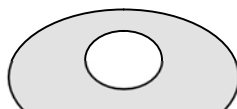
- | | | | |
|------------------------------|-------------------------------------|------------|---|
| If you counted: > 19 species | ALRU, PHCA, RUSP, RUUR, PEFR, CAO B | points = 2 | 1 |
| 5 - 19 species | | points = 1 | |
| < 5 species | | points = 0 | |

H 1.4. Interspersion of habitats

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



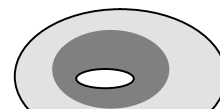
None = 0 points



Low = 1 point

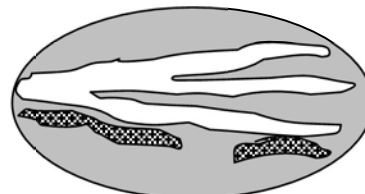
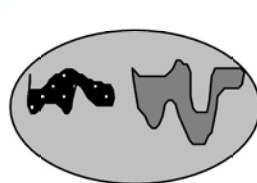


Moderate = 2 points



0

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



Wetland name or number W1

| | | |
|--|-----------------------------------|---|
| <p>H 1.5. Special habitat features:</p> <p>Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i></p> <p><input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).</p> <p><input type="checkbox"/> Standing snags (dbh > 4 in) within the wetland</p> <p><input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)</p> <p><input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>)</p> <p><input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>)</p> <p><input checked="" type="checkbox"/> 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>)</p> | | 2 |
| Total for H 1 | Add the points in the boxes above | 5 |

Rating of Site Potential If score is: 15-18 = H 7-14 = M X 0-6 = L

Record the rating on the first page

| | | |
|--|-----------------------------------|---|
| H 2.0. Does the landscape have the potential to support the habitat functions of the site? | | |
| <p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>).</p> <p>Calculate: % undisturbed habitat <u> </u> + [(% moderate and low intensity land uses)/2] <u> </u> = <u> </u>%</p> <p>If total accessible habitat is:</p> <p>> 1/3 (33.3%) of 1 km Polygon 52.5% + (4.4%) / 2 = 54.7% points = 3</p> <p>20-33% of 1 km Polygon points = 2</p> <p>10-19% of 1 km Polygon points = 1</p> <p>< 10% of 1 km Polygon points = 0</p> | | 3 |
| <p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.</p> <p>Calculate: % undisturbed habitat <u> </u> + [(% moderate and low intensity land uses)/2] <u> </u> = <u> </u>%</p> <p>Undisturbed habitat > 50% of Polygon points = 3</p> <p>Undisturbed habitat 10-50% and in 1-3 patches 94.1% + (4.4%) / 2 = 96.3% points = 2</p> <p>Undisturbed habitat 10-50% and > 3 patches points = 1</p> <p>Undisturbed habitat < 10% of 1 km Polygon points = 0</p> | | 3 |
| <p>H 2.3. Land use intensity in 1 km Polygon: If</p> <p>> 50% of 1 km Polygon is high intensity land use points = (- 2)</p> <p>≤ 50% of 1 km Polygon is high intensity points = 0</p> | | 0 |
| Total for H 2 | Add the points in the boxes above | 6 |

Rating of Landscape Potential If score is: X 4-6 = H 1-3 = M < 1 = L

Record the rating on the first page

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

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

Record the rating on the first page

WDFW Priority Habitats

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

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

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

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

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

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



FIGURE 2: COWARDIN PLANT CLASSES, 150-FOOT BOUNDARY, AND ANSWERS TO D2.2 AND D5.2 (Source: Google Earth)



FIGURE 2. HYDROPERIODS AND OUTLET.
(Source: Google Earth).



FIGURE 3. MAP OF CONTRIBUTING BASIN.
(Source: Google Earth).

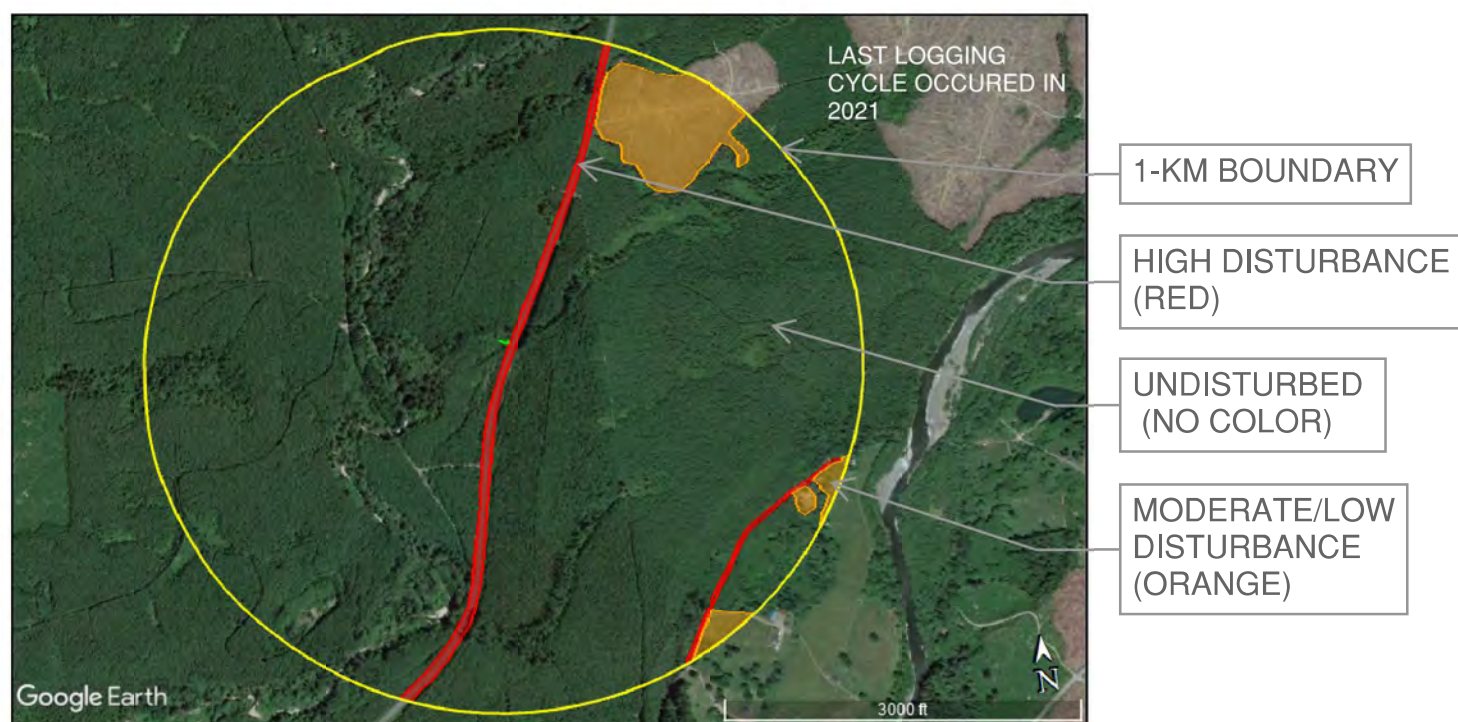


FIGURE 4. 1-KM POLYGON INCLUDING POLYGONS FOR ACCESSIBLE AND DISTURBED HABITAT.
(Source: Google Earth).



FIGURE 6. 303(d) LISTED WATERS IN WRIA 22.
(Source: Ecology Water Atlas Map and Directory of Projects).

Wetland name or number W2

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Culvert 6, Wetland 2 Date of site visit: 6/25/21
Rated by Alee McDonald Trained by Ecology? ☒ Yes ☐ No Date of training 10/2019
HGM Class used for rating Riverine Wetland has multiple HGM classes? ☐ Y ☒ N

NOTE: Form is not complete without the figures requested (*figures can be combined*).
Source of base aerial photo/map Google Earth 2021

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

1. Category of wetland based on FUNCTIONS

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

| FUNCTION | Improving Water Quality | Hydrologic | Habitat | |
|--------------------------------|----------------------------|------------|---------|--------------|
| Circle the appropriate ratings | | | | |
| Site Potential | (H) M L | H (M) L | H (M) L | |
| Landscape Potential | H M (L) | H (M) L | (H) M L | |
| Value | (H) M L | H (M) L | (H) M L | TOTAL |
| Score Based on Ratings | 7 | 6 | 8 | 21 |

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 | I II |
| Wetland of High Conservation Value | I |
| Bog | I |
| Mature Forest | I |
| Old Growth Forest | I |
| Coastal Lagoon | I II |
| Interdunal | I II III IV |
| None of the above | |

Wetland name or number W2

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 | |
| Hydroperiods | D 1.4, H 1.2 | |
| Location of outlet (<i>can be added to map of hydroperiods</i>) | D 1.1, D 4.1 | |
| Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>) | D 2.2, D 5.2 | |
| Map of the contributing basin | D 4.3, D 5.3 | |
| 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 | |
| Screen capture of map of 303(d) listed waters in basin (from Ecology website) | D 3.1, D 3.2 | |
| Screen capture of list of TMDLs for WRIA in which unit is found (from web) | D 3.3 | |

Riverine Wetlands

| Map of: | To answer questions: | Figure # |
|---|----------------------|----------|
| Cowardin plant classes | H 1.1, H 1.4 | 1 |
| Hydroperiods | H 1.2 | 2 |
| Ponded depressions | R 1.1 | 2 |
| Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>) | R 2.4 | 3 |
| Plant cover of trees, shrubs, and herbaceous plants | R 1.2, R 4.2 | 1 |
| Width of unit vs. width of stream (<i>can be added to another figure</i>) | R 4.1 | 1 |
| Map of the contributing basin | R 2.2, R 2.3, R 5.2 | 4 |
| 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) | R 3.1 | 5 |
| Screen capture of list of TMDLs for WRIA in which unit is found (from web) | R 3.2, R 3.3 | 6 |

Lake Fringe Wetlands

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

Slope Wetlands

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

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

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

1. Are 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.

Wetland name or number W2

NO – go to 6

YES – The wetland class is **Riverine**

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

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

NO – go to 7

YES – The wetland class is **Depressional**

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

NO – go to 8

YES – The wetland class is **Depressional**

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

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

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

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

Wetland name or number W2

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

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

| | | |
|---|-----------------------------------|----|
| R 1.0. Does the site have the potential to improve water quality? | | |
| R 1.1. Area of surface depressions within the Riverine wetland that can trap sediments during a flooding event: | | |
| Depressions cover $> \frac{3}{4}$ area of wetland | points = 8 | 4 |
| Depressions cover $> \frac{1}{2}$ area of wetland | points = 4 | |
| Depressions present but cover $< \frac{1}{2}$ area of wetland | points = 2 | |
| No depressions present | points = 0 | |
| R 1.2. Structure of plants in the wetland (areas with >90% cover at person height, not Cowardin classes) | | |
| Trees or shrubs $> \frac{2}{3}$ area of the wetland | points = 8 | 8 |
| Trees or shrubs $> \frac{1}{3}$ area of the wetland | points = 6 | |
| Herbaceous plants (> 6 in high) $> \frac{2}{3}$ area of the wetland | points = 6 | |
| Herbaceous plants (> 6 in high) $> \frac{1}{3}$ area of the wetland | points = 3 | |
| Trees, shrubs, and ungrazed herbaceous $< \frac{1}{3}$ area of the wetland | points = 0 | |
| Total for R 1 | Add the points in the boxes above | 12 |

