

Critical Areas Report and Mitigation Plan

**Hundred Acre Wood Trail Improvements–Phase 1B,
Bellingham Washington**

**Prepared for
City of Bellingham Parks and Recreation Department**

**Prepared by
Herrera Environmental Consultants, Inc.**

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Hundred Acre Woods Trail Improvements–Phase 1B Bellingham, Washington

Prepared for
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Disclaimer

Herrera Environmental Consultants, Inc. (Herrera) has prepared this report for use by the City of Bellingham (City). The results and conclusions in this report represent the professional opinion of Herrera. They are based upon examination of public domain information concerning the study area, site reconnaissance and delineation, and data analysis.

The work was performed according to accepted standards in the field of jurisdictional wetland determination and delineation using the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Western Mountains, Valleys, and Coast Region* (Environmental Laboratory 2010). However, final determination of jurisdictional wetland boundaries pertinent to Section 404 of the Clean Water Act is the responsibility of the Seattle District of the U.S. Army Corps of Engineers.

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Herrera Qualifications

Established in 1980, Herrera Environmental Consultants, Inc. (Herrera) is an innovative, employee-owned, consulting firm focused on three practice areas: water, restoration, and sustainable development. The following staff authored this report and conducted fieldwork in support of its findings. A summary of their qualifications is provided.

Danielle Rapoza, PWS

Danielle Rapoza is an ecologist with 8 years of experience in fisheries research, restoration monitoring, water quality assessment, and flow monitoring. Danielle is involved in pre- and post-restoration monitoring efforts on stream and wetland projects. Danielle is trained in biological assessments, wetland delineation, functional wetland assessment, the policy framework, and summarizing results in reports.

Credentials

- BA Planning and Environmental Policy, Western Washington University, Bellingham, 2007
- Certificate in Wetland Science and Management, University of Washington, Seattle, 2018
- WSDOT Junior Biological Assessment Author, 2020
- Certified Professional Wetland Scientist (PWS) #3410, Society of Wetland Scientists, 2021

Liliana Hansen, PWS

Liliana is a senior scientist with 16 years of professional experience in wetland, stream, and shoreline delineations; floodplain habitat assessments; native plant identification; biological evaluations and assessments; shoreline assessments; mitigation/restoration design; and mitigation monitoring. She is experienced with project management and permitting projects at the local, state, and federal levels. She has conducted hundreds of critical areas delineations in Washington and led projects from initial stages of fieldwork through permitting and 10 years of successful mitigation performance monitoring.

Credentials

- BS Environmental Science, Western Washington University, Bellingham, 2003
- Certified PWS #2755, Society of Wetland Scientists, 2016
- Wetland Delineation Certification, Portland State University, 2004
- Wetland and Upland Habitat Restoration Design, Portland State University, 2004

Tina Mirabile, PWS

Tina is a senior ecologist with over 20 years of professional natural resources management and wetland mitigation experience. Tina specializes in performing natural resource assessments of environmentally sensitive areas (wetlands, shorelines, and fish and wildlife habitat conservation areas), preparing wetland mitigation and natural habitat restoration plans, and securing federal, state, and local agency environmental permits for project compliance and authorization.

Credentials

- MBA, University of Massachusetts, Boston, 1990
- BA, Geology, Indiana University, Bloomington, 1983
- Certified PWS #1705, Society of Wetland Scientists, 2006
- WSDOT and ODOT Qualified Biological Assessment Author, 2016

Introduction

In 2022, the City of Bellingham (City) developed the Hundred Acre Wood Master Plan to guide future activities within the Hundred Acre Wood Park (Park) (Bellingham 2022). The Master Plan includes preservation and restoration of the natural environment, environmental education opportunities, and low-impact recreational opportunities. Phase 1 of the Master Plan implementation strategy prescribes a series of trail improvements and restoration activities to be implemented before 2026. Many of the proposed actions will require trail or habitat improvements that will occur within or near wetlands and/or buffers including:

- Improve hydrologic connections and reduce wetland impacts (through boardwalks and ballasted, rerouted, or decommissioned trails) at several locations.
- Install wayfinding signage and trail markers at key locations to minimize the use or expansion of side trails throughout the Park.
- Improve trail and/or add gravel to existing trail-bed where needed to provide restoration and maintenance access.
- Narrow and delineate existing trail to six feet where practical.
- Mulch and revegetate exposed soil areas outside of the improved trails with densely planted native shrubs and ground cover plants.
- Improve and/or add signage to primary Park access points.
- Install dog on-leash signage.
- Install Park boundary markers.
- Install dog waste stations and garbage cans at primary access points.
- Install native plant interpretation signage and/or area.
- Improve outdoor learning spaces.

Phase 1 of the project applies to the northern main trail line between Fairhaven Park and the Interurban Trail connection, as well as a secondary trail to the south, which crosses Hoag's Creek (Figure 1). The study area was previously delineated by Northwest Ecological Services (NES), and a field assessment was conducted to verify and update existing wetland boundaries. During the field assessment, the study area was reviewed for the presence of wetlands and streams. The study area includes approximately 300 feet around the Phase 1 trail and the Hoag's Creek Crossing (tax parcels 370212359328, 370212364207, 370212478165, 370212500214, and 370212548098).

This report describes the conditions of wetlands and streams in the study area; wetland and stream ratings and required buffer widths; and applicable local, state, and federal laws and regulations. Critical areas over most of the study area were delineated to inform potential trail improvements. This critical areas report is necessary to assess project feasibility, constraints, environmental permitting requirements, and to identify opportunities for avoidance and minimization of wetland, stream, and buffer impacts as required by Bellingham Municipal Code (BMC) Chapter 16.55.

Herrera biologists conducted a wetland delineation and re-confirmation of existing boundaries for the Hundred Acre Wood Park Phase 1 in accordance with current federal, state, and local regulations and guidance. The wetland delineation was conducted in compliance with the *Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Western Mountains, Valleys, and Coast Region* (Environmental Laboratory 2010), which is consistent with the *1987 Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987).

Project Setting

The Park property encompasses approximately 82 acres in the southwest corner of Bellingham within Sections 12, Township 37 North, Range 02 East of the Willamette Meridian within the Bellingham city limits, Whatcom County, Washington (Figure 1). The study area is in Water Resource Inventory Area (WRIA) 1: Nooksack, in the Chuckanut Creek-Frontal Bellingham Bay drainage basin, which discharges into Bellingham Bay. Hoag's Creek, a fish-bearing stream, and multiple wetlands are located within the Park. Padden Creek and Chuckanut Creek, both fish-bearing streams are located near the Park. The study area includes 300 feet from the Phase 1 project area.

The Park consists of a predominantly undeveloped coniferous/deciduous forest containing multiple wetlands and Hoag's Creek. The Park has numerous formal and informal trails that weave throughout the site. These trails vary from 2 to 10 feet wide and consist of compacted native soil, a mix of native soil/gravel/cobble, and more formal limestone/gravel trails. In certain locations, where trails cross through wetlands or damp uplands, the lack of formal trail development (i.e. adding fill and limestone, improving drainage, etc.) has resulted in muddy trail sections, expansion/widening of trails by users walking around muddy locations, and altered flow paths through wetlands.

The Hundred Acre Wood Park is located amid a residential neighborhood in the southwest corner of Bellingham. The Park is connected to a regional trail network and City parks, including Fairhaven Park, Lake Padden Park, Woodstock Farm, Teddy Bear Cove, Arroyo Park, and Happy Valley Park, as well as other adjacent open space properties. The Park is served by direct connections to the Interurban Trail, which provides linkage between trails at Galbraith Mountain, Larrabee State Park, and the Chuckanut Mountains.

The topography of the study area has been modified from its natural state due to historical land uses which have include gravel mining and forestry operations. The study area traverses a natural watershed break between the Padden Creek and Chuckanut Creek watersheds. Phase 1 study area crosses relatively flat terrain as it exits the Fairhaven Park boundary along the southern edge. Within the Park, terrain generally slopes down to the west. A natural high point in the middle of the Park creates a sub-basin watershed break, between Wetlands KK and JJ1. Generally, wetlands west of this point drain to Padden Creek. Wetlands east of the watershed break drain to Hoag's Creek and eventually Chuckanut Creek. East of the break, the terrain generally slopes down in an east, southeasterly direction.

Study Objectives

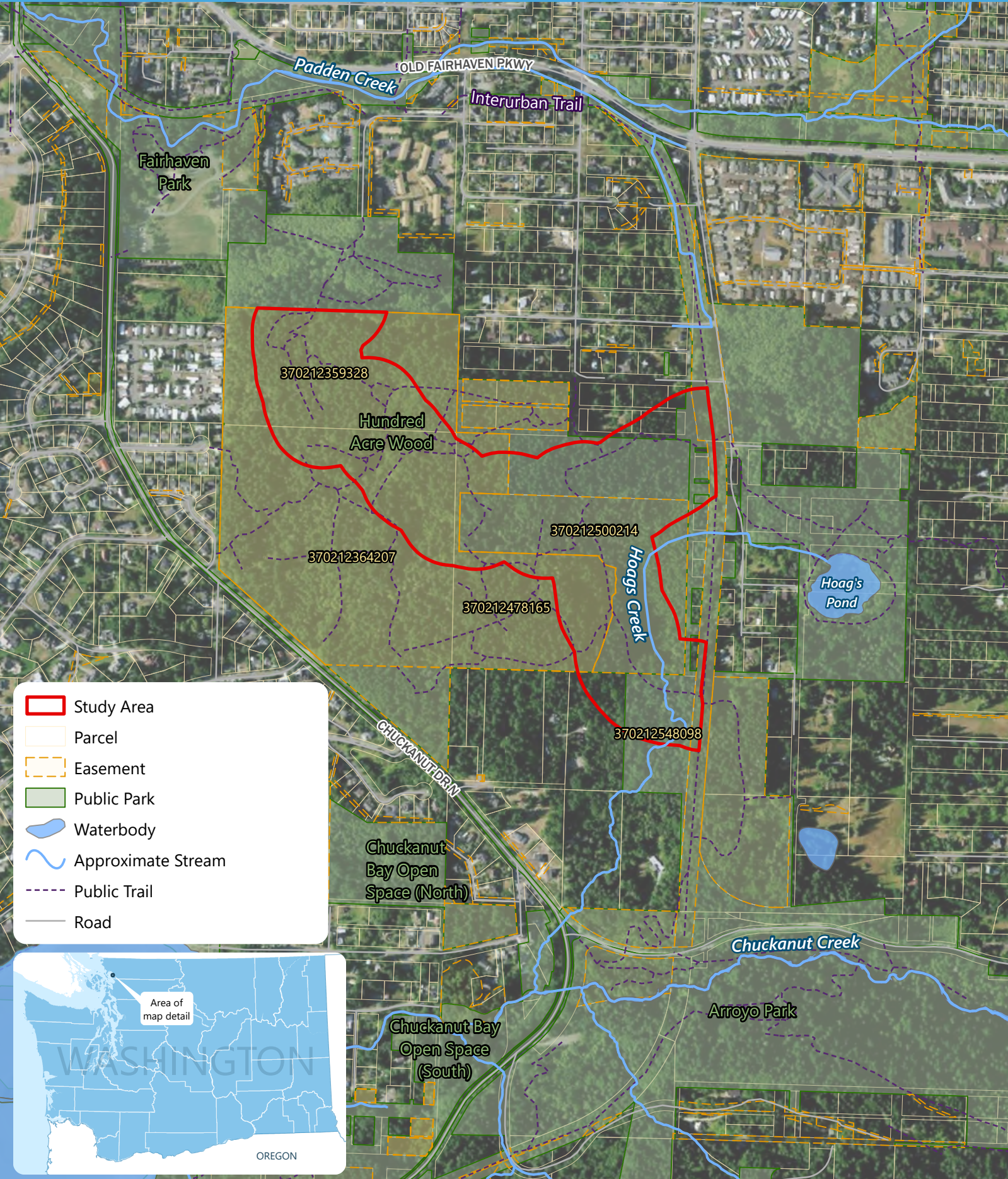
The objectives of the study were to:

- Verify current wetland boundaries are consistent with the most recent prior delineations (Northwest Ecological Services 2005).
- Where differences in wetland boundaries occur, delineate (flag) wetlands within the study area.
- Identify and delineate (flag) any new wetlands and streams within study area.
- Verify vegetation classification within delineated wetlands using the U.S. Fish and Wildlife Service (USFWS) wetland classification system (FGDC 2013).
- Verify classifications all delineated wetlands using the hydrogeomorphic (HGM) classification system (Brinson 1993).
- Classify all delineated wetlands and assess their functions using the Washington State Wetland Rating System for Western Washington: 2014 Update (Hruby and Yahnke 2023), the classification system required by Bellingham Municipal Code (BMC) 16.55.280.
- Determine wetland and stream buffer widths required by BMC 16.55.340, and 16.55.500.
- Identify fish and wildlife habitat conservation areas (FWHCAs) as described by BMC 16.55.470.
- Classify all streams within the study area according to the Washington Department of Natural Resources (WDNR) Forest Practices Water Typing as described in the Washington Administrative Code (WAC 222-16-031).

Phase 1B Project Description

Phase 1A of the project included decommissioning, native planting, signage, and wayfinding throughout the Park is ongoing. Phase 1B will expand the area of trail narrowing and decommissioning and will trigger the need for critical areas permitting. Phase 1B includes the following elements:

- Trail resurfacing with crushed limestone, and improvement of the trail subgrade with ballasting along the main trail line as specified in the master plan.
- Installing boardwalks at key locations along the main trail.
- Re-routing of three existing trail segments. One existing earthen trail in Wetland AA will be rerouted through the buffer. The other existing earthen trails are north of Wetland JJ1/JJ2 and outside of any critical areas buffers will be relocated to avoid encroachment onto private property. Both new trail segments will be “field fit” to avoid impacts to trees where possible.
- Installation of three benches and associated crushed limestone pad, one of which will be located within a wetland buffer.
- Installation of a footbridge to cross Hoag’s Creek.
- Trail narrowing, decommissioning, and wetland and buffer restoration including mitigation plantings.
- Relocate a compacted earth trail off of private property at the northeast section of the park.



- Study Area
- Parcel
- Easement
- Public Park
- Waterbody
- Approximate Stream
- Public Trail
- Road



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Critical Areas Delineation

Methods and Materials

Herrera conducted a review of available information within the study area prior to the site visit. The following sections describe the research methods and field protocols for the wetland and stream evaluations. Appendix A includes more information about the methodology used in the wetland delineation performed for this project.

Wetlands

Herrera reviewed publicly available resources for the presence of wetlands and near the study area. Sources of information include the following:

- National Wetlands Inventory (NWI) map (USFWS 2017)
- Previously completed wetland reports and mapping, described in detail in the Results section below
- Precipitation and climate data (NRCS 2024a)
- Soil survey maps (NRCS 2024b, 2024c)

Wetland Delineation

Herrera conducted the wetland delineation in accordance with the *Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Western Mountains, Valleys, and Coast Region* (Environmental Laboratory 2010), which is consistent with the *1987 Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987). The methods in these guidance manuals use a three-parameter approach for identifying and delineating wetlands and rely on the presence of field indicators for hydrophytic vegetation, hydric soils, and hydrology. The detailed methods for evaluating these three parameters and for performing the wetland delineation are described in Appendix A. Test plots were established to document conditions in wetlands and in adjacent uplands. For each test plot, data on dominant plant species, soil conditions, and evidence of hydrologic conditions were recorded on wetland determination data forms (Appendix B).

Wetland boundaries within the 300-foot study area that were consistent with prior delineations from Northwest Ecological Services (NES) were not flagged or surveyed. To determine the accuracy of the original wetland boundaries, surveyed wetland boundary data was imported into GIS. Within the study area, Herrera biologists walked the original wetland boundaries utilizing a Trimble GPS unit with sub-meter accuracy that included original surveyed wetland boundaries and were able to determine where the boundaries had changed or remained the same. Where boundaries had not changed, general notes and photos were collected to confirm consistency with prior delineations. This included Wetlands AY, FF, HH, and LL.

Where wetland boundaries varied from the prior delineation within the study area, new boundaries were marked with pink flagging and surveyed with a Trimble GPS device with sub-meter accuracy. Sample plot locations were marked with GPS coordinates only. Data for new wetland boundaries were collected for portions of Wetlands AA, AX, KK, JJ.

Four new wetlands were identified and delineated as Wetlands AZ, JJ3, JJ4, and JJ5. Wetlands JJ1 and JJ2 (previously delineated by NES) were combined and renamed as Wetland JJ1/JJ2, based on updated guidance from the Washington Department of Ecology (Hruby and Yahnke 2023).

Precipitation Data

Analyzing climatic conditions and local weather patterns is important in the assessment of vegetation, soil conditions, and hydrology for wetland delineations (Environmental Laboratory 1987, 2010), and information on precipitation that precedes a site visit is valuable in helping determine whether conditions observed at a site are reflective of normal rainfall. The Natural Resources Conservation Service (NRCS) methodology for the analysis of normal environmental conditions was used to analyze conditions prior to the site visit (NRCS 1997; see Appendix A for additional methodology description).