Rating of Site Potential If score is: X 12-16 = H 6-11 = M 0-5 = L

Record the rating on the first page

| | | |
|---|-----------------------------------|---|
| R 2.0. Does the landscape have the potential to support the water quality function of the site? | | |
| R 2.1. Is the wetland within an incorporated city or within its UGA? | Yes = 2 No = 0 | 0 |
| R 2.2. Does the contributing basin to the wetland include a UGA or incorporated area? | Yes = 1 No = 0 | 0 |
| R 2.3. Does at least 10% of the contributing basin contain tilled fields, pastures, or forests that have been clearcut within the last 5 years? | Yes = 1 No = 0 | 0 |
| R 2.4. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? | Yes = 1 No = 0 | 0 |
| R 2.5. Are there other sources of pollutants coming into the wetland that are not listed in questions R 2.1-R 2.4 | | |
| Other sources _____ | Yes = 1 No = 0 | 0 |
| Total for R 2 | Add the points in the boxes above | 0 |

Rating of Landscape Potential If score is: ___ 3-6 = H ___ 1 or 2 = M X 0 = L

Record the rating on the first page

| | | |
|---|-----------------------------------|---|
| R 3.0. Is the water quality improvement provided by the site valuable to society? | | |
| R 3.1. Is the wetland along a stream or river that is on the 303(d) list or on a tributary that drains to one within 1 mi? | | |
| | Yes = 1 No = 0 | 0 |
| R 3.2. Is the wetland along a stream or river that has TMDL limits for nutrients, toxics, or pathogens? | | |
| | Yes = 1 No = 0 | 0 |
| R 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 drainage in which the unit is found</i>) | Yes = 2 No = 0 | 2 |
| Total for R 3 | Add the points in the boxes above | 2 |

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

Record the rating on the first page

Wetland name or number W2

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

Hydrologic Functions - Indicators that site functions to reduce flooding and stream erosion

| | | |
|---|---|---|
| R 4.0. Does the site have the potential to reduce flooding and erosion? | | |
| <p>R 4.1. Characteristics of the overbank storage the wetland provides: <i>Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of wetland)/(average width of stream between banks).</i></p> <p style="text-align: center;">If the ratio is more than 20 20FT/8FT=2.5FT points = 9</p> <p style="text-align: center;">If the ratio is 10-20 points = 6</p> <p style="text-align: center;">If the ratio is 5-<10 points = 4</p> <p style="text-align: center;">If the ratio is 1-<5 points = 2</p> <p style="text-align: center;">If the ratio is < 1 points = 1</p> | 2 | |
| <p>R 4.2. Characteristics of plants that slow down water velocities during floods: <i>Treat large woody debris as forest or shrub. Choose the points appropriate for the best description (polygons need to have >90% cover at person height. These are <u>NOT Cowardin</u> classes).</i></p> <p style="text-align: center;">Forest or shrub for >¹/₃ area OR emergent plants >²/₃ area points = 7</p> <p style="text-align: center;">Forest or shrub for >¹/₁₀ area OR emergent plants >¹/₃ area points = 4</p> <p style="text-align: center;">Plants do not meet above criteria points = 0</p> | 7 | |
| Total for R 4 | | 9 |

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

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

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

| | | |
|--|---|---|
| R 6.0. Are the hydrologic functions provided by the site valuable to society? | | |
| <p>R 6.1. Distance to the nearest areas downstream that have flooding problems? <i>Choose the description that best fits the site.</i></p> <p>The sub-basin immediately down-gradient of the wetland has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2</p> <p>Surface flooding problems are in a sub-basin farther down-gradient points = 1</p> <p>No flooding problems anywhere downstream points = 0</p> | 1 | |
| <p>R 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?</p> <p style="text-align: right;">Yes = 2 No = 0</p> | | 0 |
| Total for R 6 | | 1 |

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

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

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

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

H 1.2. Hydroperiods

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

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

H 1.3. Richness of plant species

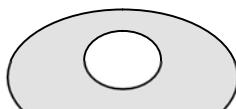
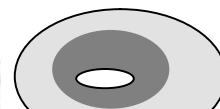
Count the number of plant species in the wetland that cover at least 10 ft².

Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle

- | | | | |
|------------------------------|--|------------|---|
| If you counted: > 19 species | FRPU, TSHE, ALRU, PSME, RUSP, GASH, CAO, BOOC, LYAM, MIOV, ATCY, POMU, | points = 2 | 1 |
| 5 - 19 species | | points = 1 | |
| < 5 species | | points = 0 | |

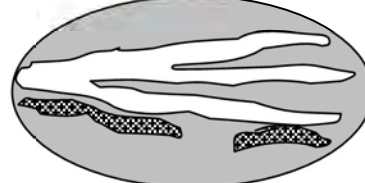
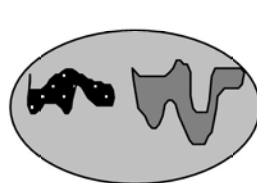
H 1.4. Interspersion of habitats

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

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

2

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



Wetland name or number W2

| | | |
|---|-----------------------------------|----|
| <p>H 1.5. Special habitat features:</p> <p>Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i></p> <p><input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).</p> <p><input type="checkbox"/> Standing snags (dbh > 4 in) within the wetland</p> <p><input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)</p> <p><input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>)</p> <p><input checked="" type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>)</p> <p><input checked="" type="checkbox"/> 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>)</p> | | 3 |
| Total for H 1 | Add the points in the boxes above | 10 |

Rating of Site Potential If score is: 15-18 = H X 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 functions of the site? | | |
| <p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>).</p> <p>Calculate: % undisturbed habitat <u> </u> + [(% moderate and low intensity land uses)/2] <u> </u> = <u> </u>%</p> <p>If total accessible habitat is:</p> <p>> 1/3 (33.3%) of 1 km Polygon 54% + (1%) / 2 = 55% points = 3</p> <p>20-33% of 1 km Polygon points = 2</p> <p>10-19% of 1 km Polygon points = 1</p> <p>< 10% of 1 km Polygon points = 0</p> | | 3 |
| <p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.</p> <p>Calculate: % undisturbed habitat <u> </u> + [(% moderate and low intensity land uses)/2] <u> </u> = <u> </u>%</p> <p>Undisturbed habitat > 50% of Polygon points = 3</p> <p>Undisturbed habitat 10-50% and in 1-3 patches 95% + (1%) / 2 = 96% points = 2</p> <p>Undisturbed habitat 10-50% and > 3 patches points = 1</p> <p>Undisturbed habitat < 10% of 1 km Polygon points = 0</p> | | 3 |
| <p>H 2.3. Land use intensity in 1 km Polygon: If</p> <p>> 50% of 1 km Polygon is high intensity land use points = (- 2)</p> <p>≤ 50% of 1 km Polygon is high intensity points = 0</p> | | 0 |
| Total for H 2 | Add the points in the boxes above | 6 |

Rating of Landscape Potential If score is: X 4-6 = H 1-3 = M < 1 = L

Record the rating on the first page

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

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

Record the rating on the first page

WDFW Priority Habitats

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

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

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

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

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

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

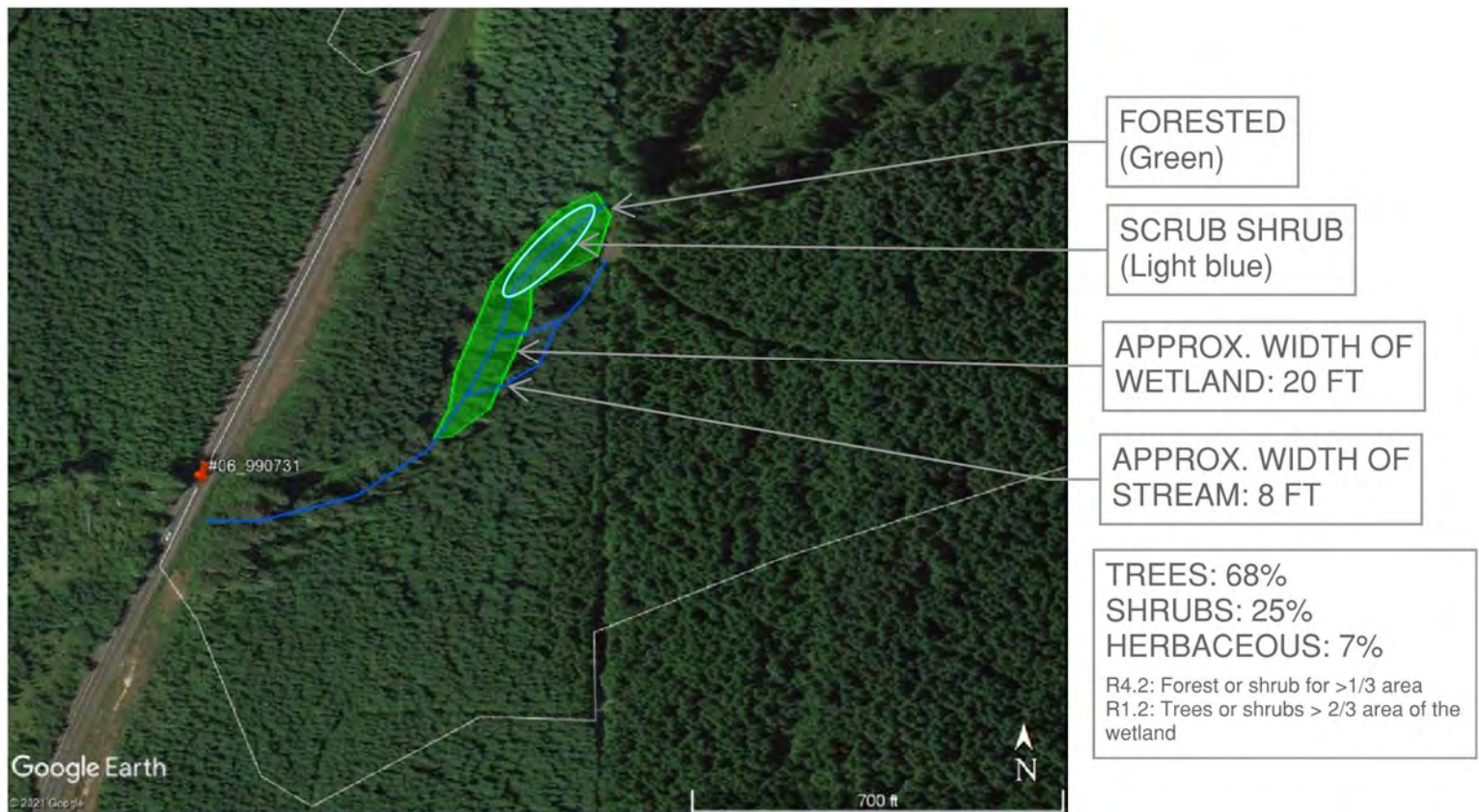


FIGURE 1. COWARDIN PLANT CLASSES, PLANT COVER, AND WIDTH OF UNIT/STREAM.
(Source: Google Earth).