Wetland Classification

Wetlands observed within the study area were classified according to the USFWS classification system (FGDC 2013). This system is based on an evaluation of attributes such as vegetation class, hydrologic regime, salinity, and substrate. The wetlands were also classified according to the HGM system, which is based on an evaluation of attributes such as the position of the wetland within the surrounding landscape, the source and location of water just before it enters the wetland, and the pattern of water movement in the wetland (Brinson 1993).

Wetland Rating

Wetlands were rated using *Washington State Wetland Rating System for Western Washington: 2014 Update (Version 2)* (Hruby and Yahnke 2023), hereafter referred to as the Ecology rating system. The Ecology rating system is required by BMC 16.55.280. It categorizes wetlands according to specific attributes such as rarity; sensitivity to disturbance; hydrologic, water quality, and habitat functions; and special characteristics (e.g., Mature Forested wetland, bog). The total score for all functions determines the wetland rating. The rating system consists of four categories, with Category I wetlands exhibiting outstanding functions and/or special characteristics and Category IV wetlands exhibiting minimal attributes and functions. The rating categories are used to identify permitted uses in a wetland and its buffer, to determine the width of buffers needed to protect a wetland from adjacent development, and to identify the mitigation ratios required to compensate for potential impacts on wetlands.

According to the Washington State Wetland Rating System, forested wetlands over 1 acre in size and meeting the WDFW's priority habitat criteria for the old-growth or mature forests are categorically assigned a Category I rating (Hruby and Yanke 2023). WDFW's criteria for "Mature forests" (west of the Cascade Crest) includes stands where the largest trees are 80 to 200 years old, or the species that make up the canopy have an average diameter (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100 percent; decay, decadence, numbers of snags, and quantity of large, downed material is

generally less than that found in old growth (WDFW 2021). Ecology has noted that WDFW’s criterion for dbh is based on measurements for upland forests and that 80- to 200-year-old trees in wetlands will often have smaller dbh because their growth rates are often slower (Hruby and Yanke 2023).

Wetland Functional Assessment

Wetland functions are those physical and chemical processes that occur within a wetland, such as the storage of water, cycling of nutrients, and maintenance of diverse plant communities and habitat that benefit wildlife. Wetland functions are grouped into three broad categories: water quality, hydrologic, and habitat.

- Water quality functions include the potential for removing sediment, nutrients, heavy metals, and toxic organic compounds in the water passing through the wetland.
- Hydrologic functions include reducing the velocity of stormwater, recharging and discharging groundwater, and providing flood storage.
- Habitat functions include providing food, water, and shelter for fish, shellfish, birds, amphibians, and mammals. Wetlands also serve as a breeding ground and nursery for numerous species.

Wetland functions were assessed using the Ecology rating system (Hruby and Yahnke 2023). This system generates a qualitative functional rating (high, moderate, or low) for each of the functions (water quality, hydrology, and habitat) provided by wetlands.

Fish and Wildlife Habitat Conservation Areas

Within city limits, streams are considered one type of Fish and Wildlife Habitat Conservation Area (FWHCA), according to BMC 16.55.470. FWHCAs are also inclusive of federal, or state-listed endangered, threatened, and sensitive species and habitat, as well as state priority species and habitat. Rare plants and high-quality ecosystems as identified by the Washington State Department of Natural Resources (WDNR) Natural Heritage Program are also protected within the City as FWHCAs. Land useful or essential for preserving connections between habitat blocks and open spaces is also identified as an FWHCA within the City.

In addition to the field investigation, the following public resources were consulted to identify possible FWHCAs within the study area:

- Washington Department of Fish (WDFW) and Wildlife Priority Habitat and Species (PHS) maps (WDFW 2024a)
- Washington State fish distribution and passage databases (WDFW 2024b, 2024c, NWIFC 2024)
- Washington State Department of Natural Resources (WDNR), Official Water Type Reference maps (WDNR 2024a)
- WDNR Natural Heritage Program mapping data (2024b)
- Environmental Information data layers on the City of Bellingham CityIQ webmap (Bellingham 2024)

- Technical environmental reports for the Fairhaven Highlands development, the Chuckanut Community Forest Park District, and the City of Bellingham (see Prior Wetland and Habitat Studies section below for cited list).

Frequently Flooded Areas

The approximate location and extent of Frequently Flooded Areas are shown on the City's critical areas maps (BMC 16.55.370.B.3).

Geologically Hazardous Areas

The City also provides approximate mapping for some of the regulated Geologically Hazardous Areas however, a geological hazards assessment may be required to be performed by a professional geotechnical engineer or geologist. City regulated hazard areas include erosion hazard areas, landslide hazard areas, seismic hazard areas, and mine hazard areas (BMC 16.55.410).

Results

This section discusses the results of the wetland delineation and stream desktop analysis, including a review of information obtained from various references, and an analysis of wetland and stream conditions in the study area as observed during field investigations.

Prior Wetland and Habitat Studies

Since the 1990's, there have been several relevant wetland studies and memorandums conducted throughout the Park parcels (Shapiro and Associates 1992). Northwest Ecological Services comprehensively documented baseline wetland conditions throughout the Park property in 2005 (Northwest Ecological Services 2005). Subsequent wetland reports and revisions include the following:

- Wetland assessments (Shapiro and Associates 1992, Northwest Ecological Services 2005, 2008, 2009a, 2009b, 2009c, 2009d)
- Species and habitat assessments (Aqua-Terr Systems 1994, Northwest Ecological Services 2007, 2009e, Cooke 2010, Common Futures 2017)
- Geological and hydrologic technical report (GeoEngineers, Inc. 2009)
- Wetland tree assessments (City of Bellingham 2009, Urban Forestry Services 2009)
- Environmental Impact Statement for the Fairhaven Highlands project (ESA Adolfson 2009)
- Chuckanut Community Forest (CCF) Stewardship Plan (Herrera 2022)
- Hundred Acre Wood Master Plan (City of Bellingham 2022)

The most recent wetland study conducted in 2005, and amended in 2009, identified a total of 16 wetlands throughout the Park (NES 2005). More recently, the wetland categorical ratings were updated according to Ecology's updated (2014) Washington State's Wetland Rating System for Wetlands in Western Washington in the CCF Baseline Report prepared in 2017 (Common Futures 2017). Of the 16 wetlands reported in the CCF's baseline report, 5 of the wetlands were evaluated to meet classification

as Category I wetlands, 2 were rated as Category II wetlands, and 9 were classified as Category III wetlands (Common Futures 2017). Several of the wetlands were categorized via Special Characteristics as they met the criteria of Mature Forested Wetlands (Hruby and Yanke 2023). Wetland information from the 2005 delineation, as updated ratings from 2009, and a recategorization in 2017 baseline report is summarized in Table 1 (Northwest Ecological Services 2005, 2008, 2009a, 2009b, 2009c, 2009d).

Table 1. Previously Documented Wetlands in the Hundred Acre Woods Park.

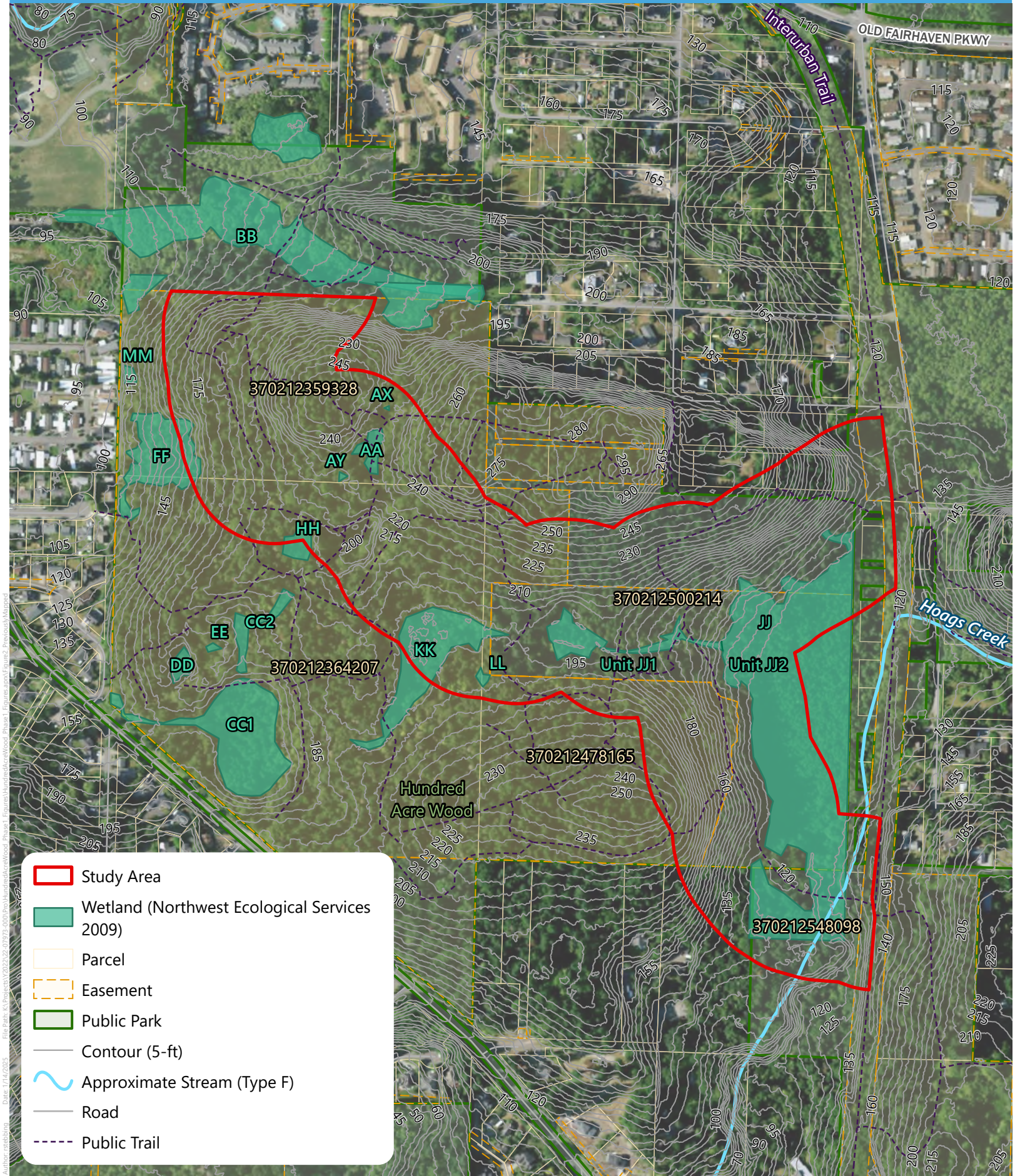
Wetland	Wetland Size (square feet)	Category
AA	8,998	III
AX	130	III
AY	449	III
BB ^a	21,516	I
FF	57,543	I
MM ^a	2,402	III
CC1 ^a	93,964	I
CC2 ^a	12,791	II
DD ^a	5,919	II
EE ^a	919	III
GG ^a	329.3	III
HH	8,764	II
KK	72,181	I
LL	1,631	III
JJ1	28,842	III
JJ2	321,037	I

^a Wetland is located outside the current Phase 1 Study Area.

Wetlands CC1 and CC2 were originally delineated as a single Category I wetland in 1990 (Shapiro and Associates 1992, NES 2005) and then separated into two wetlands (CC1, Category I and CC2, Category II) in 2009 (NES 2009b). Wetlands JJ1 and JJ2, previously delineated as one wetland prior to 2009, were similarly separated (NES 2009b). The rationale for the separation of these features was a lack of hydric soils and only seasonal surface water connection between the wetlands, which may be exacerbated by compacted soils over the existing bisecting trail. Other wetland biologists noted that observations of a surface water connection, including during recent field visits by Herrera, indicate that these areas, as well as the previous wetland ratings, should be carefully examined to determine if conditions have changed (Common Futures 2017, Herrera 2022).

Wetlands AA, AX, and AY located at the site of a former gravel pit were observed to be highly disturbed by historical site use and informal trails. Nonnative and invasive vegetation including creeping buttercup (*Ranunculus repens*), English ivy (*Hedera helix*), and English holly (*Ilex aquifolium*) were prevalent in and

adjacent to these wetlands. In the 2022 Stewardship Plan, Herrera identified this area as deserving additional consideration given the continued disturbance from trail uses (Herrera 2022).



- Study Area
- Wetland (Northwest Ecological Services 2009)
- Parcel
- Easement
- Public Park
- Contour (5-ft)
- ~ Approximate Stream (Type F)
- Road
- Public Trail

Wetland Assessment

Herrera biologists Danielle Rapoza, Liliana Hansen, and Tina Mirabile conducted wetland delineation field activities on February 15, 21, 29, and March 6, 2024. Weather conditions during the fieldwork ranged from overcast, rainy, to light snow with daytime high temperatures ranging between 58- and 70-degrees Fahrenheit (°F). Above-ground growth of vascular plants including osoberry (*Omeleria cersiformis*), salmonberry (*Rubus spectabilis*), and skunk cabbage (*Lysichiton americanus*) was observed, which indicated the field dates were within the growing season (as defined in Appendix A).

Herrera biologists traversed the entire study area to investigate the presence of wetlands. Herrera biologists delineated 12 wetlands in the study area (Figure 3). Wetland areas occurring outside of the study area were examined to assess overall connectivity however these features were not delineated. Table 4 through Table 11 provide a summary of delineated wetlands. Table 12 includes a summary of the delineated wetlands and buffer widths. Buffer widths are based on the wetland category, habitat score, and proposed use of the site. Herrera completed wetland delineation data forms (Appendix B) and Ecology wetland rating forms (Appendix D). Representative photos are included in Appendix E.

Wetland hydrology in the study area is strongly influenced by seasonally perched high water tables which is fed by surface runoff and groundwater seeps. Sixteen test plots were recorded and are numbered sequentially SP-1 through SP-16 which are documented in Appendix B. The available existing information compiled for the wetland and stream delineation is summarized in the following subsections.

Precipitation Data

The historical average precipitation measurements were based on data collected in Bellingham, Washington (Bellingham 3 SSW, Latitude 48.7170 degrees N, Longitude -122.5143 degrees W) for the period of record 1993 to 2023 (NRCS 2024a). This station is approximately 1.8 miles northwest of the study area.

Precipitation was evaluated for the 3-month period prior to field investigations, which occurred on February 15, 21, and 29, and March 6 and 12. In the 3 months preceding February and March fieldwork, precipitation in November was drier than average (NRCS 2023a). Precipitation for December and January was wetter than average. February precipitation was normal. Based on analysis of precipitation in the preceding 3-month period, the climatic conditions in February and March were wetter than normal (Table 2).

Table 2. Evaluation of Average Precipitation for the Three-Month Period Preceding Field Investigations.

Prior Month	WETS Station Bellingham 3 SSW Rainfall Percentile (inch)		Measured Rainfall (inch)	Monthly Condition: Dry, Wet, Normal	Resultant Condition Based on Preceding Three-Month Period
	30th	70th			
November	4.22	6.90	3.70	Dry	
December	3.71	5.41	5.98	Wet	
January	3.46	5.31	5.86	Wet	
February	2.17	3.66	2.97	Normal	Wetter than normal
March	NA	NA	NA	NA	Wetter than normal

Precipitation in the form of rain and snow was recorded in the days leading up to fieldwork (Table 3).

Table 3. Accumulated Precipitation Prior to Field Date.	
Field Date	Precipitation in 10 days prior to field date (inches)
February 15, 2024	1.16
February 21, 2024	0.20
February 29, 2024	1.38
March 6, 2024	2.23
March 12, 2024	0.96

Mapped Soils

Four soil NRCS soil types are mapped within the study area (Appendix C) and are described below: Chuckanut, Everett-Urban, Pangborn muck, and Squalicum-Urban (NRCS 2024b, 2024c).

Chuckanut

Chuckanut gravelly ashy sandy loam, 30 to 65 percent slopes, is a deep, well-drained soil that forms from volcanic ash mixed with colluvium derived from sandstone over dense glacial till and occurs on hillslopes. A typical soil profile includes a 7-inch layer of slightly to moderately decomposed forest material; a 2-inch layer of gravelly ashy sandy loam; a 13-inch layer of gravelly ashy loam; a 20-inch layer of gravelly sandy loam; and a 13-inch layer of gravelly loam underlain by sandstone bedrock. Chuckanut is not considered a hydric soil. Minor components within the study area consist of hydric soil Bellingham, and non-hydric soils Beausite, Rock outcrop, and Tokul (NRCS 2024b).

Everett-Urban

Everett-Urban land complex, 5 to 20 percent slopes, is a deep, somewhat excessively drained soil that forms from loess and volcanic ash over glacial outwash on terraces and moraines. A typical soil profile includes 13 inches of gravelly ashy sandy loam, 12 inches of very gravelly sandy loam, 16 inches of very gravelly loamy sand, and 19 inches of very gravelly sand. Everett and Urban soils are not considered hydric soils. Minor components within the study area consist of Labounty which is hydric, and Squalicum, Sehome, Chuckanut, and Whatcom, which are not hydric (NRCS 2024b).

Pangborn Muck

Pangborn muck, drained, 0 to 2 percent slopes is a very deep, very poorly drained soil that forms from woody and herbaceous organic material on depression on outwash terraces. A typical soil profile is composed of 60 inches of organic muck. Pangborn muck is considered a hydric soil. Minor components within the study area consist of Fishtrap, Puget, Shalcar, Snohomish, Hale, and Bellingham all of which are hydric (NRCS 2024b).