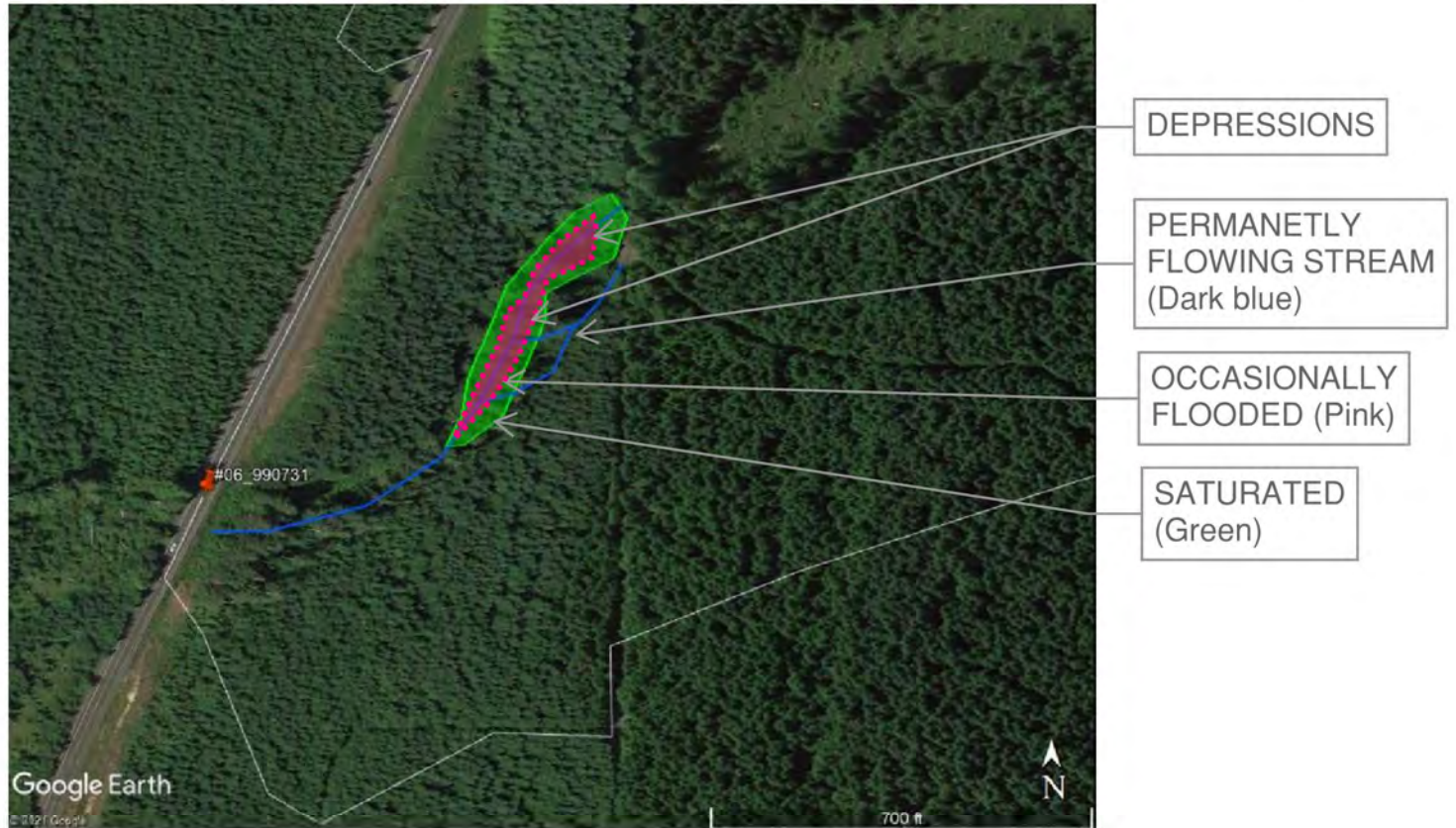


FIGURE 2. HYDROPERIODS AND PONDED DEPRESSIONS.
(Source: Google Earth).

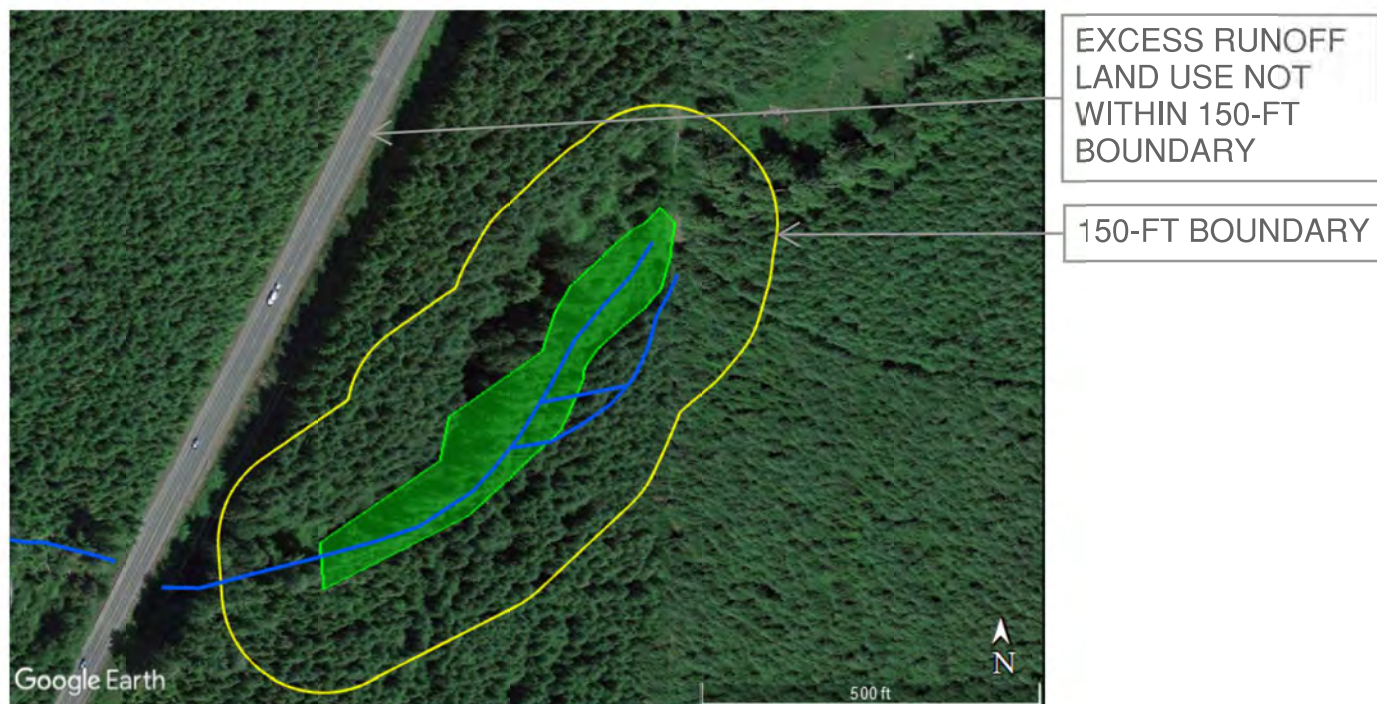


FIGURE 3. 150-FT WETLAND BOUNDARY AND EXCESS RUNOFF LAND USE.
(Source: Google Earth).

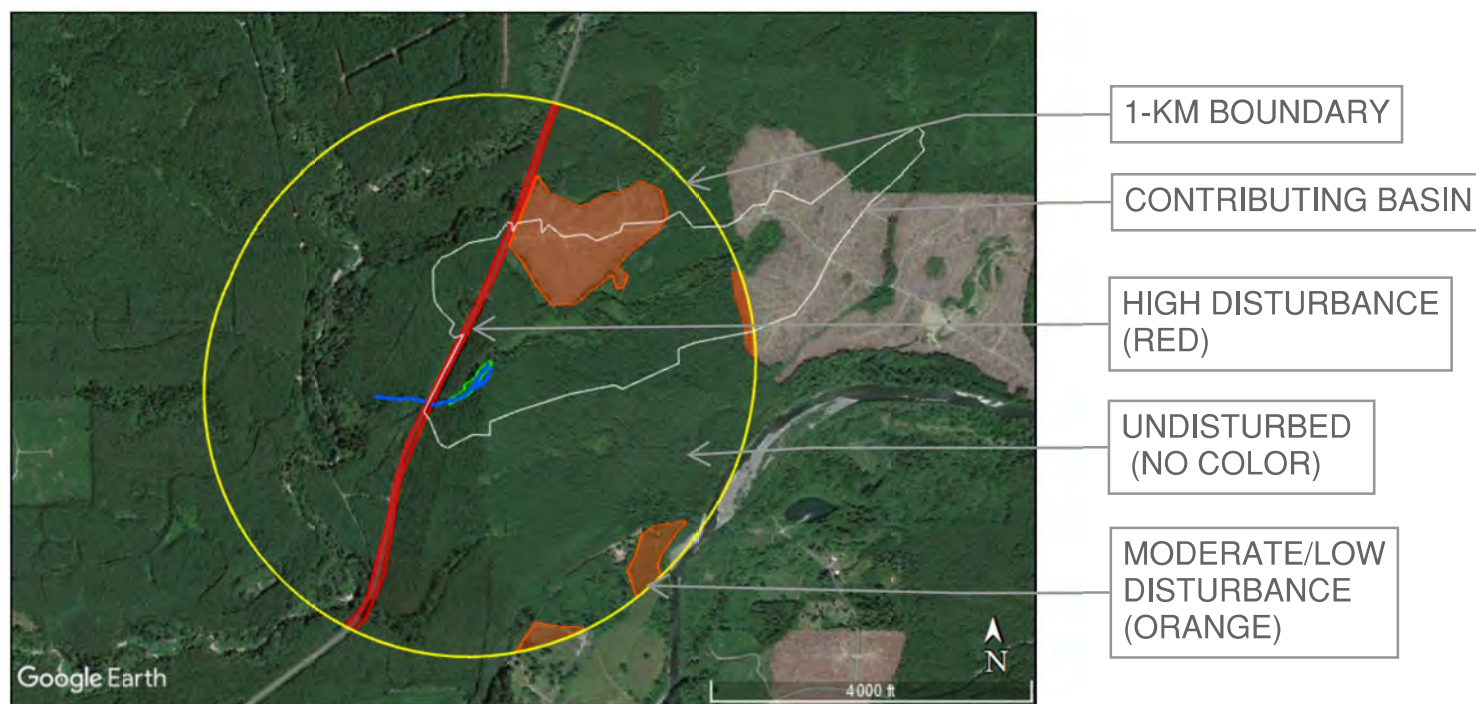


FIGURE 4. 1-KM POLYGON INCLUDING POLYGONS FOR ACCESSIBLE, DISTURBED HABITAT AND CONTRIBUTING BASIN.
(Source: Google Earth).

Wetland name or number W3

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Culvert 6, Wetland 3 Date of site visit: 6/29/21

Rated by Alee McDonald, Camille Felkins Trained by Ecology? ☒ Yes ☐ No Date of training 10/2019

HGM Class used for rating Depressional Wetland has multiple HGM classes? ☐ Y ☒ N

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

Source of base aerial photo/map Google Earth 2021

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

1. Category of wetland based on FUNCTIONS

☐ **Category I** – Total score = 23 - 27

☐ **Category II** – Total score = 20 - 22

☒ **Category III** – Total score = 16 - 19

☐ **Category IV** – Total score = 9 - 15

| FUNCTION | Improving Water Quality | | | Hydrologic | | | Habitat | | | |
|--------------------------------|----------------------------|---|---|------------|---|---|---------|---|---|-------|
| Circle the appropriate ratings | | | | | | | | | | |
| Site Potential | H | M | L | H | M | L | H | M | L | |
| Landscape Potential | H | M | L | H | M | L | H | M | L | |
| Value | H | M | L | H | M | L | H | M | L | |
| Score Based on Ratings | 6 | | | 5 | | | 8 | | | TOTAL |
| 19 | | | | | | | | | | |

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 | I II |
| Wetland of High Conservation Value | I |
| Bog | I |
| Mature Forest | I |
| Old Growth Forest | I |
| Coastal Lagoon | I II |
| Interdunal | I II III IV |
| None of the above | |

Wetland name or number W3

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

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

Riverine Wetlands

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

Lake Fringe Wetlands

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

Slope Wetlands

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

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

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

1. Are 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.

Wetland name or number W3

NO – go to 6

YES – The wetland class is Riverine

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

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

NO – go to 7

YES – The wetland class is Depressional

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

NO – go to 8

YES – The wetland class is Depressional

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

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

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

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

Wetland name or number W3

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

Rating of Site Potential If score is: 12-16 = H 6-11 = M X 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 |
| D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? | Yes = 1 No = 0 |
| D 2.3. Are there septic systems within 250 ft of the wetland? | Yes = 1 No = 0 |
| D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? | Yes = 1 No = 0 |
| Source _____ | Yes = 1 No = 0 |
| Total for D 2 | 2 |

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

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

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

Wetland name or number W3

DEPRESSIONAL AND FLATS WETLANDS

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

| | | | |
|--|------------|-----------------------------------|---|
| D 4.0. Does the site have the potential to reduce flooding and erosion? | | | |
| D 4.1. Characteristics of surface water outflows from the wetland: | | | |
| Wetland is a depression or flat depression with no surface water leaving it (no outlet) | points = 4 | | 2 |
| Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet | points = 2 | | |
| Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch | points = 1 | | |
| Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing | points = 0 | | |
| D 4.2. Depth of storage during wet periods: Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part. | | | |
| Marks of ponding are 3 ft or more above the surface or bottom of outlet | points = 7 | | 0 |
| Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet | points = 5 | | |
| Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet | points = 3 | | |
| The wetland is a "headwater" wetland | points = 3 | | |
| Wetland is flat but has small depressions on the surface that trap water | points = 1 | | |
| Marks of ponding less than 0.5 ft (6 in) | points = 0 | | |
| D 4.3. Contribution of the wetland to storage in the watershed: Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself. | | | |
| The area of the basin is less than 10 times the area of the unit | points = 5 | | 0 |
| The area of the basin is 10 to 100 times the area of the unit | points = 3 | | |
| The area of the basin is more than 100 times the area of the unit | points = 0 | | |
| Entire wetland is in the Flats class | points = 5 | | |
| Total for D 4 | | Add the points in the boxes above | 2 |

Rating of Site Potential If score is: 12-16 = H 6-11 = M X 0-5 = L

Record the rating on the first page

| | | | |
|---|----------------|-----------------------------------|---|
| D 5.0. Does the landscape have the potential to support hydrologic functions of the site? | | | |
| D 5.1. Does the wetland receive stormwater discharges? | Yes = 1 No = 0 | | 1 |
| D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff? | Yes = 1 No = 0 | | 1 |
| D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)? | Yes = 1 No = 0 | | 0 |
| Total for D 5 | | Add the points in the boxes above | 2 |

Rating of Landscape Potential If score is: 3 = H X 1 or 2 = M 0 = L

Record the rating on the first page

| | | | |
|---|------------|-----------------------------------|------------|
| D 6.0. Are the hydrologic functions provided by the site valuable to society? | | | |
| D 6.1. The unit is in a landscape that has flooding problems. Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met. | | | |
| The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds): | | | |
| • Flooding occurs in a sub-basin that is immediately down-gradient of unit. | points = 2 | | 1 |
| • Surface flooding problems are in a sub-basin farther down-gradient. | points = 1 | | |
| Flooding from groundwater is an issue in the sub-basin. | points = 1 | | |
| The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why _____ | points = 0 | | |
| There are no problems with flooding downstream of the wetland. | | | points = 0 |
| D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? | | | |
| Yes = 2 No = 0 | | | 0 |
| Total for D 6 | | Add the points in the boxes above | 1 |

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

Record the rating on the first page

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

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

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

H 1.2. Hydroperiods

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

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

H 1.3. Richness of plant species

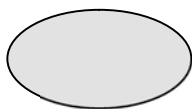
Count the number of plant species in the wetland that cover at least 10 ft².

*Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. **Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

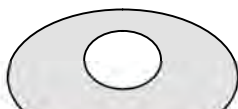
- | | | | |
|------------------------------|--|------------|---|
| If you counted: > 19 species | FRPU, RUSP, PEFR, STCH, PIMU, GAAP, TICO | points = 2 | 1 |
| 5 - 19 species | | points = 1 | |
| < 5 species | | points = 0 | |

H 1.4. Interspersion of habitats

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



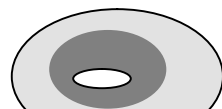
None = 0 points



Low = 1 point

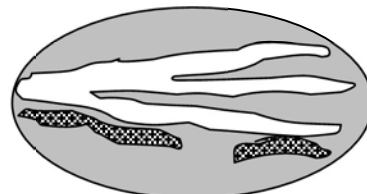
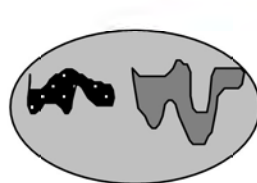


Moderate = 2 points



1

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



Wetland name or number W3

| | | |
|--|-----------------------------------|---|
| <p>H 1.5. Special habitat features:</p> <p>Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i></p> <p><input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).</p> <p><input type="checkbox"/> Standing snags (dbh > 4 in) within the wetland</p> <p><input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)</p> <p><input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>)</p> <p><input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>)</p> <p><input checked="" type="checkbox"/> 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>)</p> | | 2 |
| Total for H 1 | Add the points in the boxes above | 7 |

Rating of Site Potential If score is: 15-18 = H X 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 functions of the site? | | |
| <p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>).</p> <p>Calculate: % undisturbed habitat <u> </u> + [(% moderate and low intensity land uses)/2] <u> </u> = <u> </u>%</p> <p>If total accessible habitat is:</p> <p>> 1/3 (33.3%) of 1 km Polygon 48% + (1%) / 2 = 49% points = 3</p> <p>20-33% of 1 km Polygon points = 2</p> <p>10-19% of 1 km Polygon points = 1</p> <p>< 10% of 1 km Polygon points = 0</p> | | 3 |
| <p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.</p> <p>Calculate: % undisturbed habitat <u> </u> + [(% moderate and low intensity land uses)/2] <u> </u> = <u> </u>%</p> <p>Undisturbed habitat > 50% of Polygon points = 3</p> <p>Undisturbed habitat 10-50% and in 1-3 patches 95% + (1%) / 2 = 96% points = 2</p> <p>Undisturbed habitat 10-50% and > 3 patches points = 1</p> <p>Undisturbed habitat < 10% of 1 km Polygon points = 0</p> | | 3 |
| <p>H 2.3. Land use intensity in 1 km Polygon: If</p> <p>> 50% of 1 km Polygon is high intensity land use points = (- 2)</p> <p>≤ 50% of 1 km Polygon is high intensity points = 0</p> | | 0 |
| Total for H 2 | Add the points in the boxes above | 6 |

Rating of Landscape Potential If score is: X 4-6 = H 1-3 = M < 1 = L

Record the rating on the first page

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

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

Record the rating on the first page

WDFW Priority Habitats

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

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

— **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

☒ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

— **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

— **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

— **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

☒ **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

— **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

☒ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

— **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).

— **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

— **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

— **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

☒ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long. [Presence of snags and logs confirmed within 100m of the wetland unit.](#)

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

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

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

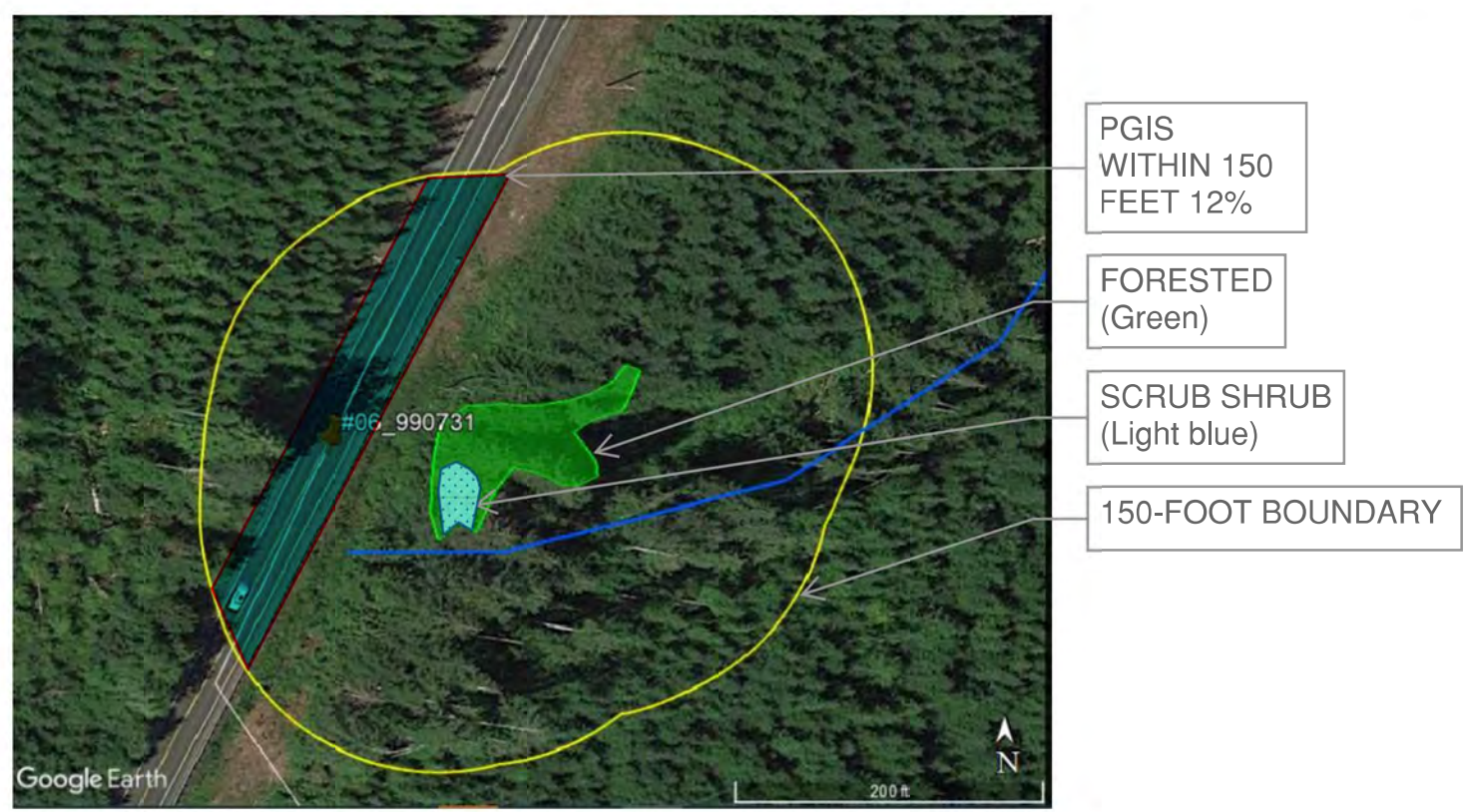


FIGURE 1. COWARDIN PLANT CLASSES AND 150-FOOT BOUNDARY.
(Source: Google Earth).