Squalicum-Urban

Squalicum-Urban land complex, 5 to 20 percent slopes, is a deep, moderately well-drained soil that forms from volcanic ash, loess, and slope alluvium over glacial drift on hillslopes. A typical soil profile includes 60 inches of gravelly ashy loam. Squalicum and Urban soils are not considered hydric soils.

Minor components within the study area consist of Labounty undrained, which is hydric, and Everett, Whatcom, Sehome, Squires, and Blethen, which are not hydric (NRCS 2024b).

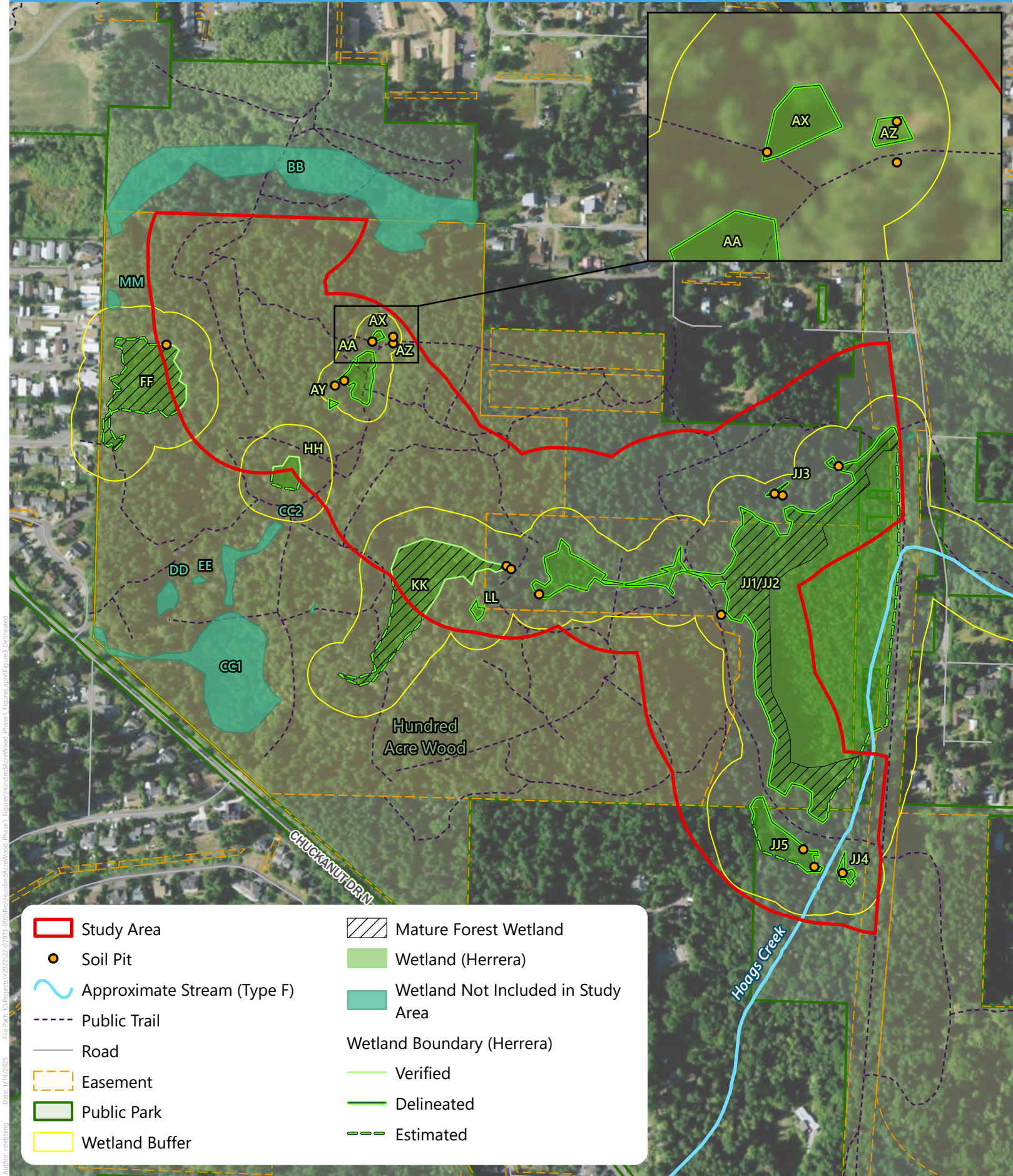
Delineated Wetlands

Herrera identified Wetlands AA, AX, AY, FF, HH, KK, LL, JJ1, and JJ2, previously mapped by NES (2005) and adjusted wetland boundaries where necessary. In addition, Herrera identified Wetlands AZ, JJ3, JJ4, and JJ5, which were not previously delineated by NES (2005) within the Study Area. All wetlands within the Study Area are described below and summarized in Table 12.

Wetlands AA, AX, AZ, and AY

Wetlands AA, AX, and AZ are shallow, depressional wetlands located in a former gravel pit within the Padden Creek watershed. Wetland AY is also a shallow, depressional wetland, located just south of the former gravel pit. Herrera confirmed the presence of Wetlands AA, AX, and AY as previously documented by NES (NES 2005), however, Herrera observed Wetland AA and AX to be slightly larger when compared to the prior delineation (NES 2005). Wetland AY did not change since the NES delineation (NES 2005). Herrera identified one additional wetland in this area, Wetland AX, which was not previously documented. Existing trails intersect with Wetlands AA, AX, and AZ which have become muddy in areas and disturbed.

New and expanded wetland areas are generally located next to trails and areas of high foot traffic which indicates that soil compaction may be a contributing factor. Vegetation in Wetland AA, AX, and AZ was disturbed by the former land use and by regular foot traffic from Park users. Wetland AY is a shallow, depressional wetland located directly downgradient of Wetland AA. Ditch flows from Wetland AA provide the primary source of hydrology to the wetland. Wetlands AA, AX, and AY rated as Category III wetlands with low habitat functions. Wetland AZ is a Category IV wetland with low habitat functions. Summary information for Wetlands AA, AX, AZ, and AY are provided in Table 4.



- Study Area
- Soil Pit
- Approximate Stream (Type F)
- Public Trail
- Road
- Easement
- Public Park
- Wetland Buffer
- Mature Forest Wetland
- Wetland (Herrera)
- Wetland Not Included in Study Area
- Wetland Boundary (Herrera)
- Verified
- Delineated
- Estimated

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 Date: 7/14/2025
 Author: reebbing

Table 4. Summary for Wetland AA, AX, AZ, and AY.

Dominant Vegetation	Wetland AA contains Palustrine forested (PFO) and Palustrine emergent (PEM) plant communities. Wetland AX and AZ are primarily dominated by PEM vegetation. Dominant species in the PFO community include black cottonwood (<i>Populus balsamifera</i>), western redcedar (<i>Thuja plicata</i>), and salmonberry. The PEM community is dominated by creeping buttercup (<i>Ranunculus repens</i>), slough sedge (<i>Carex obnupta</i>) and colonial bentgrass (<i>Agrostis capillaris</i>). Wetland AY is primarily dominated by PSS vegetation. Dominant species include black cottonwood and western redcedar.
Soils	At SP-2 (Wetland AA), soils were examined to a depth of 15 inches below the ground surface and met the hydric soil criteria for Depleted Below Dark Surface (A11) and Depleted Matrix (F3). At SP-4 (Wetland AX) and SP-6 (Wetland AZ) soils met the hydric soil criteria for A11 and Sandy Redox (S5). Soils in all three pits were dominated by sandy, loamy, and gravelly textures. Soils in Wetlands AA, AX, and AZ were highly modified by the former gravel pit and are likely compacted in areas due to use as a trail.
Hydrology	At SP-2 and SP-4, soils were saturated to the surface (A3) and the water table was present at 3-4 inches below the soil surface (A2). At SP-6 surface water (A1) was present. Precipitation and shallow subsurface flow are the only hydrologic inputs to these wetlands. Wetland hydrology is generally seasonally saturated with some areas of shallow (approximately 6 inches) of seasonal ponding. All four wetlands have seasonal, free-flowing outlets. The outlet of Wetland AA has been modified to direct flow through an informal ditch and over the main trail.
Buffer Condition	Trails intersect the buffer for all three wetlands in several locations. The wetland buffers are primarily forested and consist of sword fern (<i>Polystichum munitum</i>), trailing blackberry (<i>Rubus ursinus</i>), black cottonwood, wild strawberry (<i>Fragaria vesca</i>), snowberry (<i>Symphoricarpos albus</i>), black hawthorn (<i>Crataegus douglasii</i>), colonial bentgrass, and osoberry (<i>Oemleria cerasiformes</i>). A patch of non-native bamboo (<i>Pleioblastus fortunei</i>) was identified in the buffer between AA and AZ. Priority snags and logs were identified in the buffer.

Wetland FF

Wetland FF is a slope wetland located in the northwestern portion of the Park. Mature Forested wetland conditions have been documented within Wetland FF (Urban Forestry Services 2009, NES 2009a). Herrera confirmed the presence of Wetland FF as previously documented by NES. Mature forested wetlands require at least one contiguous acre of mature forest, defined by WDFW as stands between 80-200 years old and/or average diameters greater than 21 inches. As a result, the wetland was rated based on “special characteristics” as a Category I wetland. A summary of Wetland FF is included in Table 5.

Table 5. Summary for Wetland FF.

Dominant Vegetation	Wetland FF contains PFO and Palustine scrub/shrub (PSS) vegetation communities. The PFO vegetation community is located along the edges of the wetland and is dominated by western redcedar. The PSS community is dominated by salmonberry, lady fern (<i>Athyrium filix-femina</i>), and Himalayan blackberry (<i>Rubus armeniacus</i>).
Soils	At SP-1 (Wetland FF), soils were examined to a depth of 14 inches below the ground surface and met the hydric soil criteria for Depleted Below Dark Surface (A11) and Redox Dark Surface (F6). Soils in the pit were dominated by loamy textures.
Hydrology	At SP-1, surface water was present to the surface (A1). Precipitation and shallow subsurface flow are the only hydrologic inputs to this wetland. Wetland hydrology is generally seasonally saturated with some small areas of shallow seasonal ponding.
Buffer Condition	An unmapped mountain bike trail is located in the buffer. The wetland buffer consists of Douglas fir, sword fern, trailing blackberry, snowberry, Himalayan blackberry, English ivy, and English holly. Priority snags and logs were identified in the buffer.



Wetland HH

Wetland HH is a depressional wetland located downgradient of Wetland AY. Herrera confirmed the presence of Wetland HH as previously documented by NES (NES 2005). Due to the relatively small size of this wetland, mature trees within the wetland do not meet the special characteristics criteria for Mature Forested Wetlands as determined by the 2014 wetland rating method (Hruby and Yahnke 2023). Wetland HH is therefore a Category II wetland based on functions, with a moderate habitat score. A summary of Wetland HH is included in Table 6.

Table 6. Summary for Wetland HH.

Dominant Vegetation	Wetland HH includes PFO, PSS and PEM Cowardin classes. Dominant vegetation consists of western redcedar, redosier dogwood (<i>Cornus sericea</i>), slough sedge, and lady fern.
Soils	Soils in Wetland HH are compacted and dominated by gravelly, sandy textures. The wetland is located near an old gravel pit.
Hydrology	Wetland hydrology has seasonal ponding up to 10-12 inches deep, and soils are saturated on the edges of the wetland. The wetland has no outlet.
Buffer Condition	The wetland buffer consists of Douglas fir, black cottonwood, bigleaf maple (<i>Acer macrophyllum</i>), bitter cherry (<i>Prunus emarginata</i>), sword fern, English holly, trailing blackberry, and salmonberry.

Wetland KK and LL

Wetlands KK and LL are depressional wetlands located in the center of the Park. Herrera confirmed the presence of Wetlands KK and LL as previously documented by NES, however Wetland KK was slightly larger than previously delineated (NES 2005). Trails intersect the easternmost and westernmost edges of Wetland KK. Foot traffic may be contributing to compacted soil conditions which has led to expanded wetland area at these locations. Wetland KK meets the criteria of a Mature Forested Wetland and is, therefore, a Category I wetland, based on special characteristics (Urban Forestry Services 2009, NES 2009d). Wetland LL is a Category III wetland based on functions. Summaries of Wetlands KK and LL are included in Table 7. Existing trails intersect with the easternmost and westernmost sides of the Wetland KK which has become muddy and disturbed.

Table 7. Summary for Wetland KK and LL.

Dominant Vegetation	Wetland KK is dominated by a PFO vegetation community. Vegetation is dominated by western redcedar, red alder (<i>Alnus rubra</i>), salmonberry, water parsley (<i>Oenanthe sarmentosa</i>), and lady fern. Vegetation in portions of the wetland intersected by trails has been disturbed by trampling. Wetland LL is dominated by a PSS vegetation community. Vegetation includes vine maple (<i>Acer circinatum</i>), salmonberry, and skunk cabbage (<i>Lysichiton americanus</i>).
Soils	In Wetland KK at SP-7, soils were examined to a depth of 12 inches below the ground surface and met the hydric soil criteria for Loamy Gleyed Matrix (F2) and Redox Dark Surface (F6). Soils in the pit were dominated by loamy/clayey textures. Soils in the wetland are compacted by foot traffic. Soils were not documented in Wetland LL.

Table 7 (continued). Summary for Wetland KK and LL.

Hydrology	<p>In Wetland KK at SP-7, surface water was present (A1) due to a perched clay layer. The water table was present 7 inches below the soil surface (A2), and soils were saturated to 5 inches below the surface (A3). The site has a Sparsely Vegetated Concave Surface (B8), notable Drainage Patterns (B10), and a Shallow Aquitard (D3). Hydrology is present both above and below the clay layer. Wetland hydrology is seasonally ponded. The wetland has a seasonally flowing outlet to the northwest.</p> <p>Wetland LL is seasonally inundated. The wetland has a seasonally flowing outlet.</p>
Buffer Condition	<p>The wetland overlaps with a walking trail. Buffer vegetation includes western redcedar, Douglas fir, sword fern, trailing blackberry, low Oregon grape (<i>Mahonia nervosa</i>), Western hemlock (<i>Tsuga heterophylla</i>), bigleaf maple, red huckleberry (<i>Vaccinium parvifolium</i>), and osoberry. There are priority snags located in the wetland buffers.</p>

Wetlands JJ1, JJ2, JJ4, and JJ5

The 2005 delineation report identified Wetlands JJ1, JJ2, JJ4, and JJ5 as a single, large wetland (NES 2005). The easternmost side adjacent to the Interurban Trail was not formally delineated. In 2008, NES separated the wetland into two distinct wetlands, JJ1 and JJ2 based on HGM class and “clear changes in the flow dynamics (velocity and quantity of water)” (NES 2008). In 2009, Wetland JJ2 was recategorized as a Category I mature forested wetland (Urban Forestry Services 2009, NES 2009b).

Since the early delineations, the regulatory guidance from the Washington Department of Ecology has been updated. Based on the new guidance, Herrera determined that there are three distinct wetlands located within the boundary of the original boundary of Wetland JJ. Wetlands JJ1 and JJ2 are now identified as the singular Wetland JJ1/JJ2 (which is more consistent with the original delineation) but was given a dual rating under the 2014 Ecology rating manual (Hruby and Yahnke 2023), and is described below.

Wetland JJ1/JJ2 has slope, riverine, and depressional HGM classes. The following elements characterize units of Wetland JJ1/JJ2:

- Several excavated ditches of unknown origin were observed within the western portion of JJ1/JJ2.
- The outflow originating from the westernmost side of the wetland appears to be seasonal and is constrained within a defined excavated channel as it flows down a moderate slope and increases in velocity towards the mature forested portion of the wetland.
- Several informal trails cross the slope portion (western side) of the wetland. Where trails intersect the wetland, some wetland areas have expanded due to soil compaction. In addition, a portion was expanded due to a fallen tree which left a tree well and created a depressional wetland hole. Saturated wetland conditions were present on the banks of the channel. Near the second trail crossing the bulk of the flow avulsed from the excavated channel and joined with a trail where it flowed overland down the eroded and muddy trail for approximately 100 feet (Appendix E, photo 18). These informal trails have since been decommissioned during a prior phase of the project.
- At this location, flow from the western portion of the wetland dispersed through more natural forest conditions as it continued primarily subsurface until it met the depressional/mature forested portion of the wetland.

- In the depressional portion of the wetland, Hoag’s Creek joined the wetland through a culvert from the northwest. Water flow velocities were slow and unconfined (no channel) throughout until reaching the outflow point situated at its southern end.

The depressional/eastern portion of Wetland JJ1/JJ2 includes numerous mature trees, as defined by WDFW to be a stand of trees at least 1 contiguous acre in size with average diameters exceeding 21 inches diameter at breast height (dbh). The 2014 Ecology rating manual provides allowances for a dual wetland rating where mature forested and non-mature forest portions of wetlands are defined. In addition, the manual advises against using HGM class to subdivide a wetland but provides some leeway by stating that “...boundaries between different units should be set at the point where the volume, flow, or velocity of the water changes abruptly. These changes in water regime can be either natural or human-caused (anthropogenic)” (Hruby and Yahnke 2023). Based on this review, it is Herrera’s opinion that Wetland JJ1/JJ2 be treated as a single, hydrologically connected wetland with a dual rating. A summary of Wetland JJ1/JJ2 is included in Table 8.