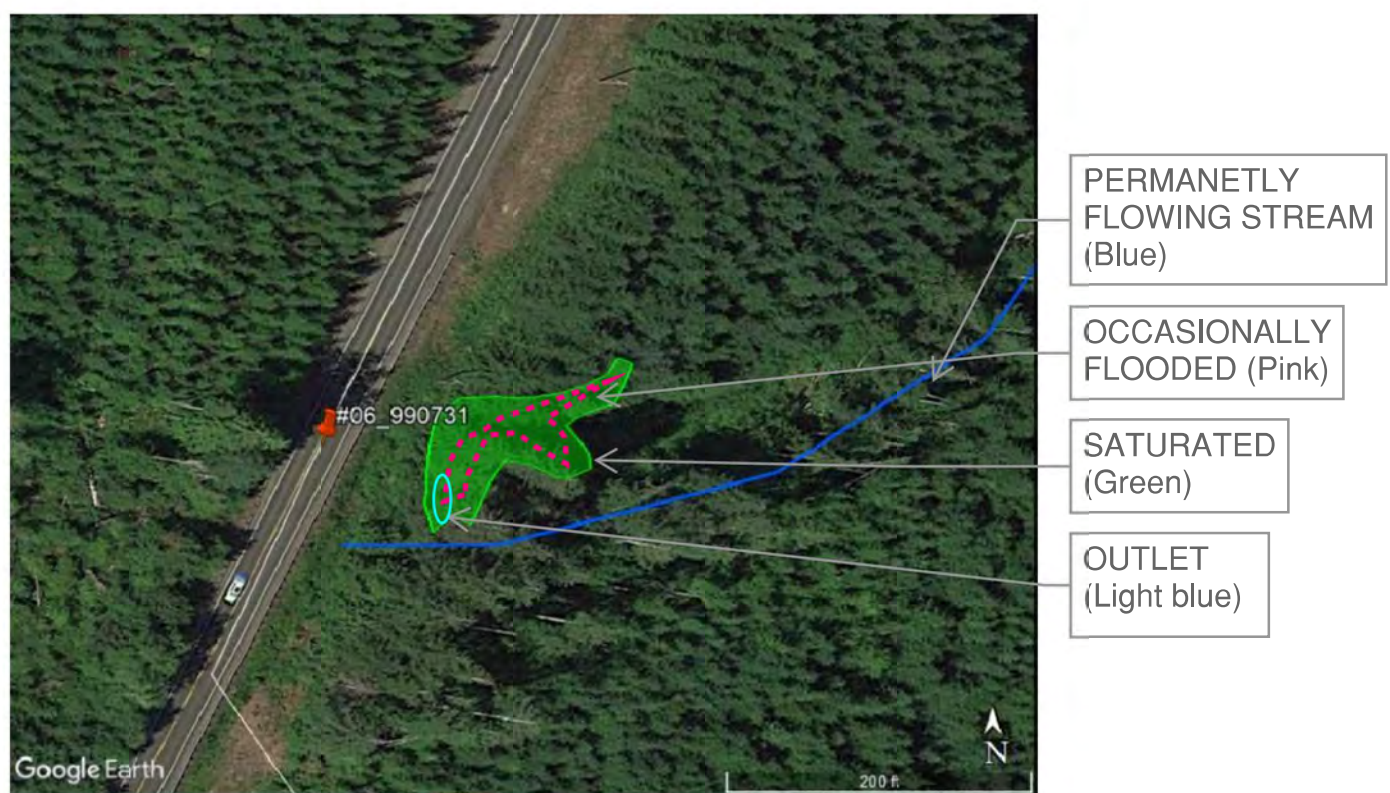
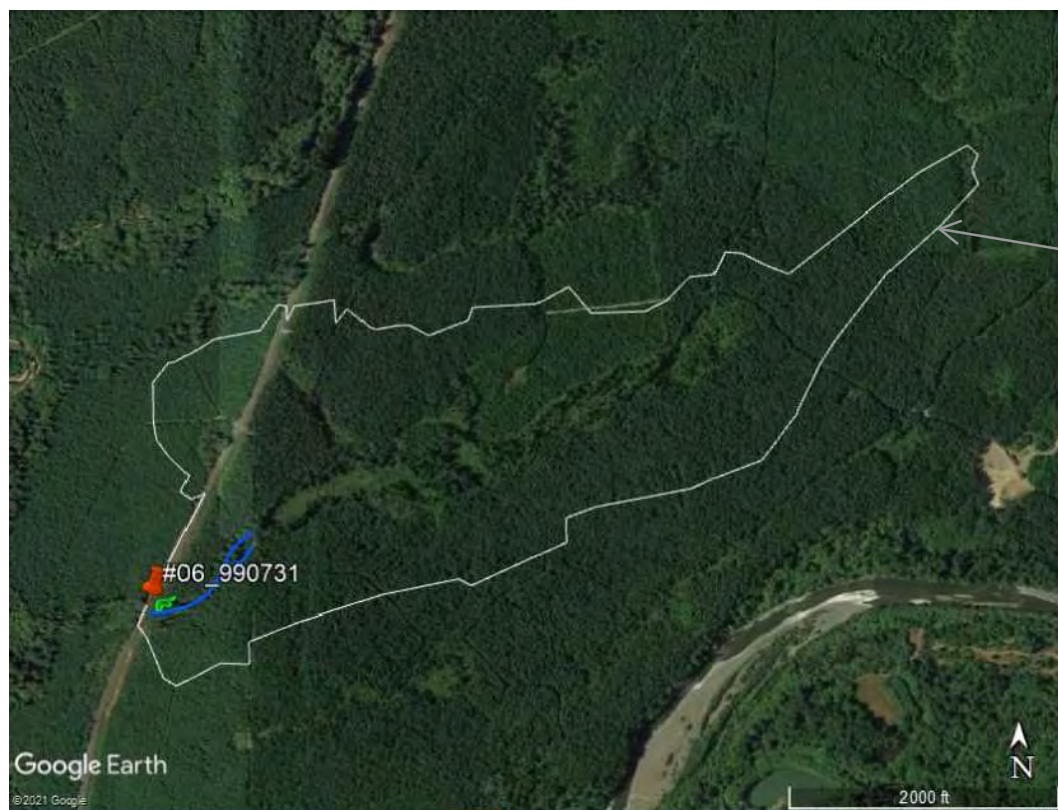
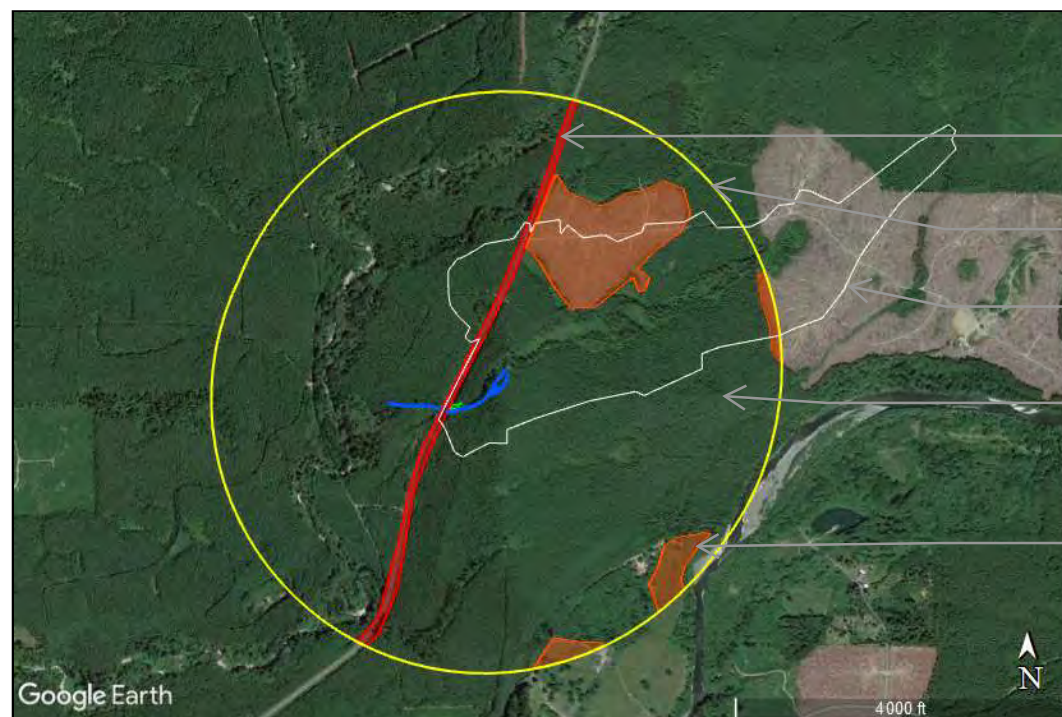


FIGURE 2. HYDROPERIODS AND OUTLET.
(Source: Google Earth).



CONTRIBUTING BASIN

FIGURE 3. MAP OF CONTRIBUTING BASIN.
(Source: Google Earth).

HIGH DISTURBANCE
(RED)

1-KM BOUNDARY

CONTRIBUTING BASIN

UNDISTURBED
(NO COLOR)MODERATE/LOW
DISTURBANCE
(ORANGE)

FIGURE 4. 1-KM POLYGON INCLUDING POLYGONS FOR ACCESSIBLE AND DISTURBED HABITAT.
(Source: Google Earth).

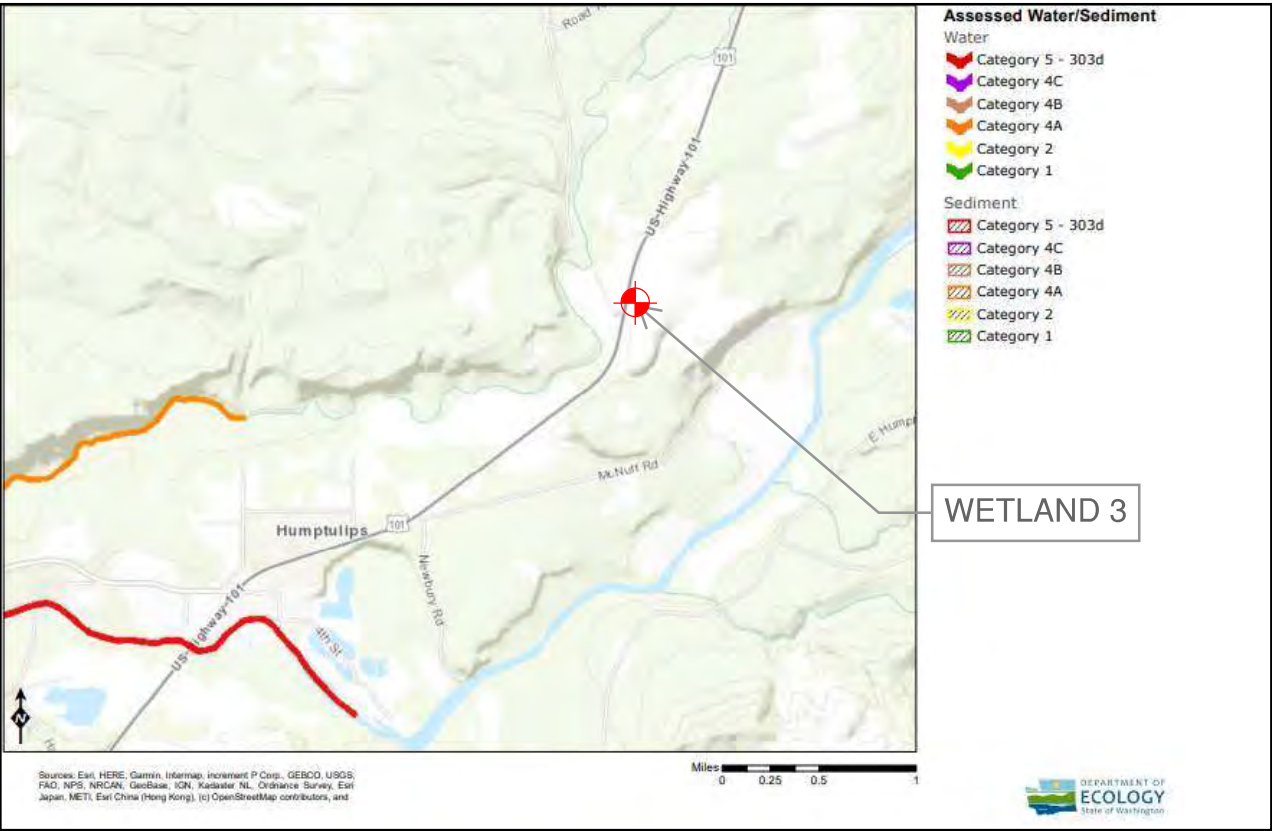


FIGURE 5. 303(d) LISTED WATERS IN BASIN.
(Source: Ecology Water Atlas Map).

| Waterbody Name(s) | Pollutant(s) |
|--|--|
| Chehalis River Basin - Simpson Timberlands | Temperature |
| Chehalis River Basin - Upper Chehalis River Watershed | Dissolved Oxygen |
| Chehalis River Basin - Wildcat Creek | Ammonia-N BOD (5-Day) Chlorine Fecal Coliform |
| Grays Harbor | Dioxin Fecal Coliform |
| Grays Harbor - Humptulips River | Temperature |
| North Ocean Beaches - <ul style="list-style-type: none"> Pacific Ocean Moclips River | Shellfish Closure Response - Fecal Coliform Bacteria Source Investigation Study |

FIGURE 6. 303(d) LISTED WATERS IN WRIA 22.
(Source: Ecology Water Atlas Map and Directory of Projects).

Wetland name or number W4

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Culvert 6, Wetland 4 Date of site visit: 11/30/21
Rated by Alee McDonald Trained by Ecology? ☒ Yes ☐ No Date of training 10/2019
HGM Class used for rating Depressional Wetland has multiple HGM classes? ☒ Y ☐ N

NOTE: Form is not complete without the figures requested (*figures can be combined*).
Source of base aerial photo/map Google Earth 2021

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

1. Category of wetland based on FUNCTIONS

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

| FUNCTION | Improving Water Quality | Hydrologic | Habitat | |
|--------------------------------|--|--|--|--------------|
| Circle the appropriate ratings | | | | |
| Site Potential | H <input checked="" type="radio"/> M L | H M <input checked="" type="radio"/> L | H M <input checked="" type="radio"/> L | |
| Landscape Potential | H <input checked="" type="radio"/> M L | H <input checked="" type="radio"/> M L | <input checked="" type="radio"/> H M L | |
| Value | <input checked="" type="radio"/> H M L | H <input checked="" type="radio"/> M L | <input checked="" type="radio"/> H M L | TOTAL |
| Score Based on Ratings | 7 | 5 | 7 | 19 |

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 | I II |
| Wetland of High Conservation Value | I |
| Bog | I |
| Mature Forest | I |
| Old Growth Forest | I |
| Coastal Lagoon | I II |
| Interdunal | I II III IV |
| None of the above | X |

Wetland name or number W4

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

| Map of: | To answer questions: | Figure # |
|---|----------------------|----------|
| Cowardin plant classes | D 1.3, H 1.1, H 1.4 | 1 |
| Hydroperiods | D 1.4, H 1.2 | 2 |
| Location of outlet (<i>can be added to map of hydroperiods</i>) | D 1.1, D 4.1 | 2 |
| Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>) | D 2.2, D 5.2 | 3 |
| Map of the contributing basin | D 4.3, D 5.3 | 4 |
| 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 | 5 |
| Screen capture of map of 303(d) listed waters in basin (from Ecology website) | D 3.1, D 3.2 | 6 |
| Screen capture of list of TMDLs for WRIA in which unit is found (from web) | D 3.3 | 7 |

Riverine Wetlands

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

Lake Fringe Wetlands

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

Slope Wetlands

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

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

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

1. Are 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.

Wetland name or number W4

NO – go to 6

YES – The wetland class is Riverine**NOTE:** The Riverine unit can contain depressions that are filled with water when the river is not flooding

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

NO – go to 7

YES – The wetland class is Depressional

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

NO – go to 8

YES – The wetland class is Depressional

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

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

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

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

Wetland name or number W4

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

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

| | |
|---|----------------|
| D 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? | 1 |
| D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? | 1 |
| D 2.3. Are there septic systems within 250 ft of the wetland? | 0 |
| D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? | 0 |
| Source _____ | Yes = 1 No = 0 |
| Total for D 2 | 2 |

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

| | |
|--|----------|
| D 3.0. Is the water quality improvement provided by the site valuable to society? | |
| D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? | 0 |
| D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? | 1 |
| D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (answer YES if there is a TMDL for the basin in which the unit is found)? | 2 |
| Total for D 3 | 3 |

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

Wetland name or number W4

DEPRESSIONAL AND FLATS WETLANDS

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

| | | | |
|--|------------|-----------------------------------|---|
| D 4.0. Does the site have the potential to reduce flooding and erosion? | | | |
| D 4.1. Characteristics of surface water outflows from the wetland: | | | |
| Wetland is a depression or flat depression with no surface water leaving it (no outlet) | points = 4 | | 2 |
| Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet | points = 2 | | |
| Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch | points = 1 | | |
| Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing | points = 0 | | |
| D 4.2. Depth of storage during wet periods: Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part. | | | |
| Marks of ponding are 3 ft or more above the surface or bottom of outlet | points = 7 | | 3 |
| Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet | points = 5 | | |
| Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet | points = 3 | | |
| The wetland is a "headwater" wetland | points = 3 | | |
| Wetland is flat but has small depressions on the surface that trap water | points = 1 | | |
| Marks of ponding less than 0.5 ft (6 in) | points = 0 | | |
| D 4.3. Contribution of the wetland to storage in the watershed: Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself. | | | |
| The area of the basin is less than 10 times the area of the unit | points = 5 | | 0 |
| The area of the basin is 10 to 100 times the area of the unit | points = 3 | | |
| The area of the basin is more than 100 times the area of the unit | points = 0 | | |
| Entire wetland is in the Flats class | points = 5 | | |
| Total for D 4 | | Add the points in the boxes above | 5 |

Rating of Site Potential If score is: 12-16 = H 6-11 = M X 0-5 = L

Record the rating on the first page

| | | | |
|---|----------------|-----------------------------------|---|
| D 5.0. Does the landscape have the potential to support hydrologic functions of the site? | | | |
| D 5.1. Does the wetland receive stormwater discharges? | Yes = 1 No = 0 | | 1 |
| D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff? | Yes = 1 No = 0 | | 1 |
| D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)? | Yes = 1 No = 0 | | 0 |
| Total for D 5 | | Add the points in the boxes above | 2 |

Rating of Landscape Potential If score is: 3 = H X 1 or 2 = M 0 = L

Record the rating on the first page

| | | | |
|---|------------|-----------------------------------|------------|
| D 6.0. Are the hydrologic functions provided by the site valuable to society? | | | |
| D 6.1. The unit is in a landscape that has flooding problems. Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met. | | | |
| The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds): | | | |
| • Flooding occurs in a sub-basin that is immediately down-gradient of unit. | points = 2 | | 1 |
| • Surface flooding problems are in a sub-basin farther down-gradient. | points = 1 | | |
| Flooding from groundwater is an issue in the sub-basin. | points = 1 | | |
| The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why _____ | points = 0 | | |
| There are no problems with flooding downstream of the wetland. | | | points = 0 |
| D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? | | | |
| Yes = 2 No = 0 | | | 0 |
| Total for D 6 | | Add the points in the boxes above | 1 |

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

Record the rating on the first page

Wetland name or number W4

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

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

H 1.2. Hydroperiods

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

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

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft².

Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle

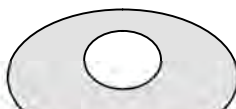
- | | | | |
|------------------------------|--|------------|---|
| If you counted: > 19 species | ALRU, POBA, THPL, RUSP, RUUR, GASH, BLSP, CAO, EQTE | points = 2 | 1 |
| 5 - 19 species | | points = 1 | |
| < 5 species | | points = 0 | |

H 1.4. Interspersion of habitats

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



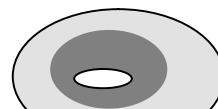
None = 0 points



Low = 1 point

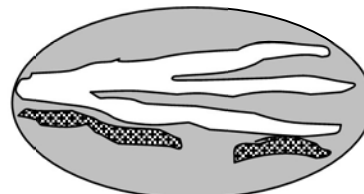
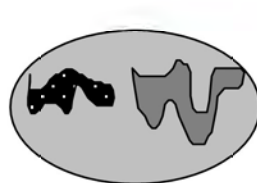


Moderate = 2 points



1

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



Wetland name or number W4

| | | |
|---|-----------------------------------|---|
| <p>H 1.5. Special habitat features:</p> <p>Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i></p> <p><input type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).</p> <p><input type="checkbox"/> Standing snags (dbh > 4 in) within the wetland</p> <p><input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)</p> <p><input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>)</p> <p><input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>)</p> <p><input checked="" type="checkbox"/> 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>)</p> | | 1 |
| Total for H 1 | Add the points in the boxes above | 6 |

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

| | | |
|--|-----------------------------------|---|
| H 2.0. Does the landscape have the potential to support the habitat functions of the site? | | |
| <p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>).</p> <p>Calculate: % undisturbed habitat <u> </u> + [(% moderate and low intensity land uses)/2] <u> </u> = <u> </u>%</p> <p>If total accessible habitat is:</p> <p>> 1/3 (33.3%) of 1 km Polygon 47% + (3%) / 2 = 49% points = 3</p> <p>20-33% of 1 km Polygon points = 2</p> <p>10-19% of 1 km Polygon points = 1</p> <p>< 10% of 1 km Polygon points = 0</p> | | 3 |
| <p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.</p> <p>Calculate: % undisturbed habitat <u> </u> + [(% moderate and low intensity land uses)/2] <u> </u> = <u> </u>%</p> <p>Undisturbed habitat > 50% of Polygon points = 3</p> <p>Undisturbed habitat 10-50% and in 1-3 patches 95% + (3%) / 2 = 97% points = 2</p> <p>Undisturbed habitat 10-50% and > 3 patches points = 1</p> <p>Undisturbed habitat < 10% of 1 km Polygon points = 0</p> | | 3 |
| <p>H 2.3. Land use intensity in 1 km Polygon: If</p> <p>> 50% of 1 km Polygon is high intensity land use points = (- 2)</p> <p>≤ 50% of 1 km Polygon is high intensity points = 0</p> | | 0 |
| Total for H 2 | Add the points in the boxes above | 6 |

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

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

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

WDFW Priority Habitats

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

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

- **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
- **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- X **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- X **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.
- X **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. [Presence of snags and logs confirmed within 100m of the wetland unit.](#)

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

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

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



FIGURE 1: COWARDIN PLANT CLASSES (Source: Google Earth).



FIGURE 2. HYDROPERIODS AND OUTLET.
(Source: Google Earth).



FIGURE 3. BOUNDARY OF AREA WITHIN 150-FT OF WETLAND (Source: Google Earth).



FIGURE 4. MAP OF CONTRIBUTING BASIN (Source: Google Earth).

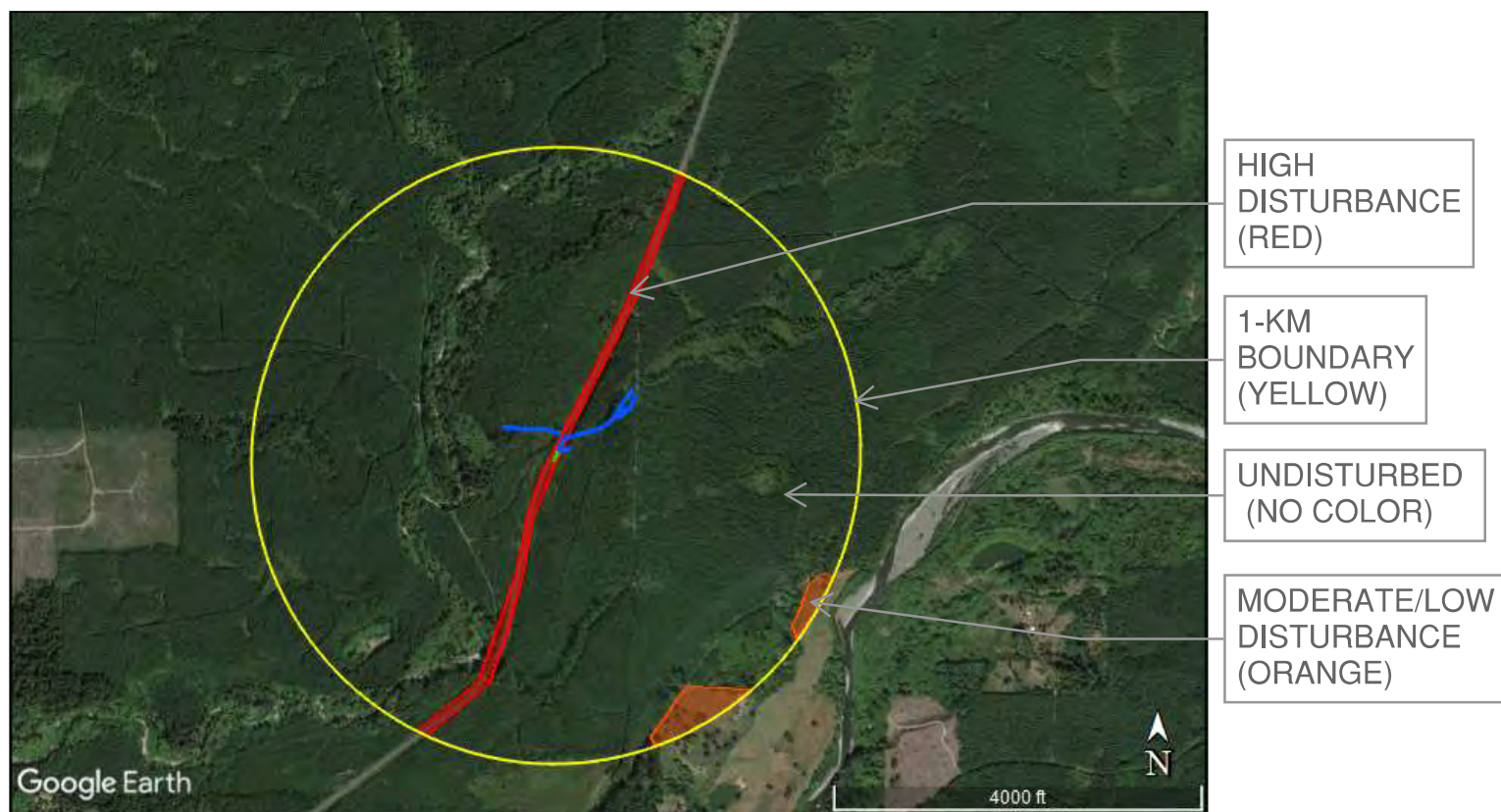


FIGURE 5. 1-KM POLYGON INCLUDING POLYGONS FOR ACCESSIBLE AND DISTURBED HABITAT. (Source: Google Earth).

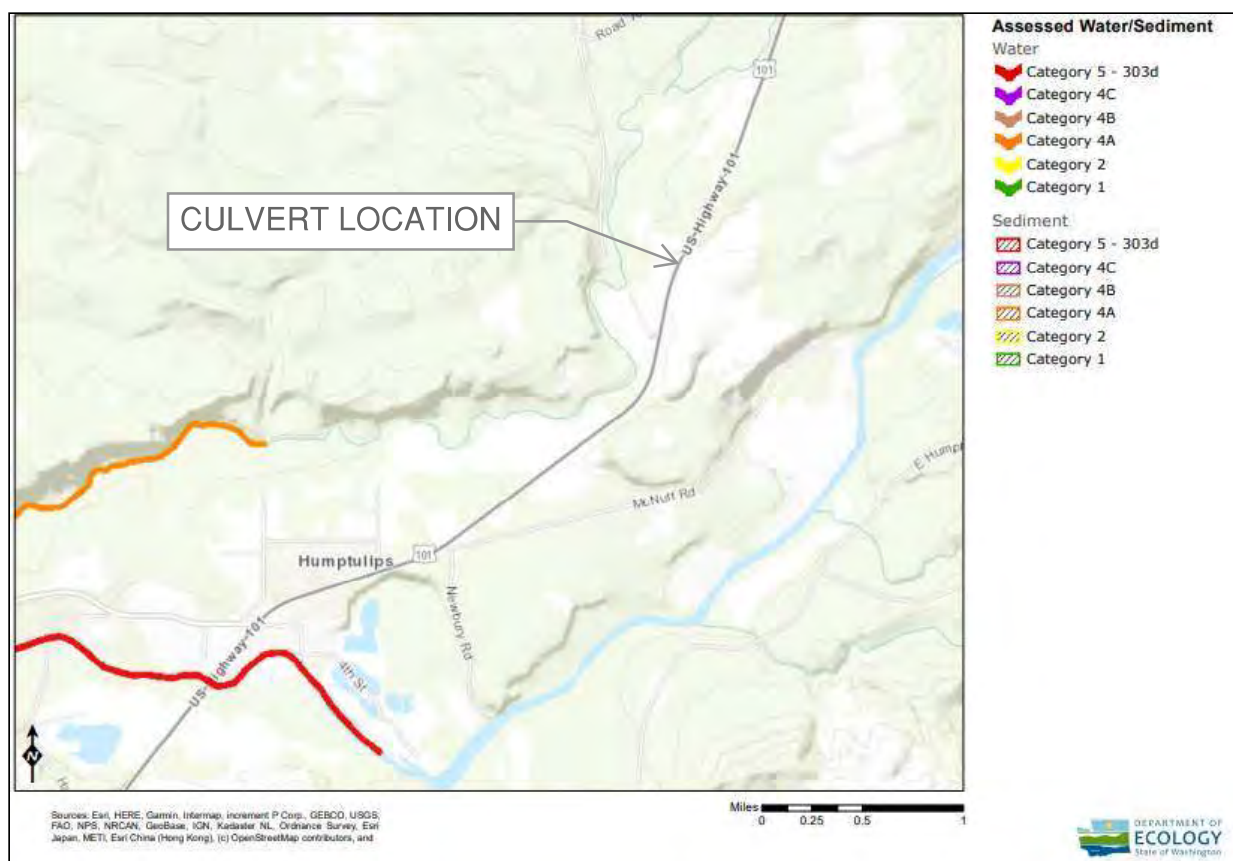


FIGURE 6. 303(d) LISTED WATERS IN BASIN. (Source: Ecology Water Atlas Map).