Table 8. Summary for Wetland JJ1/JJ2

Dominant Vegetation	Wetland JJ1/JJ2 has PFO, PSS, and PEM communities. The PFO community is dominated by red alder and minor components of western redcedar, with mature forest along the saturated wetland fringe in the eastern portion of the wetland. PSS vegetation represents the majority of the wetland area and is dominated by vine maple, salmonberry, red alder saplings, and red osier dogwood (<i>Cornus sericea</i>), with understory components of lady fern, skunk cabbage, slough sedge, creeping buttercup, water parsley, piggyback plant, and Pacific waterleaf (<i>Hydrophyllum tenuipes</i>). Small pockets of non-persistent PEM vegetation are located in deeper water in the interior of the wetland. PEM areas are dominated by water parsley, skunk cabbage, and American speedwell (<i>Veronica americana</i>). A small amount of reed canarygrass is also present at the fringes of PEM areas. Sword fern, osoberry, and vine maple are also present within the wetland boundary but are located on elevated hummocks. The eastern portion of the wetland meets the criteria of a mature forested wetland (Hruby and Yahnke 2023).
Soils	At SP-9 soils were examined to a depth of 16 inches and met the criteria for the indicator Depleted Below Dark Surface (A11). SP-10 was located along a slope where hillside seepage flowed below the soil surface and drained to the eastern portion of JJ1/JJ2. At SP-10 soils were examined to a depth of 14 inches and met the indicator for depleted matrix (F3).
Hydrology	At SP-9 the soil was saturated to the surface and the water table was present at 6 inches below the soil surface. At SP-10 soils were saturated to at 7 inches from the soil surface. Hoag’s Creek, a ditch along the Interurban Trail, several hillside seeps, and high groundwater at this location are the primary sources of hydrology to Wetland JJ1/JJ2. Two excavated ditches were present near the center of the wetland that carry water westward through the wetland.
Buffer Condition	There are several trails intersecting the buffer of the west portion of JJ1/JJ2 and surrounding east portion of the wetland. Understory vegetation on the eastern side of the wetland buffer are disturbed and are relatively low in shrubs and groundcover. Vegetation in the buffer is dominated by western redcedar, bigleaf maple, grand fir, western hemlock, Douglas fir, osoberry, western sword fern, dull Oregon grape, vine maple, red huckleberry, red elderberry, and trailing blackberry. Wetlands KK and LL are located to the west. Several priority snags are located in the buffer.

Wetland JJ4, a slope wetland, is located downstream of Wetland JJ1/JJ2 along Hoag’s Creek. Hydrology from the wetland drains into Hoag’s Creek. Hoag’s Creek provides hydrology to Wetland JJ1/JJ2 during floods, however, there is a distinct separation of wetland and upland areas between Wetlands JJ1/JJ2 and JJ4. Wetland JJ4 is a Category III wetland.

Table 9. Summary for Wetland JJ4.

Dominant Vegetation	Wetland JJ4 is dominated by a PSS vegetation community. Dominant species include western redcedar saplings, salmonberry, lady fern, piggyback plant, and Pacific waterleaf. Sword fern is located in the wetland on elevated hummocks. A large percentage of the wetland surface is bare ground.
Soils	At SP-14 soils were examined to a depth of 16 inches below the soil surface and met the indicator for Redox Dark Surface (F6).
Hydrology	At SP-14 soils were saturated to the surface (A3). Hydrology to Wetland JJ4 is primarily from a hillside seep that flows subsurface.
Buffer Condition	Some trails are located in the outermost extent of JJ4. Native buffer vegetation is dominated by western redcedar, red alder, vine maple, osoberry, red huckleberry, and sword fern. Some English holly and English Ivy are also present.

JJ5 is a depressional wetland located downstream of JJ1/JJ2 along Hoag’s Creek. This wetland was inaccurately mapped during prior delineation work (NES 2005) as it was lumped in with JJ1/JJ2, although definitive upland forest separates Wetland JJ1/JJ2 from Wetland JJ5. Wetland JJ5 is a Category II wetland. A summary of Wetland JJ5 is included in Table 10.

Table 10. Summary for Wetland JJ5.

Dominant Vegetation	Wetland JJ5 contains PFO, PSS, and PEM communities. PFO vegetation is generally isolated to the saturated fringe and is dominated by black cottonwood, western redcedar, with understory components of slough sedge, piggyback plant, lady fern, and Himalayan blackberry. PSS vegetation is dominant within the interior of the wetland and contains salmonberry, western redcedar saplings, slough sedge, and skunk cabbage. PEM areas are dominated by skunk cabbage, piggyback plant, Pacific waterleaf, large leaf avens (<i>Geum macrophyllum</i>), water parsley, and creeping buttercup.
Soils	At JJ5 a sandy clay layer has created a perched water several feet in elevation above Hoag’s Creek. At SP-15 soils were examined to a depth of 16 inches below the surface and met the indicator for Depleted Dark Surface (F7).
Hydrology	Approximately 0.5-inch of surface water (A1) was present at SP-15. Wetland JJ5 is depressional wetland perched above Hoag’s Creek. Two low points provide seasonal outlets to the stream. Precipitation and groundwater seeps above the clay layer are the major hydrologic inputs to this wetland.
Buffer Condition	Trails to the north and west intersect the buffer of Wetland JJ5. Dominant vegetation includes bigleaf maple, western redcedar, Douglas fir, osoberry, sword fern, dull Oregon grape, red huckleberry, and trailing blackberry.

Wetland JJ3

Wetland JJ3 is located north of Wetland JJ1/JJ2 and north of a main trail leading to the Interurban Trail. This wetland was not previously identified by NES (NES 2005). Wetland JJ3 is a slope wetland that emerges from a natural hillside seep on the north side of the trail. Trail creation and the lack of a formal ditch drainage system caused water to impound upslope of the trail. Foot traffic in the trail shoulder has likely added to compact soil conditions and expanded wetland conditions. There is no surface connection between Wetland JJ3 and JJ1/JJ2. Wetland JJ3 is a Category III wetland. A summary for Wetland JJ3 is included in Table 11.

Table 11. Summary for Wetland JJ3.

Dominant Vegetation	PEM vegetation in Wetland JJ3 is disturbed by foot traffic. Wetland JJ3 is dominated by slough sedge, creeping buttercup, and a mint species (<i>Mentha</i> spp.). Small areas of salmonberry and osoberry are also present but do not represent a dominant vegetation class.
Soils	At SP-11 soils were examined to a depth of 16 inches below the surface and met the criteria for Depleted Matrix (F3).
Hydrology	At SP-11 the water table (A2) was present at 7 inches below the soil surface and soils were saturated to the soil surface (A3). The dominant source of hydrology to Wetland JJ3 is a hillside seep. Prior to development to the trail, water likely flowed subsurface and was unimpeded until it met with Wetland JJ5. The perched subsurface water generally flows northeast along the trail for approximately 100 feet.
Buffer Condition	The trail intersects the south side of the buffer. Vegetation in the buffer is dominated by western redcedar, bitter cherry, osoberry, sword fern, and trailing blackberry.

Table 12. Wetlands Delineated in the Study Area.

Wetland/ Unit Name	Area of Wetland Delineated on Site (square feet)	USFWS Classification ^a	Hydrogeomorphic Classification ^b	Wetland Rating Category (2014) ^c	Habitat Score (based on functions)	City of Bellingham Buffer Width for Moderate Intensity Development ^d
AA	12,756	PFO, PEM	Depressional	III	4 (low)	60
AX	1,028	PEM	Depressional	III	4 (low)	60
AY	499	PSS	Depressional	III	4 (low)	0 ^e
AZ	256	PEM	Depressional	IV	4 (low)	0 ^e
FF	57,543	PFO, PSS	Slope	I ^f	5 (moderate)	110
HH	8,764	PFO, PSS, PEM	Depressional	II	6 (moderate)	110
JJ1/JJ2	530,007	PFO, PSS	Depressional, slope, riverine	II/I ^g	7 (moderate)	110
JJ3	394	PEM	Slope	III	5 (moderate)	0 ^e
JJ4	2,795	PSS	Slope	III	7 (moderate)	100
JJ5	23,627	PFO, PSS, PEM	Depressional	II	8 (high)	150
KK	73,061	PFO	Depressional	I ^f	6 (moderate)	110
LL	1,631	PSS	Depressional	III	5 (moderate)	100

^a USFWS classification is based on FGDC (2013): palustrine forested (PFO), palustrine scrub-shrub (PSS), and palustrine emergent (PEM).

^b Hydrogeomorphic classification is based on FGDC (2013).

^c Wetland Category Is based on the Washington State Department of Ecology (Ecology) wetland rating system (Hruby and Yahnke 2023).

^d Wetland buffer widths are based on the Ecology wetland rating, habitat score, and land use intensity, per BMC 16.55.280.

^e Wetland is exempt from buffer requirements per BMC 16.55.270.B.

^f Wetland rated based on special characteristics as a mature forested wetland (Hruby and Yahnke 2023).

^g Wetland has dual rating because JJ2 area was rated based on mature forested wetland conditions and is classified as a Category I wetland (Hruby and Yahnke 2023).

Wetland Functions

Table 13 provides a summary of the function scores, the total wetland score, and the associated rating (category) for each delineated wetland based on the Ecology rating system (Hruby and Yahnke 2023). In general, wetlands in the Hundred Acre Wood are providing moderate water quality, hydrologic, and habitat functions. However, these functions are highly valued by society due to their landscape position in an urban setting which provides opportunities for water quality and hydrologic benefits. Mature forest, snag and log habitat, and the close proximity of nearby accessible habitat make these wetlands valuable to wildlife.

Table 13. Individual Wetland Function Scores for Wetlands in the Study Area.

Wetland /Unit Name	Water Quality Functions Rating ^a			Hydrologic Functions Rating ^a			Habitat Functions Rating ^a			Total Score ^b	Ecology Rating Category
	Site Potential	Land-scape Potential	Value	Site Potent-ial	Land-scape Potential	Value	Site Potent-ial	Land-scape Potential	Value		
AA	M	M	H	M	L	H	L	L	M	17	III
AX	M	M	H	M	L	H	L	L	M	17	III
AY	M	M	H	L	L	H	L	L	M	16	III
AZ	L	M	H	L	L	H	L	L	M	15	IV
FF ^c											I
HH	H	M	H	M	L	H	M	L	H	20	II
JJ1/JJ2	M	M	H	M	M	H	M	M	H	21	II
JJ1/JJ2 Mature Forest Area ^c											I
JJ3	L	M	H	L	L	H	L	M	M	16	III
JJ4	L	M	H	L	L	H	L	H	H	18	III
JJ5	M	M	H	M	L	H	M	H	H	21	II
KK ^c											I
LL	M	M	H	L	L	H	L	M	M	17	III

^a Qualitative ratings of H (high), M (moderate), and L (low) are based on the Washington State Department of Ecology (Ecology) rating system (Hruby and Yahnke 2023).

^b Total score is derived by adding all qualitative ratings together. Low ratings are worth 1 point, Moderate ratings are worth 2 points, and High ratings are worth 3 points.

^c Wetland was rated based on special characteristics as a Mature Forested wetland and was not evaluated based on a functional assessment (Hruby and Yahnke 2023).

Fish and Wildlife Habitat Conservation Areas

Herrera identified several Fish and Wildlife Habitat Conservation Areas (FWHCAs) in accordance with BMC 16.55.470. When FWHCAs are present, the City of Bellingham requires a habitat assessment meeting the requirements of BMC 16.55.480.C.

Hoag's Creek

Hoag's Creek is mapped by the City of Bellingham as originating from Hoag's Pond directly east of the Hundred Acre Wood. The stream flows roughly west under the Interurban Trail where it joins with the east portion of Wetland JJ1/JJ2. Stream flow continues through the delineated wetland in a southerly direction until it leaves the Park property at its southernmost end. Midway through the Park property, the trail crosses the stream via poorly placed logs by users. These logs are located low in the channel and are susceptible to washout during flooding.

Outside of the Park, west of Chuckanut Drive, Hoag's Creek joins with Chuckanut Creek before discharging into Chuckanut Bay. Within the Park boundary, Hoag's Creek is mapped by Washington Department of Natural Resources (WDNR) as a perennial, Type F, fish-bearing stream (WDNR 2024a). Within the project area, no portion of Hoag's Creek is located within a FEMA floodplain (FIRM 330731C1653E eff. 1/18/2019) or is subject to the Region 10 FEMA Biological Opinion for programmatic Endangered Species Act compliance.

The Washington Department of Fish and Wildlife (WDFW) maps a partial fish barrier culvert (Site ID: 991820) as well as a barrier corrected in 2020 (Site ID: 990581), in Hoag's Creek downstream of Chuckanut Drive (WDFW 2024c). Upstream of the Park property, there are 2 partial barrier culverts associated with the Interurban Trail (Site ID: 993483) and 25th Street (Site ID: 993482). A total fish barrier is located near the outlet of Hoag's Pond associated with a private driveway (Site ID: 993484).

Herrera delineated the OHWM of Hoag's Creek within the Study Area. Because Hoag's Creek is a Type F, stream, the City requires a protective buffer between 75 and 150 feet (BMC 16.55.500D.1). Where a frequently flooded area occurs, which includes the reach of Hoag's Creek within the study area, the minimum buffer width must encompass the outer edge of the frequently flooded area (BMC 16.55.500D.2). However, the mapped frequently flooded area appears to be based on a previous wetland delineation that is not accurate adjacent to Hoag's Creek. At the existing trail crossing location on the east bank of Hoag's Creek, the upland forest is located at a higher elevation than the surrounding depression wetlands and there are no wetland indicators present. Therefore, frequently flooded area designation on CityIQ (City of Bellingham 2024) is erroneous. Regardless, the 150-foot stream buffer would encompass the frequently flooded area mapped on CityIQ.

At the existing stream crossing, Hoag's Creek is a low gradient stream varying between 5 to 10 feet bankfull width. Water depths during the March site visit were approximately 6 to 12 inches. The project area may provide instream habitat for resident fish such as cutthroat trout (*O. clarkii*) as well as rearing juvenile salmonids.

Upstream of the proposed stream crossing the instream habitat is characterized as a glide with mud/silt substrate. Due to the low-gradient in some portions of the stream, areas of obligate wetland plants, including skunk cabbage, water parsley, and American speedwell were growing within the flowing stream channel. The riparian area west of the existing stream crossing is dominated by large trees including western red cedar, grand fir, and bigleaf maple, with a sword fern understory. Due to limited overhanging shrubs, this could benefit from shrub underplanting.

Downstream of the stream crossing, woody debris and living tree roots in the channel have formed riffle/pool habitat. This reach is generally characterized by mud/silt substrate with some small cobbles in riffles. Riparian vegetation is similar to the upstream reach however more shrubs are present in the understory.

Vegetation

Coniferous, and mixed coniferous/deciduous forests are the dominant ecosystems in the Park. Within the Study Area, dominant tree species in upland and buffer areas include western redcedar, Douglas fir, western hemlock, grand fir, bitter cherry, black cottonwood, western paper birch (*Betula papyrifera*) and bigleaf maple. Dominant understory components include vine maple, osoberry, western sword fern, dull Oregon grape, Pacific trailing blackberry, salal (*Gaultheria shallon*), and bleeding heart (*Dicentra formosa*).

Wetland areas within the Study Area are dominated by palustrine forested and scrub-shrub vegetation. Mature Forested wetlands have also been identified, and within the study area includes Wetlands FF and KK. Small areas dominated by emergent wetland vegetation are also present. Dominant species include western redcedar, red alder, salmonberry, lady fern, piggyback plant, Pacific waterleaf, Dewey's sedge (*Carex deweyana*), Henderson's sedge (*Carex hendersonii*), slough sedge, skunk cabbage, and water parsley.

Invasive vegetation identified includes English holly, English ivy, and Himalayan blackberry (*Rubus armeniacus*). The Baseline Report and the Stewardship plan describes specific areas within the Hundred Acre Wood identifies areas where a prevalence of non-native and/or invasive vegetation which may be opportunities for future restoration (Common Futures 2017, Herrera 2022). Underplanting with native species should be targeted to areas where understory vegetation was sparse to increase habitat quality and prevent opportunities for new encroachment of invasive species.

Rare Plants

The Washington State Department of Natural Resources maps beard lichen (*Usnea quasirigida*) as occurring in Arroyo Park and the southernmost extent of the Hundred Acre Park boundary (WDNR 2024b). Beard lichen is a Washington State imperiled species. Non-vascular plants were not identified by Herrera during the site visits. WDNR records indicate that the population of beard lichen was confirmed extant in 2008. Beard lichen is likely to occur. No other rare plant species have been identified on site.

Significant Trees

The City of Bellingham defines significant trees as trees of any species that are 6 inches in diameter or greater as measured 4.5 feet from the base of the tree (BMC 16.60.040). Numerous significant trees are located throughout the Park.

Priority Habitats

Mature Forested conditions are likely present in several areas of the Park. The Washington Department of Fish and Wildlife (WDFW) describes mature forest as forest stands of generally 80 to 200 years old. Mature forest is defined by stands where average diameter breast height (dbh) is 21 inches or greater.

Generally, mature forests exhibit some decay and decadence and contain some snags and logs but less than old growth forests (WDFW 2021).

Herrera identified priority snag and log habitat throughout the Park and noted the prevalent evidence of snag use by woodpeckers and other wood boring species (WDFW 2008). WDFW defines priority snags and logs as those that exhibit sufficient decay to enable cavity excavation and use by wildlife as habitat features. Priority habitat snags are identified as having a dbh greater than or equal 20 inches and are at least 6.5 feet tall. Priority logs have an average diameter of 12 inches and are a minimum of 20 feet long (WDFW 2008).

Habitat Connectivity

The Chuckanut Wildlife Corridor is a large forested montane area, including Chuckanut Mountain and the Chuckanut Creek riparian zone, located south of the Park. This area is recognized by WDFW as a terrestrial biodiversity area and corridor. Noteworthy features within the Chuckanut Wildlife Corridor include a known bald eagle nest site, a breeding area for wood ducks (*Aix sponsa*), and habitat for hairstreak butterflies (subfamily Theclinae), as well as several bat species, such as Townsend's big-eared bat (*Corynorhinus townsendii*), Yuma myotis (*Myotis yumanensis*), and little brown bat (*M. lucifugus*). Chuckanut Mountain County Park contains a series of caves documented as hibernacula for Townsend's big-eared bats (Whatcom County Wildlife Advisory Committee 2021). In addition, the Chuckanut Mountain area provides documented habitat for several WDFW priority species, including Vaux's swift (*Chaetura vauxi*), band-tailed pigeon (*Patagioenas fasciata monilis*), and serves as breeding habitat for black-tailed deer (*Odocoileus hemionus columbianus*).

The nearby Chuckanut Pocket Estuary and Mud Bay, located approximately 2,000 feet to the southwest of the Park, provides valuable marine nearshore habitat for many species. The Park provides terrestrial connectivity for species dependent on forested habitats and large contiguous migratory corridors.

Fish and Wildlife Habitat Use

Abundant snags and large woody debris within the Park provide foraging, shelter, and refuge opportunities for a variety of insect, amphibian, bird, and small mammal species that utilize wetland and forest habitats. There are several site-specific reports that indicate the Park provides important habitat for birds, mammals, invertebrates, and amphibians (Aqua-Terr Systems 1994, NES 2007, 2009e, Cooke 2010, Common Futures 2017).

Based on WDFW's PHS mapping, and Statewide Washington Integrated Fish Distribution mapping, there is possible fish use of Hoag's Creek within the Park property (WDFW 2024a, 2024b, 2024c; NWIFC 2024). Gradient-accessible species are listed in Table 14. Steelhead trout and bull trout are listed as threatened under the Endangered Species Act (ESA). Steelhead trout, coho salmon, chum salmon, and bull trout are priority species in Washington state, therefore habitat for these species is designated as a fish and wildlife conservation area in the City. A summary of documented fish use in Hoag's Creek is included in Table 14.

Table 14. WDFW Documented Fish Use in Hoag’s Creek.

Fish Species/Run	Distribution/Use Type ^a	Federal Listing Status ^a	State Listing Status ^a
Coho salmon (<i>Oncorhynchus kisutch</i>)	Gradient Accessible	None	None
Fall chum salmon (<i>O. keta</i>)	Gradient Accessible	None	None
Winter steelhead trout (<i>O. mykiss</i>)	Gradient Accessible	Threatened	None
Coastal cutthroat trout (<i>O. clarkii</i>)	Gradient Accessible	None	None
Bull trout (<i>Salvelinus confluentus</i>)	Gradient Accessible	Threatened	Candidate

^a WDFW 2023a, 2023b, NWIFC 2024.

Species of Local Importance, Priority Species, or Endangered, Threatened, Sensitive, and Candidate Species

In addition to ESA-listed fish above, the USFWS maps two threatened birds as possibly occurring in the study area: marbled murrelet (*Brachyramphus marmoratus*), and yellow-billed cuckoo (*Coccyzus americanus*) (USFWS 2024). North American wolverine (*Gulo luscus*), bull trout (*Salvelinus confluentus*), and monarch butterfly (*Danaus plexippus*) are also mapped as potentially occurring in the Study Area by USFWS. There is no designated critical habitat in the area, and suitable habitat is not present for any of the above species in the project vicinity. Within the Study Area, Hoag’s Creek provides suitable habitat for ESA-listed Chinook salmon and steelhead trout.

Herrera identified several species during the Spring 2024 site visit, several of which are protected in the state of Washington (WAC 220-610-010, WAC 232-12-011). Protected species, along with other vulnerable species identified by prior studies of the property are compiled in Table 15 (Aqua-Terr Systems 1994, NES 2007, 2009e, Cooke 2010, Common Futures 2017).

Table 15. Protected and/or Vulnerable Wildlife Identified Within the Hundred Acre Wood Property.

Species	State Rank ^a	State Status ^b	Location and Use
Western toad (<i>Anaxyrus boreas</i>) ^c	Vulnerable	Candidate	Wetland JJ– breeding (likely historic)
Oregon fairy shrimp (<i>Eubranchipus oregonus</i>)	Vulnerable	None	Wetlands CC and KK
Townsend’s chipmunk (<i>Tamias townsendii</i>) ^d	Secure	None	Throughout the Park
Douglas’ squirrel (<i>Tamiasciurus douglasii</i>) ^d	Secure	None	Throughout the Park
Townsend’s big-eared bat (<i>Corynorhinus townsendii</i>) ^{c,d}	Vulnerable	Candidate	Not documented in Park but known to occur nearby in Chuckanut Mountains
Columbian black-tailed deer (<i>Odocoileus hemionus columbianus</i>) ^c	Secure	None	Throughout the Park
Golden-crowned kinglet (<i>Regulus satrapa</i>) ^d	Vulnerable (breeding)	None	Coniferous trees in the Park
Great blue heron (<i>Ardea herodias</i>) ^{c,d}	Apparently Secure	None	Wetlands in the Park

^a State Rank characterizes the relative rarity or endangerment within Washington State as determined by WDNR Natural Heritage Program.

^b State Status is determined by WDFW and considers include abundance, occurrence patterns, vulnerability, threats, existing protection, and taxonomic distinctness in accordance with WAC 220-610-110.

^c WDFW Priority Species protected under BMC 16.55.470A.1.c

^d Species classified as protected within the state of Washington in accordance with WAC 220-200-100.

Species with relatively limited distributions and vulnerability to habitat disturbance are considered Species of Local Importance under BMC 16.55.480C.2. Seasonally ponded wetlands that are isolated from predators and have good water quality, are relatively rare and valuable because they provide habitat for species dependent on this niche. Although not officially listed as a Species of Local Importance, Oregon fairy shrimp is particularly sensitive to habitat modifications and could be considered a Species of Local Importance. Many amphibians require a variety of high-quality connected habitats for different life stages. Breeding habitat for native amphibians is especially vulnerable to habitat manipulation. For these reasons, amphibians documented in the Park may also meet the definition of a Species of Local Importance. Amphibians documented within the Park include:

- Pacific treefrog (*Pseudacris regilla*)
- Red-legged frog (*Rana aurora*)
- Northwestern salamander (*Ambystoma gracile*)
- Long-toed salamander (*A. macrodactylum*)
- Rough skinned newt (*Taricha granulosa*)
- Western toad^a
- Ensatina (*Ensatina eschscholtzii*)
- Red-backed salamander (*Plethodon cinereus*)

^a Historic record, species likely no longer present in the Park.

Species that require snag habitat for nesting or foraging may also be considered Species of Local Importance (BMC 16.55.480C.2.). Several species of bats inhabiting Whatcom County use large dead and dying trees as day roosts, with Douglas fir snags of mean heights greater than 15 meters and average diameters greater than 40 centimeters are preferred in western Washington, although trees greater than 60 centimeters are considered more suitable for maternal use (Hayes and Wiles 2013). In Washington, all bat species are protected under WAC 220-200-100.

All bird species not classified as game birds, predatory birds, or endangered species, or designated as threatened species or sensitive species are protected under WAC 220-220-100. All native bird species are protected under the federal Migratory Bird Treaty Act. Within the City of Bellingham, species and habitats identified as Endangered, Threatened, and Sensitive Species by state (WAC 232-12-014, WAC 232-12-011) or federal laws are protected under BMC 16.55.470A.1.a, b. Cavity-dependent bird species that have been documented in the Park by Herrera and others include (Common Futures, LLC 2017):

- Pileated woodpecker (*Dryocopus pileatus*)
- Black capped chickadee (*Poecile atricapillus*)
- Chestnut-backed chickadee (*P. rufescens*)
- Hairy woodpecker (*Leuconotopicus villosus*)
- Downy woodpecker (*Picoides pubescens*)
- Northern flicker (*Colaptes auratus*)
- Red-breasted nuthatch (*Red-breasted nuthatch*)

- Bewick’s wren (*Thryomanes bewickii*)
- Pacific slope flycatcher (*Empidonax difficilis*)
- Barred owl (*Strix varia*)
- Pacific wren (*Troglodytes pacificus*)
- Wood duck (*Aix sponsa*)^a

^a This species has not been documented in the Park; however, it is likely to occur.

Management Recommendations for FWHCAs

- Wetland loss and degradation are the primary threats to Oregon fairy shrimp (Manson et al. 2022). It is recommended that wetlands with known populations be protected. Where fairy shrimp are known to occur within wetlands (including Wetlands KK and CC), trail sections that have degraded or disconnected habitats should be restored to natural conditions. This could include decommissioning trails and restoring habitat or constructing a boardwalk over the wetland to allow connectivity.
- Many amphibian species are reliant on shallow water with a preponderance of thin-stemmed emergent or woody vegetation. Wetland areas containing this habitat should be restored as necessary to natural conditions. Within the Study Area this includes Wetlands AA, HH, KK, JJ1, JJ2, and JJ5. Amphibians also require habitat connectivity between terrestrial and aquatic environments. It is recommended that habitat connectivity within the site be maintained and the establishment of new trails should be limited. Existing trails should be reduced as feasible and should not be widened or be allowed to accommodate maintenance vehicles.
- A primary goal for all work within the Park should be to minimize adverse impacts on surface water, groundwater flow, and circulation patterns and on the chemical, physical, and biological functions of wetlands (BMC 16.55.080.B).
- Park improvements should incorporate best management practices to protect trees and vegetation designated to be retained during and following site construction and use native plant species appropriate to the site for revegetation of disturbed areas (BMC 16.55.080.B).
- Where tree removal is required root systems and bases of cut trees shall be left intact and undisturbed. When possible, the cut tree shall be left as a snag and be as tall as safely possible. The snag shall be retained as a habitat feature (BMC 16.55.080C.6.c).
- Where fences are needed to protect critical areas should not result in restricting wildlife movement, the location is the least impactful to the critical area as possible (BMC 16.55.080C.7.)

Frequently Flooded Areas

The CityIQ webmap shows a Frequently Flooded Area occurring on the eastern portion of the Study Area associated with wetlands and the Hoag’s Creek watercourse. This area is not mapped as a Federal Emergency Management Agency (FEMA) 100-year floodplain. Outside of the Study Area, Hoag’s Pond is mapped within the FEMA 100-year floodplain. Hoag’s Creek, and wetlands on the eastern portion of the Study Area drain to Chuckanut Creek and eventually Mud Bay, which are mapped as a City Frequently Flooded Areas. Mud Bay and surrounding residential areas are also mapped as occurring with the FEMA 100-year floodplain. Wetlands on the western portion of the property drain to the northwest where flows meet with Padden Creek. Padden Creek and its floodplain is identified by the City as a Frequently Flooded Area and within the FEMA 100-year Floodplain.

No portion of the project area is located within a FEMA floodplain (FIRM 330731C1653E eff. 1/18/2019).

Geologically Hazardous Areas

A portion of the trail to be rerouted off of private property in the northeast corner of the Park, is mapped by the City as having 30–40 percent, and 40–100 percent slopes. Slopes greater than 30 percent are regulated by the City as erosion hazard areas (BMC 16.55.420A). Slopes greater than 40 percent may be regulated by the City as landslide hazard areas. (BMC 16.55.420B). For these areas the City may require a critical areas report to be prepared by a qualified professional (BMC 16.55.430). A technical memorandum from a qualified geologist has been prepared, which documents impacts from the rerouted trail on mapped geohazards.

Regulatory Requirements

Wetlands and streams are subject to a variety of federal, state, and local regulations that will apply to any future activities planned for the project. Federal laws regulating wetlands and streams include Sections 404 and 401 of the Clean Water Act (United States Code, Title 33, Chapter 1344 [33 USC 1344]). Washington State laws and programs designed to control the loss of wetland acreage include the State Environmental Policy Act (SEPA) and Section 401 of the Clean Water Act (administered in the state of Washington by the Washington State Department of Ecology [Ecology], as mandated by the Washington State Water Pollution Control Act). Through design minimization, the project has avoided all impacts to streams and wetlands. Coordination with the U.S. Army Corps of Engineers and Ecology have indicated that Section 404 and 401 permits will not be required for this project.

In addition, the Washington state Hydraulic Code (Washington Administrative Code [WAC] 220-110) administered by Washington Department of Fish and Wildlife (WDFW) is designed to protect fish life. A Hydraulic Project Approval (HPA) is required for projects that will use, divert, obstruct, or change the natural flow or bed of any of the salt or fresh waters of the state. WDFW also regulates overwater crossings. Coordination with WDFW is ongoing to ensure HPA compliance for the Hoag's Creek crossing.

Projects that impact wetlands or waters of the state, including overwater crossings, will require SEPA (RCW 43.21C) review. The purpose of the SEPA is to ensure that environmental values are considered during decision-making by state and local agencies. The City will be the lead agency for SEPA on this project.

Bellingham Critical Areas Code

The City of Bellingham Municipal Code regulates aquifer recharge areas, fish and wildlife habitat conservations areas, frequently flooded areas, geologically hazardous areas, and wetlands as defined by the State of Washington (RCW 36.70A) (BMC Chapter 16.55). BMC Chapter 16.55 specifies standards for the determination, delineation, and classification of critical areas, and for determining associated buffer widths.

Where impacts to critical areas or buffers may occur, applicants must submit a critical area report consistent with BMC 16.55.210 prior to permit issuance. In addition, BMC 16.55 specifies exemptions, development standards, and permitting procedures for proposed modifications to critical areas and associated buffers. Those standards include provisions for mitigation sequencing requirements (e.g., impact avoidance, minimization, and rectification) and providing compensatory mitigation for unavoidable permanent impacts on critical areas and their buffers. Trail construction is permitted in wetland buffers when approved through permits or exceptions (BMC 16.55.320). The following code provisions also apply to the project:

- Per BMC 16.55.080C.2 Normal maintenance of drainage systems and landscaping which do not expand further into the critical area and do not directly impact endangered or threatened species, do not require construction permits, provided the activity does not increase the impact to, or

encroach further within, the critical area or buffer. Existing trails within critical area buffers may continue to be maintained (BMC 16.55.130A).

Trail resurfacing and ballasting of existing trails, as well as boardwalks will occur within the footprint of the existing gravel trail. The project will remove trails within Wetlands AA and KK which will place some new buffer impacts farther away from these resources.

- Fish, wildlife, and/or wetland restoration or enhancement activities not required as project mitigation are allowed provided applicable state and federal approvals are obtained (BMC 16.55.080C.9).

Non-mitigation decommissioned trail, trail narrowing, and other disturbed areas will be restored as indicated on design plans. Coordination with WDFW, USACE, and Ecology is ongoing to ensure all applicable authorizations are obtained.

- Expansion, reconfiguration and/or intensification of existing trails may allowed with a minor critical areas permit if it can be demonstrated that such activity will not result in impacts to the critical area and/or critical area buffer (BMC 16.55.130B). Impacts include clearing of native vegetation, additional impervious surfaces, generation of surface water runoff, discharge or risk of discharge of pollutants, increased noise, light or glare.

New trail in the buffer of Wetland AA and installation of a new bench with crushed limestone pad in the buffer of Wetland KK, will require a Minor Critical Area Permit. Buffer impacts will be compensated for by enhancing 481 square feet of wetland buffer. Overall, the project will provide approximately 26,268 square feet of elective buffer enhancement plantings and 4,817 square feet of wetland enhancement plantings.

- *The new earthen trail is intended to reduce impacts to Wetland AA by removing pedestrians from the wetland. Some native buffer vegetation will be cleared for grading of the new trail, which will be restored. The new trail will not receive the crushed limestone treatment and will remain pervious.*
- *The new bench pad will be "field fit" to avoid any impacts to existing vegetation, however the bench pad will be considered a new impervious area. Mitigation will be provided for the new trail footprint and bench.*

The new footbridge crossing Hoag's Creek will require minor grading at the bridge approaches. No work will occur below the OHWM of the stream. No new impervious area is proposed. Minor vegetation clearing may be necessary along the trail edge during construction but will be restored upon completion of the bridge construction. An explanation of how these code provisions are met by the project is further described in the Impact Assessment and Mitigation sections of this report.

Wetlands

All wetlands are regulated in the City, regardless of category and size. A majority of wetlands require protective buffers. Per BMC 16.55.340, wetland buffer widths for wetlands rated based on function vary according to wetland category, habitat score, and the proposed land-use intensity (high, medium, low). High-intensity development includes commercial, urban, residential, institutional, etc. Moderate-intensity

development includes trails, and moderate-intensity open space, such as parks. Low-intensity land use includes forestry (limited to tree-cutting only), passive recreation and natural resources preservation, and unpaved trails.