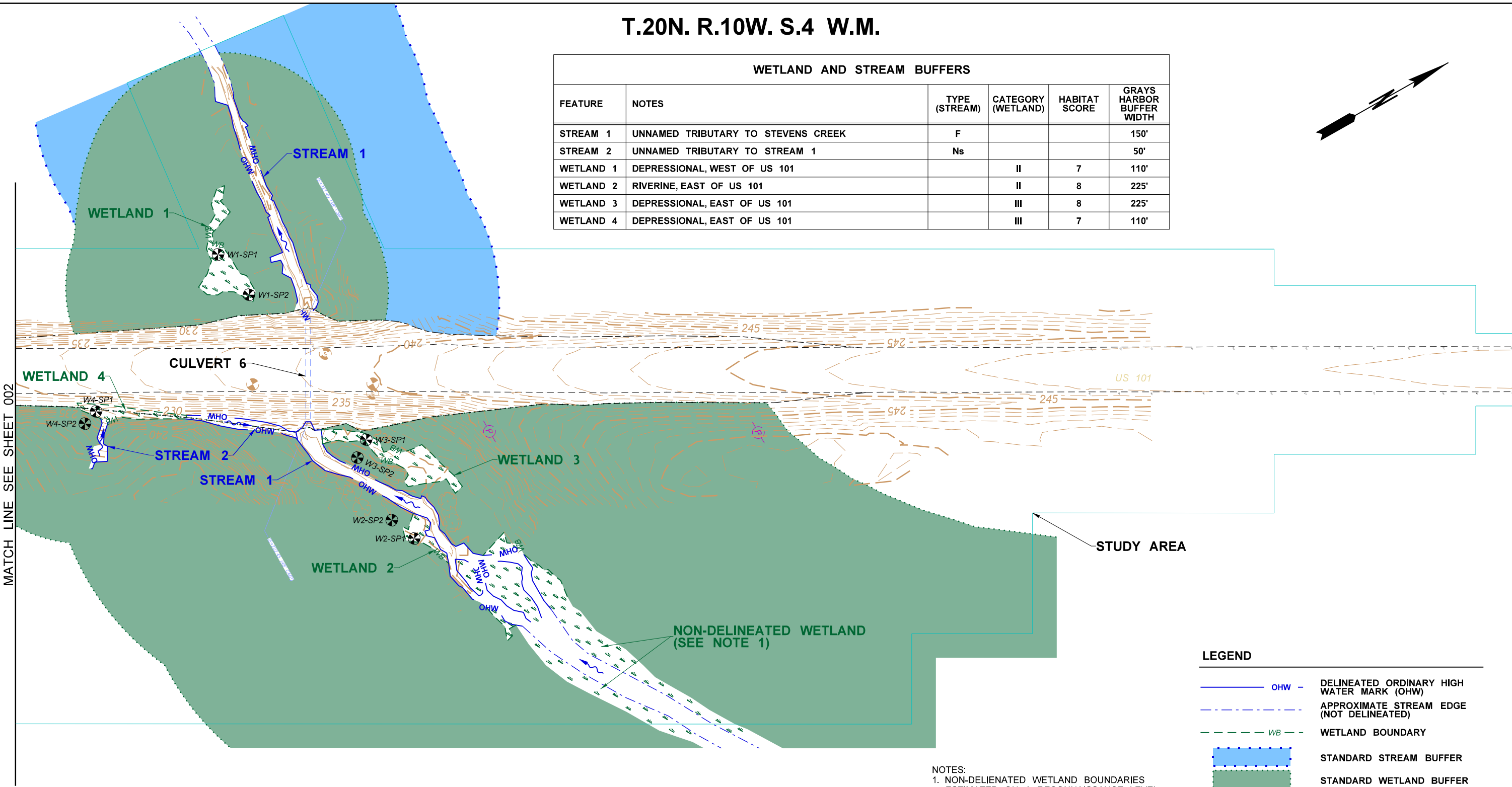
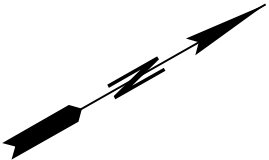
| Waterbody Name(s) | Pollutant(s) |
|---|--|
| Chehalis River Basin - <u>Simpson Timberlands</u> | Temperature |
| Chehalis River Basin - <u>Upper Chehalis River Watershed</u> | Dissolved Oxygen |
| Chehalis River Basin - <u>Wildcat Creek</u> | Ammonia-N BOD (5-Day) Chlorine Fecal Coliform |
| <u>Grays Harbor</u> | Dioxin Fecal Coliform |
| Grays Harbor - <u>Humptulips River</u> | Temperature |
| <u>North Ocean Beaches -</u> <ul style="list-style-type: none"> • Pacific Ocean • Modlips River | Shellfish Closure Response - Fecal Coliform Bacteria Source Investigation Study |

FIGURE 7. NO 303(d) LISTED WATERS IN WRIA 22.
(Source: Ecology Water Atlas Map and Directory of Projects).

Appendix D. Plan Sheets

T.20N. R.10W. S.4 W.M.

| WETLAND AND STREAM BUFFERS | | | | | |
|----------------------------|------------------------------------|---------------|--------------------|---------------|---------------------------|
| FEATURE | NOTES | TYPE (STREAM) | CATEGORY (WETLAND) | HABITAT SCORE | GRAYS HARBOR BUFFER WIDTH |
| STREAM 1 | UNNAMED TRIBUTARY TO STEVENS CREEK | F | | | 150' |
| STREAM 2 | UNNAMED TRIBUTARY TO STREAM 1 | Ns | | | 50' |
| WETLAND 1 | DEPRESSIONAL, WEST OF US 101 | | II | 7 | 110' |
| WETLAND 2 | RIVERINE, EAST OF US 101 | | II | 8 | 225' |
| WETLAND 3 | DEPRESSIONAL, EAST OF US 101 | | III | 8 | 225' |
| WETLAND 4 | DEPRESSIONAL, EAST OF US 101 | | III | 7 | 110' |



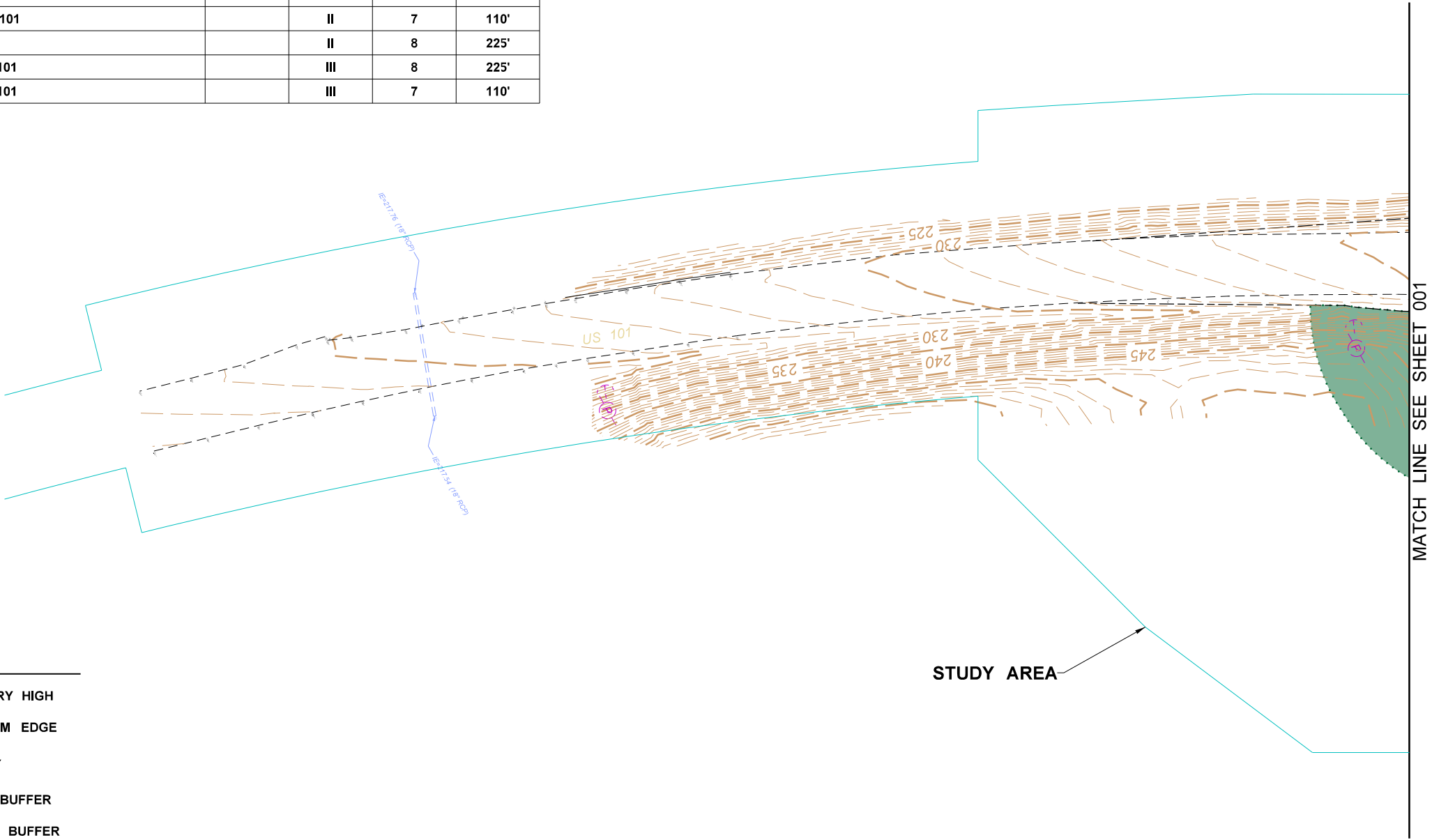
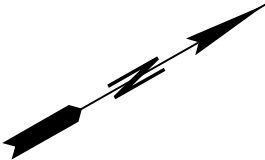
NOTES:
1. NON-DELIENATED WETLAND BOUNDARIES
ESTIMATED ON A RECONNAISSANCE LEVEL.

| LEGEND | |
|--------|---|
| | DELINEATED ORDINARY HIGH WATER MARK (OHW) |
| | APPROXIMATE STREAM EDGE (NOT DELINEATED) |
| | WETLAND BOUNDARY |
| | STANDARD STREAM BUFFER |
| | STANDARD WETLAND BUFFER |
| | SAMPLE PIT DATA POINT LOCATION |
| | FLOW DIRECTION |
| | EXISTING EDGE OF PAVEMENT |
| | EXISTING TOE OF SLOPE |

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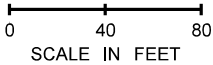
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| WETLAND AND STREAM BUFFERS | | | | | |
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| FEATURE | NOTES | TYPE (STREAM) | CATEGORY (WETLAND) | HABITAT SCORE | GRAYS HARBOR BUFFER WIDTH |
| STREAM 1 | UNNAMED TRIBUTARY TO STEVENS CREEK | F | | | 150' |
| STREAM 2 | UNNAMED TRIBUTARY TO STREAM 1 | Ns | | | 50' |
| WETLAND 1 | DEPRESSIONAL, WEST OF US 101 | | II | 7 | 110' |
| WETLAND 2 | RIVERINE, EAST OF US 101 | | II | 8 | 225' |
| WETLAND 3 | DEPRESSIONAL, EAST OF US 101 | | III | 8 | 225' |
| WETLAND 4 | DEPRESSIONAL, EAST OF US 101 | | III | 7 | 110' |




LEGEND

- OHW - DELINEATED ORDINARY HIGH WATER MARK (OHW)
- - - - - APPROXIMATE STREAM EDGE (NOT DELINEATED)
- WB - WETLAND BOUNDARY
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- STANDARD WETLAND BUFFER
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| TIME | 11:02:03 AM | | | | | | | | | | | CR1 |
| DATE | 12/22/2021 | | | | | JOB NUMBER 20C511 | | | | WETLAND AND STREAM DELINEATION | | SHEET |
| PLOTTED BY | JeffStewart | | | | | | | | | | | 2 |
| DESIGNED BY | M. FOSTER | | | | | CONTRACT NO. 9567 | | LOCATION NO. 990731 | | | | OF |
| ENTERED BY | J. STEWART | | | | | | | | | | | 2 |
| CHECKED BY | C. FELKINS | | | | | | | | | | | SHEETS |
| PROJ. ENGR. | | | | | | | | | | | | |
| REGIONAL ADM. | | REVISION | | DATE | BY | | | | | | | |