Wetland buffer widths for wetlands rated based on “special characteristics”, which include mature forested wetlands, are not defined in BMC. However, per email correspondence with Amy Dearborn (May 8, 2024), habitat scores can be applied to wetlands rated based on special characteristics to obtain the wetland buffer based on tables in BMC 16.55.340.

Wetlands meeting the following criteria may be exempt from buffer requirements as specified under BMC 16.55.270.B:

1. *All isolated Category III and IV wetlands less than 1,000 square feet that:*
 - a. *Are not associated with riparian areas or buffers;*
 - b. *Do not contain habitat identified as essential for local populations of priority species identified by Washington Department of Fish and Wildlife or provide suitable habitat for breeding amphibian populations. Suitable breeding habitat may be indicated by adequate stable and seasonal inundation that is persistent from February to at least through April and presence of thin-stemmed emergent vegetation and/or clean water; and*
 - c. *Are not part of a mosaic of wetlands.*
2. *Wetlands and drainage structures, which were both artificially and intentionally created from non-wetland sites and were not required to be constructed as previous development wetland impact mitigation. These may include, but are not limited to: detention facilities, reservoirs, stormwater or wastewater treatment ponds, farm ponds, irrigation and drainage ditches, grass-lined swales, canals and landscape amenities.*

Wetlands AZ and JJ3 meet all the above listed criteria and are not required to have a buffer. Buffer-exempt wetlands still require mitigation per BMC 16.55.350 for any impacts or fills to wetland areas.

The City requires compensatory mitigation for impacts (including new trails) to wetland buffers at a 1:1 ratio (BMC 16.55.340E). Mitigation must occur on the same site, as feasible, or within the same wetland system. The mitigation must be designed to ensure that the wetland functions and values are not diminished due to the buffer impacts.

Fish and Wildlife Habitat Conservation Areas

The City designates the following area as Fish and Wildlife Habitat Conservation Areas (BMC 16.55.470):

- Areas with Which State or Federally Designated Endangered, Threatened, and Sensitive Species Have a Primary Association.
- Waters of the State which includes all surface water and watercourses, including wetlands, within the jurisdiction of the state of Washington, as classified in WAC 222-16-031.

- Areas of Rare Plant Species and High Quality Ecosystems which includes of rare plant species and high quality ecosystems are identified by the Washington State Department of Natural Resources through the Natural Heritage Program.
- Land useful or essential for preserving connections between habitat blocks and open spaces.

BMC 16.55.480.C requires a habitat assessment to evaluate the potential presence or absence of designated critical fish or wildlife species or habitat and must include:

1. Detailed description of vegetation on and adjacent to the project area and its associated buffer;
2. Identification of any species of local importance, priority species, or endangered, threatened, sensitive, or candidate species that have a primary association with habitat on or adjacent to the project area, and assessment of potential project impacts to the use of the site by the species;
3. A discussion of any federal, state, or local special management recommendations, including Washington Department of Fish and Wildlife habitat management recommendations, that have been developed for species or habitats located on or adjacent to the project area;
4. A detailed discussion of the direct and indirect potential impacts on habitat by the project, including potential impacts to water quality;
5. A discussion of measures, including avoidance, minimization, and mitigation, proposed to preserve existing habitats and restore any habitat that was degraded prior to the current proposed land use activity and to be conducted in accordance with mitigation sequencing (BMC 16.55.250); and
6. A discussion of ongoing management practices that will protect habitat after the project site has been developed, including proposed monitoring and maintenance programs.

The following standards apply to stream buffers:

- When stream buffer impacts are unavoidable, compensatory mitigation is required at a 1:1 ratio (BMC 16.55.500D.5).
- To avoid damage to trees, a minimum of a 15-foot setback from the edge of the stream buffer is required for all buildings, structures, paving, and other hard surfacing (BMC 16.55.500D.7). Landscaping and pervious ground surfaces are exempt from the 15-foot setback.

Construction of trails and bridges may be permitted in stream buffers provided the following standards are met (BMC 16.55.500E.4):

- There is no other feasible alternative route with less impact on the fish populations, stream, or stream buffer, and mitigation sequencing has been applied;
- The crossing minimizes interruption of downstream movement of wood and gravel;
- Trails shall be located on the outer edge of the riparian area or buffer except for limited viewing platforms and crossings unless there is a location that has a lesser impact on the water body. Trails shall not be located in the channel migration zone and shall be the minimum width necessary for safe travel;

- Crossings, where necessary, shall only occur as near to perpendicular with the water body as possible; and
- Mitigation for impacts is provided pursuant to a mitigation plan of an approved critical area report.

Frequently Flooded Areas

The City also designates Frequently Flooded Areas which include lands subject to a 1 percent or greater chance of flooding in any given year, in accordance with WAC 365-190-080(3) including the Federal Emergency Management Administration (FEMA) 100-year floodplain designations; and areas of special flood hazard as identified by the public works director (BMC 16.55.370). Frequently flooded areas are mapped on the City of Bellingham’s CityIQ webmap (City of Bellingham 2024).

Impact Assessment

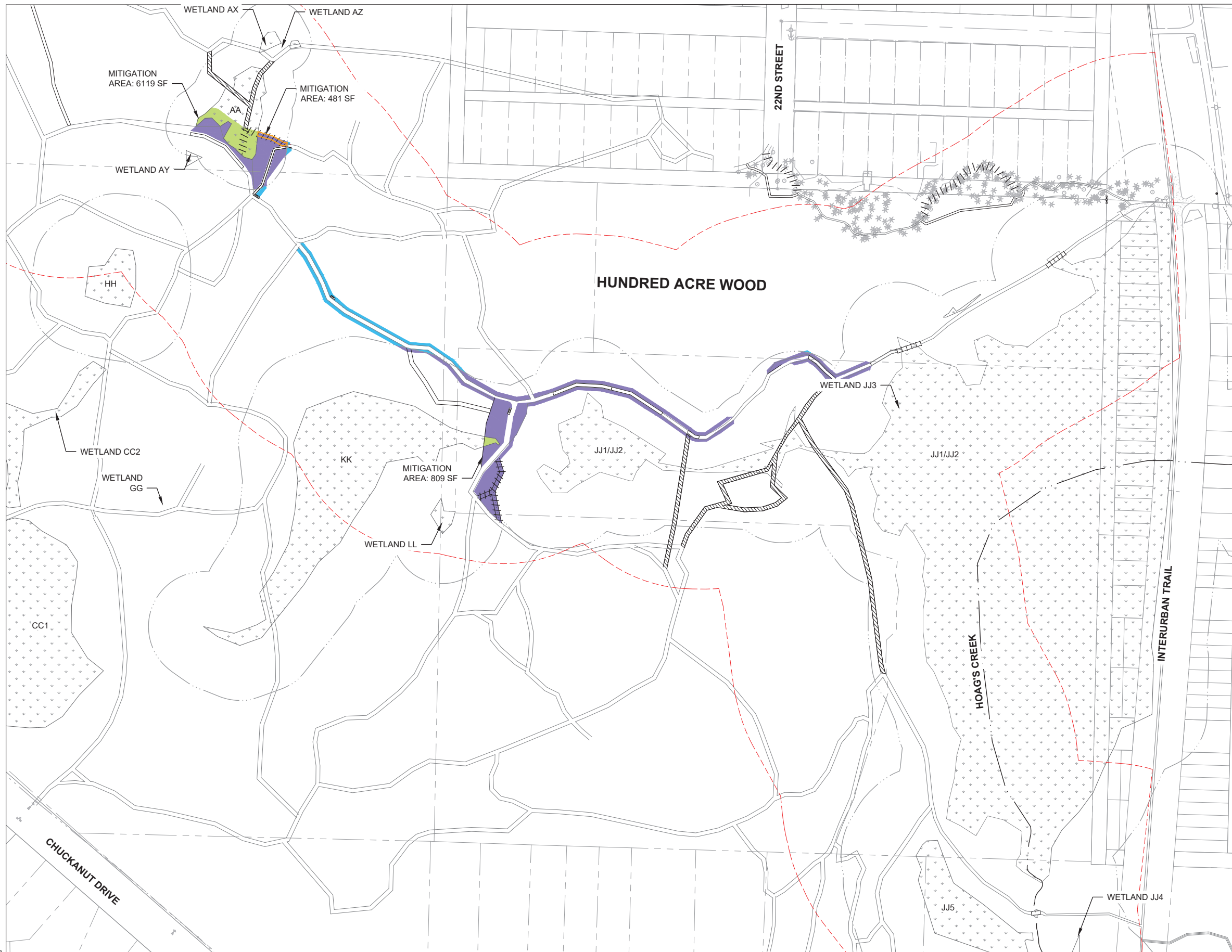
Total avoidance of stream and wetland buffers is not possible, due to the nature of the project. The site includes existing trails, portions of which are located through critical areas and buffers. These existing wetland, stream, and buffer impacts are identified in Figure 4. This figure shows existing trails and heavily trafficked areas beyond the designated trail (such as between Wetland KK and JJ1) through buffers and wetlands as existing impacts. Within Wetlands AA, KK, and JJ1/JJ2, existing trails represent approximately 3,110 square feet of existing wetland impacts and 31,422 square feet of existing buffer impacts. Trail resurfacing and other work in the footprint of existing trails is not considered to be a new impact requiring mitigation.

New impacts are also identified on Figure 4. New temporary and permanent buffer impacts are shown in Table 16.

Table 16. Temporary and Permanent Buffer Impacts for the Hundred Acre Wood Phase 1 Project.			
Location	Purpose	Impact Areas (square feet)	
		Temporary	Permanent
Wetland AA buffer	Clear and grade area for new earthen trail to reroute trail from entering the wetland.	2,661	408
Wetland KK buffer (including buffer of Wetland JJ1/JJ2)	Crushed limestone pad with concrete footings to support new bench.	0	54
Hoag's Creek buffer (including buffers of Wetlands JJ1/JJ2, JJ4, and JJ5)	Install footbridge and grade bridge approach.	0	0
Total		2,661	462

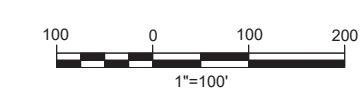
An existing trail will be decommissioned and rerouted around Wetland AA to reduce foot traffic inside the wetland. Due to the complexity and length of this crossing, a boardwalk at the existing location is not feasible. The new earthen trail will represent 408 square feet of new permanent buffer impacts. Grading this area will impact approximately 2,661 square feet of buffer. The new trail alignment will be 'field fit' to avoid existing trees as possible. See plans for additional notes on tree avoidance. .

A new park bench and associated 54 square-foot crushed limestone pad and concrete footings, will be sited within the buffer of Wetland KK. The new bench will be located in an open area which is already highly disturbed by foot traffic (Appendix E, Photo 27). However, it is counted as a new impact due to the addition of new impervious area. No trees or vegetation will be disturbed by construction of the bench.



- EXISTING TRAIL
- PROPOSED NEW/RESTORED TRAILS
- PROPOSED BOARDWALKS
- PHASE 1B TRAIL DECOMMISSIONING
- PARCEL LINE
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- STREAM
- WETLAND/STREAM BUFFER
- STUDY AREA
- WETLAND
- PHASE 1A DECOMMISSIONED TRAILS
- BUFFER MITIGATION AREA
- BUFFER ENHANCEMENT
- WETLAND ENHANCEMENT
- OTHER PLANTING AREAS

- NOTES:**
- EXISTING TRAIL INFORMATION IS A COMBINATION OF SURVEYED TRAILS AND GIS DATA
 - BUFFER WIDTHS ARE NOT SHOWN FOR WETLANDS BB, MM, CC1, CC2, DD, EE, GG. FUTURE PHASES OF THE PROJECT MAY REQUIRE UPDATED DELINEATIONS, RATINGS, AND BUFFERS FOR THESE WETLANDS



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Path: C:\Users\danslow\OneDrive\Documents\Herrera Environmental\Hundred Acre Wood Phase 1B\Project Files\Sheet\Impact Area
 Plot Date: 01/31/2025 4:45 PM
 Cad User: Dylan Anslow
 Plotter: None

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CITY OF BELLINGHAM, WASHINGTON
DEPARTMENT OF PARKS AND RECREATION

SCALE
 Horiz. AS SHOWN
 Vert. AS SHOWN

DATUM
 NAD 83/98
 NAVD 88

Job. No. _____
 Date 01/31/2025
 Field Bk. _____

HUNDRED ACRE WOOD - PHASE 1B IMPROVEMENTS
OVERALL VEGETATION PLAN
 FIGURE 5

PLAN REF. NO. _____
 SHEET 1 OF 2

CONTACT PERSON: GINA AUSTIN, PE, PROJECT ENGINEER AT 360-778-7000

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Mitigation

The design avoids all temporary and permanent stream and wetland impacts and aims to improve the overall functions of these resources by removing trails from wetlands and drainages or replacing compacted dirt/gravel trails with boardwalks.

Mitigation Sequencing

Impacts will be mitigated through a sequence of actions intended to maintain or improve ecological functions currently present at the site. The project follows requirements for mitigation sequencing as outlined in the SEPA (Washington Administrative Code [WAC] Chapter 197 11 768) and BMC 16.55.250 and in the Water Crossing Design Guidelines (Barnard et al. 2013). The project has made all reasonable efforts to avoid, minimize, rectify, reduce, and compensate for impacts on critical areas and buffers in a manner that maintains ecological functions of wetlands, streams, and buffers by:

- Avoiding all new, permanent impacts to wetlands and streams where possible. In addition, the design selection of boardwalks will utilize a minimal pin foundation, rather than other design alternatives that were considered. The boardwalks will restore historic wetland functions and hydrologic connectivity above and below the existing trail locations.
- Minimizing the project footprint to the smallest extent practicable. Trails will only be widened where necessary to match the width of the boardwalks and to allow passage of Park’s maintenance vehicles along the main trail. Installation of boardwalks foundations will be installed by hand and a mini-excavator or other light equipment, thus eliminating the need for disturbance from heavy equipment. Construction minimization measures will be implemented, as described in the below section.
- Rectifying existing wetland impacts caused by trails that intersect existing wetlands. In several locations, the trail alignment will be removed from the wetlands and the area will be restored with native plantings. In other locations, boardwalks will rectify hydrologic connections and elevate pedestrians above the wetland hydrology.
- Reducing impacts from pedestrians over time by installing temporary and permanent fencing (as shown on design plans) to keep people and dogs away from critical areas and mitigation areas.
- Compensating for buffer impacts resulting from trail widening, relocated trails, and Hoag’s Creek bridge by decommissioning trail segments and restoring and enhancing existing buffers.
- Monitoring compensation areas as described in the below monitoring and maintenance plan.

Minimization Measures and BMPs

Construction best management practices (BMPs) will be implemented to prevent impacts to species and sensitive habitats in the area and include:

- Construction of the Hoag’s Creek bridge will be conducted during the approved fish window (July 16–September 15). No work will occur below the OHWM of the stream. Construction in buffers and near wetlands will be conducted during the 2025 dry season (between May 1 and September 30). Planting will occur during the dormancy period (late fall 2025 through winter 2026).
- All equipment operation and staging in the buffer will be limited to the disturbance limits or to already developed areas, to avoid soil compaction and unnecessary vegetation disturbance. Trail improvements including trail resurfacing, ballasting, and boardwalk installation will be “field fit” to remain within the existing footprints of trails, to avoid trees, and potential drainage issues.
- Temporary Erosion and Sediment Control (TESC) best management practices will be implemented per the Department of Ecology’s Stormwater Management Manual for Western Washington, to minimize any impacts from turbid runoff. Soils will remain undisturbed to the maximum extent possible.
- Oil spill response and containment plans through a Spill Prevention, Control and Countermeasures (SPCC) will be incorporated into prevent impacts to aquatic species.
- The disturbance limits will be marked with high-visibility fencing, to avoid inadvertent clearing, grading, and soil compaction, and—at the critical root zones of large trees—to be retained.
- The project will require excavators, dump trucks, and crew trucks. To avoid impacts to critical root zones of trees, heavy equipment will be staged on paved areas and not be operated on earthen trails or outside the clearing limits.

Mitigation Goals, Objectives, and Performance Standards

The purpose of the mitigation site is to maintain and/or improve the habitat for sensitive species such as amphibians and to improve water quality functions draining to sensitive wetlands. This will be achieved by removing invasive vegetation where it occurs within mitigation and restoration areas, by restoring native shrub and understory species, and by selecting plants to enhance species diversity. The goal, objective, and performance standards are summarized below.

Goal: Improve wildlife habitat between trails and wetlands/streams in buffer mitigation areas.

Objective: Wildlife habitat functions will be improved by establishing native trees and shrubs within the mitigation areas over 481 square feet wetland buffer.

Performance standards for all planting areas are summarized in Table 17.

Table 17. Performance Standards for Buffer Restoration Areas.

Performance Standard	Year 1 (2026)	Year 2 (2027)	Year 3 (2028)	Year 4 (2029)	Year 5 (2030)
Percent survival of planted shrubs and trees in mitigation areas. ^a	100	>80	–	–	–
Percent cover of planted shrubs and trees in mitigation areas. ^a	–	–	>15	>20	>30
All Class A, B, and C weeds in Whatcom County will be no more than 10 percent in all mitigation areas.	<10	<10	<10	<10	<10

^a Does not include existing tree canopy.

Mitigation Areas

Proposed mitigation areas are shown on Figure 5 and are indicated in Table 18. All temporary impacts will be restored in place at a 1:1 ratio as shown in design plans. Compensation for permanent buffer impacts is provided by enhancing existing buffers. The City requires wetland and stream buffer impacts to be compensated for at a 1:1 ratio (BMC 16.55.340E, and 16.55.500D.5).

Table 18. Mitigation Area for the Hundred Acre Wood Phase 1 Project.

Location	Total Permanent Buffer Impacts (square feet)	Buffer Enhancement Area (square feet)
Wetland AA buffer	408	481 (Wetland AA buffer)
Wetland KK buffer	15	
Hoag’s Creek buffer (including buffers of Wetlands JJ1/JJ2, JJ4, and JJ5)	0	0
Total	423	481

The City does not provide a tree replacement ratio for critical area buffers outside of shoreline jurisdiction unless they are considered hazard trees. Therefore, the compensation ratio for hazard trees (3:1) will be applied (BMC 16.55.080C.6.a). This results in a minimum of 54 trees which will be planted to account for Wetland AA buffer impacts as shown in design plans. Additional compensation trees will be located in open buffer areas with opportunities to provide enhancement (Wetlands KK, JJ1/JJ2, JJ4, and JJ5) as specified in plans.

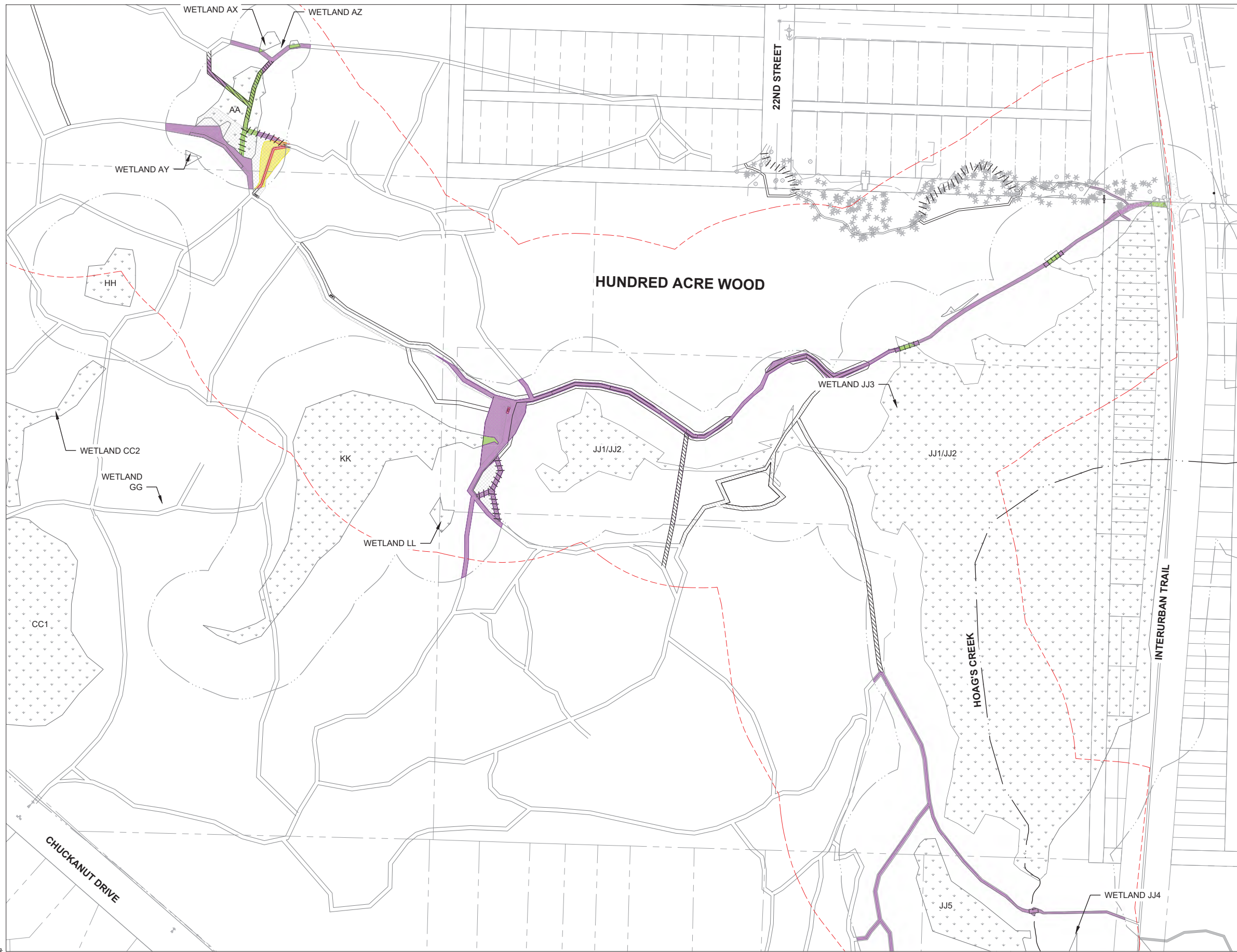
Site Preparation and Planting

To ensure plant establishment several measures have been incorporated into the planting plan:

- Decompaction of soils using hand tools, especially of decommissioned trails and heavily trafficked areas.
- Selecting woody native plants more tolerant of pedestrian disturbance along the edges of trails.
- Installation of temporary fencing and signage to exclude pedestrians from trampling new plantings.
- “Field adjust” non-mitigation planting areas to accommodate existing vegetation to remain.
- Conducting routine maintenance (see following section).

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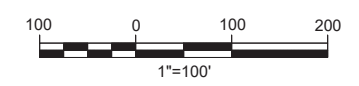
C:\Users\danslow\OneDrive\Documents\Herrera Environmental\Hundred Acre Wood Phase 1B\Project Files\Sheet\Impact Area
 Plot Date: 01/31/2025 4:45 PM
 Cad User: Dylan Anslow
 Plotter: None



- EXISTING TRAIL
- PROPOSED NEW/RESTORED TRAILS
- PROPOSED BOARDWALKS
- PHASE 1B TRAIL DECOMMISSIONING
- PARCEL LINE
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- STREAM
- WETLAND/STREAM BUFFER
- STUDY AREA
- WETLAND
- PHASE 1A DECOMMISSIONED TRAILS
- EXISTING WETLAND IMPACTS
- EXISTING BUFFER IMPACTS
- PROPOSED TEMPORARY BUFFER IMPACTS
- PROPOSED PERMANENT BUFFER IMPACTS
- SELECTIVE CLEARING AND RESTORATION (TRAIL NARROWING)

NOTES:

1. EXISTING TRAIL INFORMATION IS A COMBINATION OF SURVEYED TRAILS AND GIS DATA
2. BUFFER WIDTHS ARE NOT SHOWN FOR WETLANDS BB, MM, CC1, CC2, DD, EE, GG. FUTURE PHASES OF THE PROJECT MAY REQUIRE UPDATED DELINEATIONS, RATINGS, AND BUFFERS FOR THESE WETLANDS



90% DESIGN
 NOT FOR CONSTRUCTION



Date	No	Revision	By
	4		
	3		
	2		
	1		

PROJECT ENGINEER C. MITCHELL
 DESIGNED/DRAWN D. ANSLOW
 INSPECTOR _____

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HUNDRED ACRE WOOD - PHASE 1B IMPROVEMENTS
 IMPACT AREA PLAN
 FIGURE 4

PLAN REF. NO. _____
 SHEET 1 OF 2

CONTACT PERSON: GINA AUSTIN, PE, PROJECT ENGINEER AT 360-778-7000

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Monitoring, Maintenance, and Contingency

To ensure successful plant establishment, the City will coordinate necessary maintenance of mitigation areas for a minimum of five years (BMC 16.55.260B.6). Plant establishment maintenance will include but is not limited to:

- Removing and controlling invasive vegetation (recommended 2-3 times per growing season). No herbicides should be used near wetlands or streams
- Removing trash
- Watering during the growing season (as feasible)
- Replenishing wood-chip mulch as necessary to suppress weeds and retain moisture
- Replacing plants or re-planting with substitutions as necessary

The City will continue annual maintenance of the planting zones for all required monitoring years, with the goal of meeting all the applicable performance standards.

Vegetation Monitoring

Year 1 of the monitoring period will commence after plant installation at the end of the first full growing season (late summer/early fall). The City will arrange for a qualified professional, to conduct monitoring visits each year to evaluate compliance with specific performance standards.

Monitoring will evaluate existing site conditions compared to performance standards outlined in Table 17, including plant mortality, documenting vegetation cover by native and invasive species, and recording recommendations for additional maintenance to ensure performance goals are met. Photographs will be taken of the mitigation areas.

Monitoring of the restoration areas will be done annually for 5 consecutive years, in accordance with BMC 16.55.350G.f. Monitoring should occur annually in the late summer/early fall to capture the greatest plant growth, beginning the summer after plant installation.

In the buffer restoration areas, all planted trees and shrubs will be counted and assessed for percent survival Years 1, and 2. Beginning in monitoring Year 1, annual monitoring plots and photo points will be established to track species cover over time. In Years 3, 4, and 5, mitigation areas will be assessed for percent cover of planted shrubs and trees. Existing canopy coverage shall not count toward the required cover standards outlined in the performance standards. In all monitoring years, cover of Whatcom County Class A, B, and C weeds in Whatcom County will be assessed.

Reporting

After construction is completed (estimated to occur in the fall of 2025), an as-built site plan and report will be prepared and sent to environmental planner in the Planning and Community Development Department to document the environmental site conditions. This as-built will be used as a baseline for annual monitoring and submitted to the permitting agencies for review and approval. Annual monitoring will include evaluating plant mortality, documenting cover of invasive species, recommendations for plant

replacements, and recommendations for additional maintenance to ensure plant establishment. Photographs will be taken of the mitigation areas.

Upon completion of each annual monitoring site visit, the qualified professional will prepare a monitoring report that documents successes, problems, and contingency actions for the mitigation project. The report will include photos and approximate locations of invasive plants that need to be removed or controlled. The report will be submitted to the agencies before the end of each monitoring calendar year.

Contingency

If the performance standards have not been met by the final year of monitoring, additional years of monitoring may be added until standards are met. Development of a contingency plan may be required to ensure establishment of the mitigation goal. Potential contingency actions include, but are not limited to additional plant installation, plant substitutions (type, size, quantity, and location), and installation of fencing or other materials to protect plantings from trail users. The City may require a conservation easement to protect wetlands and streams within the park in accordance with BMC 16.55.190.

The City is responsible for providing a financial guarantee for 150 percent of the total costs to ensure the mitigation plan is fully implemented which includes monitoring and maintenance costs for the duration of the monitoring period.

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Appendix A

Wetland Delineation Methods

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Wetland and Stream Delineation Methods

Wetland Delineation Methods

The wetland delineation for the Hundred Acre Wood Phase 1B project was performed in accordance with the *Regional Supplement to the US Army Corps of Engineers Wetlands Delineation Manual: Western Mountains, Valleys, and Coast Region* (Environmental Laboratory 2010)) which is consistent with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987). These methods use a three-parameter approach for identifying and delineating wetlands: the presence of field indicators for hydrophytic vegetation, hydric soils, and hydrology. This wetland delineation was performed according to procedures specified for the routine wetland determination method (Environmental Laboratory 1987).

To identify potential wetlands, wetland biologists evaluated field conditions by traversing the study area and noting wetlands, streams, and other aquatic features. The biologists evaluated field conditions within 300 feet of the study area boundary.

A test plot was established for each area that appeared to have potential wetland characteristics. For each test plot, data on dominant plant species, soil conditions in test plots, and evidence of hydrologic conditions were recorded on wetland determination data forms. Plants, soils, and hydrologic conditions were also analyzed and documented in adjacent uplands. Based on collected data, a determination of wetland or upland was made for each area examined.

Following confirmation of wetland conditions in a given area, the wetland boundary was delineated by placing sequentially numbered, flagging along the wetland perimeter. Test plot locations were marked with pin flags.

Hydrophytic Vegetation

Hydrophytic vegetation is characterized by the ability to grow, effectively compete, reproduce, and persist in anaerobic soil conditions resulting from periodic or long-term saturation (Environmental Laboratory 1987). Vegetation must meet at least one of the four indicators (described below) that are used to determine the presence of hydrophytic vegetation in wetlands. Problematic and atypical situations for hydrophytic vegetation are also described in the US Army Corps of Engineers (USACE) delineation manual and supplement (Environmental Laboratory 1987, 2010).

Plant Species Identification

Plant species were identified using *Flora of the Pacific Northwest* (Hitchcock and Cronquist 1987) and *A Field Guide to the Common Wetland Plants of Western Washington and Northwestern Oregon* (Cooke 1997). The indicator status of each plant species is based on the *National Wetland Plant List* (Lichvar 2016) for the Western Mountains, Valleys, and Coast Region.

Dominant Species Determination

Dominant species are those that contribute more than other species to the character of a plant community. To determine dominance, a vegetation sampling area is determined by the field biologist to accurately characterize the plant community that occurs in the area to be evaluated. These are commonly circular sampling areas, centered on the location of the test plot (where soil and hydrologic data is also collected). The radius of the circle is determined in the field, based on site conditions. In large wetlands, a typical sampling radius would be 2 to 5 meters for tree and sapling/shrub species, and 1 meter for herbaceous species. In a small or narrow wetland (or upland), the radius might be reduced to accurately sample wetland (upland) areas, thereby avoiding an overlap into an adjacent community having different vegetation, soils, or hydrologic conditions (Environmental Laboratory 2010).

Within the vegetation sampling area, a complete list of plant species that occur in the sampling area is compiled and the species divided into four strata: tree, shrub (including saplings, see criteria below), herb, and woody vines. A plant is included in the tree stratum if it is a woody plant 3 inches in diameter at breast height (dbh) or greater; in the shrub stratum if it is a woody plant less than 3 inches dbh (including tree saplings under 3 inches dbh); in the herb stratum if it is an herbaceous (non-woody) plant; and in the woody vine stratum if it is a woody vine of any height (Environmental Laboratory 2010). To be included in the sampling, 50 percent or more of the plant base must be within the radius of the sampling area. For trees specifically, more than 50 percent of the trunk (diameter) must be within the sampling radius to be included.

A rapid test, dominance test (e.g., the 50/20 rule), or prevalence index are commonly used to determine which species are considered dominant and to assess whether the criteria for hydrophytic vegetation are met at each test plot (Environmental Laboratory 2010). Additional hydrophytic vegetation indicators are discussed in the following section.

To conduct a rapid test (Indicator 1 on the wetland determination data form), the dominant species are evaluated visually and if all are FACW or OBL, the vegetation data passes the rapid test. To conduct a dominance test (Indicator 2 on the wetland determination data form), the absolute areal coverage of the plant species within a stratum are totaled, starting with the most abundant species and including other species in descending order of coverage, until the cumulative coverage exceeds 50 percent of the total coverage for the stratum. The plant species that constitute this first 50 percent of areal coverage are considered the dominant species in the stratum. In addition, any other any single plant species that constitutes at least 20 percent of the total percent cover in the stratum is also considered a dominant species (Environmental Laboratory 2010). The indicator status category for each plant (shown in Table A-1) is also listed on the wetland determination form. If more than 50 percent of the dominant species across all strata are rated OBL, FACW, or FAC, the hydrophytic vegetation dominance test (Indicator 2) is met.

The prevalence index (Indicator 3 on the wetland determination data form) is a weighted-average wetland indicator status of all plant species in the sampling plot, where weighting is by abundance (Environmental Laboratory 2010). This method is used where indicators of hydric soil and wetland hydrology are present, but the vegetation initially fails the rapid and dominance tests (Indicators 1 and 2). To determine the prevalence index, the absolute cover of each species in each stratum is determined. All

species (across all strata) are organized into wetland indicator status groups (i.e., OBL, FACW, FAC, FACU, or UPL) and their cover values are summed within the groups. The formula for the prevalence index is applied. If the prevalence index (which ranges from 1.0 to 5.0) equals 3.0 or less, this hydrophytic vegetation indicator is met.

Table A-1.		
Indicator Status	Indicator Symbol	Definition
Obligate wetland plants	OBL	Plants that occur almost always (estimated probability >99%) in wetlands under natural conditions but also occur rarely (estimated probability <1%) in upland areas
Facultative wetland plants	FACW	Plants that usually occur (estimated probability >67%) in wetlands under natural conditions but also occur (estimated probability 1% to 33%) in upland areas
Facultative plants	FAC	Plants with a similar likelihood (estimated probability 33% to 67%) of occurring in both wetlands and upland areas
Facultative upland plants	FACU	Plants that sometimes occur (estimated probability 1% to 33%) in wetlands but occur more often (estimated probability >67% to 99%) in upland areas
		Plants that rarely occur (estimated probability <1%) in wetlands under natural conditions

$$WET \leftarrow \xrightarrow{OBL - FACW - FAC - FACU - UPL} DRY$$

Source: Environmental Laboratory (1987).

Additional Hydrophytic Vegetation Indicators

The presence of morphological adaptations to wetland conditions in plants that lack a published hydrophytic vegetation indicator status or with an indicator status of FACU or drier is also a hydrophytic vegetation indicator (Indicator 4). Evidence of physiological, morphological, or reproductive adaptations indicating growth in hydrophytic conditions can include, but are not limited to, buttressed roots, adventitious roots, multi-stemmed trunks, or tussocks. To determine whether Indicator 4 is met, the morphological features must be observed on more than 50 percent of the individuals of a FACU species (or species without a published indicator status) living in an area where hydric soil and wetland hydrology are present. On the wetland determination data form, the indicator status of the species with morphological adaptations would be changed to FAC (with supporting notes), and the dominance test (Indicator 2) and/or prevalence index (Indicator 3) would then be recalculated.

Wetland non-vascular plants, referred to as bryophytes and consisting of mosses, liverworts, and hornworts, may also meet the hydric vegetation criteria, under Indicator 5 (Environmental Laboratory 2010). These plants must be present in areas containing hydric soils and wetland hydrology. The percent cover of wetland specialist bryophytes is determined in 10-inch-by-10-inch square plots placed at the base of hummocks, if present. The summed cover of wetland specialist bryophytes must be more than 50 percent of the total bryophyte cover in the vegetation sampling area.

The problematic hydrophytic vegetation indicator section in the USACE regional supplement further explains how to interpret situations in which hydric soils and wetland hydrology are present but hydrophytic vegetation Indicators 1 through 5 are lacking (Environmental Laboratory 2010). Procedures

for looking at settings such as areas with active vegetation management (e.g., farms), areas dominated by aggressive invasive species, active floodplains, and low terraces are described, as well as explanations for specific situations, such as seasonal shifts in plant communities, extended drought conditions, and riparian areas.

Hydric Soils

A hydric soil is a soil that is saturated, flooded, or inundated long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation (Environmental Laboratory 1987, 2010). The evaluation of existing soil maps (developed by the US Department of Agriculture [USDA] Natural Resources Conservation Service [NRCS] and other sources) is used to understand hydric soil distribution and to identify the likely locations of hydric soils (by verifying their inclusion on the hydric soils list). Comparison of these mapped soils to conditions found on site help verify the presence of hydric soils.

For onsite soils characterization, hydric soils data were obtained generally by digging test pits at least 20 inches deep and 4 inches wide. Hydric soil conditions were evaluated using indicators outlined in *Field Indicators of Hydric Soils in the United States* (NRCS 2017) and adopted by the *Regional Supplement to the US Army Corps of Engineers Wetlands Delineation Manual: Western Mountains, Valleys, and Coast Region* (Environmental Laboratory 2010).

Hydric soil indicators applicable to the Western Mountains, Valleys, and Coast region include, but are not limited to, the presence of organic soils (i.e., histosols or histic epipedons); sulfidic material (i.e., hydrogen sulfide); depleted, gleyed, or reduced soil matrices; and/or the presence of iron or manganese concretions (Environmental Laboratory 2010). Soil color characterization (i.e., hue, value, and chroma) is a critical tool in determining depleted, gleyed, and reduced soil conditions. Soil color was evaluated by comparing soil colors at test plots to standardized color samples in *Munsell Soil Color Charts* (Munsell Color 2000).

Wetland Hydrology

Wetland hydrology is indicated by site conditions that demonstrate the periodic inundation or saturation to the soil surface for a sufficient duration during the total growing season. A *sufficient duration* during the growing season is defined as 14 or more consecutive days of flooding, ponding, or presence of a water table at 12 inches or less from the soil surface (Environmental Laboratory 2010). The growing season is the period of consecutive frost-free days, or the longest period during which the soil temperature stays above biological zero (41°F), when measured at 12 inches below the soil surface.

Two indicators of biological activity can be used to determine whether the growing season has begun and is ongoing (Environmental Laboratory 2010):

- Occurrence of aboveground growth and development of at least two non-evergreen vascular plant species growing within the wetland. Examples of this growth include the emergence or elongation of leaves on woody plants and the emergence or opening of flowers.

- Soil temperature, which can be measured once during a single site visit, should be at least 41°F or higher at a depth of 12 inches.

For this assessment, onsite hydrologic indicators were examined at the test plots. Hydrologic indicators may include the presence of surface water, standing water in the test pit at a depth of 12 inches or less, saturation in the root zone, watermarks, drift lines, sediment deposits, drainage patterns within wetlands, oxidized rhizospheres surrounding living roots, and water-stained leaves.

Antecedent Precipitation Analysis

Analyzing climatic conditions and local weather patterns are important in the assessment of vegetation, soil conditions, and hydrology for wetland delineations (Environmental Laboratory 1987, 2010), and information on precipitation that precedes a site visit is valuable in helping determine whether conditions observed at a site are reflective of normal rainfall. The NRCS (1997) provides methodology for the analysis of normal environmental conditions using antecedent rainfall measurements. For this method, “normal precipitation” is defined as ranges of normal precipitation or values falling within defined thresholds, in this case, the 30th and 70th percentile thresholds (Sprecher and Warne 2000). These ranges for a particular site are provided by WETS tables, which can be accessed through the NRCS National Water and Climate Center (NRCS 2023) and are calculated using long-term data (30 years) recorded at National Weather Service meteorological stations. USDA WETS tables display monthly average rainfall data (50th percentile) in addition to the upper and lower limits at which there is a 30 percent chance that rainfall will be more or less than the average (30th and 70 percentiles) (NRCS 2017). USDA WETS tables use climatological probabilities and are calculated on the basis of the most recent three decades of data, as factors such as climate change and different recording technologies may alter probabilities (Sprecher and Warne 2000). Currently, the 30-year range from 1981 to 2010 is used. This method makes the assumptions that rainfall is evenly distributed within a month, that antecedent precipitation can be properly evaluated for a 3-month period (i.e., assumes that evapotranspiration is the same in each season), that antecedent precipitation affects different systems similarly, and that snowmelt has the same contribution to hydrology as rainfall (Sprecher and Warne 2000).

To determine whether recent precipitation is reflective of normal precipitation, a representative weather station near the site is selected; as other conditions may affect precipitation (e.g., elevation, aspect, and proximity to mountains), the nearest station may not be the most representative of the site (Environmental Laboratory 2010). The procedure for determining normal precipitation uses measured rainfall data from the 3 months prior to the month of the site visit. For example, if the site visit occurs in September, precipitation data from June, July, and August would be analyzed. The recorded rainfall of each month is first compared to the long term range of normal precipitation (30th and 70th percentiles) and is determined to have a “normal” condition if it falls within this range; if the recorded data is higher or lower than the range, then it is determined to have a “wet” or “dry” condition, respectively. The condition is then given a value, “1” for “dry”, “2” for “normal”, and “3” for “wet”, and this value is multiplied by the weighted monthly value, where the most recent month (one month prior) is weighted heavier (3) than 3 months prior (1). The sum of this product is then used to determine whether the entire 3-month period is “drier than normal” (6-9), “normal” (10-14) or “wetter than normal” (15-18). While this method is useful for comparing a short-term time period to normal, this method is limited in that it is

discounts analysis of daily precipitation patterns within a given month (Sprecher and Warne 2000, Sumner et al. 2009).

Stream and Shoreline Delineation Methods

The OHWMs of streams within the study area were delineated using the definition provided in the WAC, Section 222-16-010. According to this definition, the OHWM of streams is “that mark that will be found by examining the bed and banks and ascertaining where the presence and action of waters are so common and usual, and so long continued in all ordinary years, as to mark upon the soil a character distinct from that of the abutting upland, in respect to vegetation.” In addition, methods in the publication *Determining the Ordinary High Water Mark for Shoreline Management Act Compliance in Washington State* (Anderson et al. 2016) were applied.

To delineate the OHWM, the bed and adjacent banks of streams in the study area were examined for indications of regular high water events. Factors considered when assessing changes in vegetation include:

- Scour (removal of vegetation and exposure of gravel, sand, or other soil substrate)
- Drainage patterns
- Elevation of floodplain benches
- Changes in sediment texture across the floodplain
- Sediment layering
- Sediment or vegetation deposition
- Changes in vegetation communities across the floodplain

Biologists hung flagging on vegetation to mark the horizontal location of the OHWM which was located directly beneath the flag.

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Appendix B

Wetland Determination Forms

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Project/Site: Hundred Acre Wood City/County: Bellingham/Whatcom Sampling Date: 2/15/24
 Applicant/Owner: City of Bellingham State: WA Sampling Point: SP1
 Investigator(s): D. Rapoza, L. Hansen Section, Township, Range: S12 T37N R02E
 Landform (hillside, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 5
 Subregion (LRR): LRR A Lat: 48.71084056065582 Long: -122.49625159380729 Datum: WGS 84
 Soil Map Unit Name: Everett-Urban land complex, 5 to 20 percent slopes NWI classification: none
 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 <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
---	---

Remarks:
 Wetland FF - all three wetland indicators present. Previous boundary verified, no change. Potential small pocket of PSS (need to measure). Slope wetland. Climatic conditions wetter than normal.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>3m</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u><i>Thuja plicata</i></u>	<u>60</u>	Yes	FAC	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>66.7%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
	<u>60</u> =Total Cover																			
Sapling/Shrub Stratum (Plot size: <u>2m</u>)																				
1. <u><i>Rubus spectabilis</i></u>	<u>20</u>	Yes	FAC	Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="text-align: right;">Total % Cover of:</td> <td style="text-align: center;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>82</u></td> <td>x 3 = <u>246</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>85</u></td> <td>x 5 = <u>425</u></td> </tr> <tr> <td>Column Totals: <u>167</u> (A)</td> <td><u>671</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>4.02</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>82</u>	x 3 = <u>246</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>85</u>	x 5 = <u>425</u>	Column Totals: <u>167</u> (A)	<u>671</u> (B)	Prevalence Index = B/A = <u>4.02</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>0</u>	x 2 = <u>0</u>																			
FAC species <u>82</u>	x 3 = <u>246</u>																			
FACU species <u>0</u>	x 4 = <u>0</u>																			
UPL species <u>85</u>	x 5 = <u>425</u>																			
Column Totals: <u>167</u> (A)	<u>671</u> (B)																			
Prevalence Index = B/A = <u>4.02</u>																				
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
	<u>20</u> =Total Cover																			
Herb Stratum (Plot size: <u>1m</u>)																				
1. <u><i>Athyrium filix-femina</i></u>	<u>85</u>	Yes	UPL	Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> 5 - Wetland Non-Vascular Plants ¹ <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u><i>Rubus armeniacus</i></u>	<u>2</u>	No	FAC																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
	<u>87</u> =Total Cover																			
Woody Vine Stratum (Plot size: <u>2m</u>)																				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>																
2. _____	_____	_____	_____																	
	_____ =Total Cover																			
% Bare Ground in Herb Stratum <u>13</u>																				

Remarks:
 Ivy rooted in upland. Vegetation indicator present.

SOIL

Sampling Point: SP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR 2/1	95	10YR 3/6	5	C	M	Loamy/Clayey	Silt loam
10-14	5Y 4/1	85	10YR 3/6	15	C	M	Loamy/Clayey	Clay loam

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

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

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

Remarks:
F6 hydric soil indicator present.

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is 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) (MLRA 1, 2, 4A, and 4B)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	

Field Observations:	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u>	
Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u>	
Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> (includes capillary fringe)	

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

Remarks:
A1, A2, and A3 hydrology indicators present.

Project/Site: Hundred Acre Wood City/County: Bellingham/Whatcom Sampling Date: 2/13/24
 Applicant/Owner: City of Bellingham State: WA Sampling Point: SP2
 Investigator(s): D. Rapoza, L. Hansen Section, Township, Range: S12 T37N R02E
 Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 2
 Subregion (LRR): LRR E Lat: 48.71053508974 Long: -122.49368671459861 Datum: WGS 84
 Soil Map Unit Name: Everett-Urban land complex, 5 to 20 percent slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If no, explain in Remarks.)
 Are Vegetation X , Soil X , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No X
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u> X </u> No <u> </u> Hydric Soil Present? Yes <u> X </u> No <u> </u> Wetland Hydrology Present? Yes <u> X </u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u> X </u> No <u> </u>
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Remarks:
 Wetland AA - all three wetland indicators present. New boundary flagged. Artificial ditch drains across trail to WL-AX. Disturbed by trail users. Climatic conditions wetter than normal.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>3m</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Thuja plicata</u>	<u>30</u>	Yes	FAC	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)																
2. <u>Populus balsamifera</u>	<u>10</u>	Yes	FAC																	
3. <u> </u>																				
4. <u> </u>																				
<u>40</u> =Total Cover																				
Sapling/Shrub Stratum (Plot size: <u>2m</u>)																				
1. <u>Rubus spectabilis</u>	<u>5</u>	Yes	FAC	Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Total % Cover of:</td> <td style="text-align: center;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>55</u></td> <td>x 3 = <u>165</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>55</u> (A)</td> <td><u>165</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>3.00</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>55</u>	x 3 = <u>165</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>55</u> (A)	<u>165</u> (B)	Prevalence Index = B/A = <u>3.00</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>0</u>	x 2 = <u>0</u>																			
FAC species <u>55</u>	x 3 = <u>165</u>																			
FACU species <u>0</u>	x 4 = <u>0</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>55</u> (A)	<u>165</u> (B)																			
Prevalence Index = B/A = <u>3.00</u>																				
2. <u> </u>																				
3. <u> </u>																				
4. <u> </u>																				
5. <u> </u>																				
<u>5</u> =Total Cover																				
Herb Stratum (Plot size: <u>1m</u>)																				
1. <u>Ranunculus repens</u>	<u>10</u>	Yes	FAC	Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u> X </u> 2 - Dominance Test is >50% <u> X </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> 5 - Wetland Non-Vascular Plants ¹ <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u> </u>																				
3. <u> </u>																				
4. <u> </u>																				
5. <u> </u>																				
6. <u> </u>																				
7. <u> </u>																				
8. <u> </u>																				
9. <u> </u>																				
10. <u> </u>																				
11. <u> </u>																				
<u>10</u> =Total Cover																				
Woody Vine Stratum (Plot size: <u> </u>)																				
1. <u> </u>				Hydrophytic Vegetation Present? Yes <u> X </u> No <u> </u>																
2. <u> </u>																				
<u> </u> =Total Cover																				
% Bare Ground in Herb Stratum <u>90</u>																				

Remarks:
 Vegetation indicator met. Trail excluded from plot.

SOIL

Sampling Point: 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		
0-7	2.5Y 3/1	100					Sandy	Loamy sand
7-15	5Y 4/1	80	10YR 3/6	20	C	M	Sandy	Prominent redox concentrations

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

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

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

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

Remarks:
A11 and F3 hydric soil indicators present.

HYDROLOGY

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

Field Observations:		Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____		
Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>3</u>		
Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> (includes capillary fringe)		

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

Remarks:
A2 and A3 hydrology indicators present.

Project/Site: Hundred Acre Wood City/County: Bellingham/Whatcom Sampling Date: 2/18/24
 Applicant/Owner: City of Bellingham State: WA Sampling Point: SP3
 Investigator(s): D. Rapoza, L. Hansen Section, Township, Range: S12 T37 N R02E
 Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): Convex Slope (%): 2
 Subregion (LRR): LRR E Lat: 48.710486623349944 Long: -122.4938173707485 Datum: WGS 84
 Soil Map Unit Name: Everett-Urban land complex, 5 to 20 percent slopes NWI classification: None
 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 <u> </u> Hydric Soil Present? Yes <u> </u> No <u> X </u> Wetland Hydrology Present? Yes <u> </u> No <u> X </u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u> X </u>
Remarks: Upland pit associated with AA - no soil or hydrology indicators present. Climatic conditions wetter than normal.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>3m</u>)	Absolute % Cover	Dominant Species?	Indicator Status																																	
1. <u>Populus balsamifera</u>	<u>15</u>	Yes	FAC	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>75.0%</u> (A/B)																																
2. <u>Pseudotsuga menziesii</u>	<u>5</u>	Yes	FACU																																	
3. <u> </u>																																				
4. <u> </u>																																				
<u>20</u> =Total Cover																																				
Sapling/Shrub Stratum (Plot size: <u>2m</u>)																																				
1. <u>Populus balsamifera</u>	<u>2</u>	No	FAC	Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse; font-size: small;"> <tr> <td style="text-align: right;">Total % Cover of:</td> <td></td> <td style="text-align: right;">Multiply by:</td> <td></td> </tr> <tr> <td>OBL species</td> <td style="text-align: center;"><u>0</u></td> <td>x 1 =</td> <td style="text-align: center;"><u>0</u></td> </tr> <tr> <td>FACW species</td> <td style="text-align: center;"><u>0</u></td> <td>x 2 =</td> <td style="text-align: center;"><u>0</u></td> </tr> <tr> <td>FAC species</td> <td style="text-align: center;"><u>57</u></td> <td>x 3 =</td> <td style="text-align: center;"><u>171</u></td> </tr> <tr> <td>FACU species</td> <td style="text-align: center;"><u>12</u></td> <td>x 4 =</td> <td style="text-align: center;"><u>48</u></td> </tr> <tr> <td>UPL species</td> <td style="text-align: center;"><u>0</u></td> <td>x 5 =</td> <td style="text-align: center;"><u>0</u></td> </tr> <tr> <td>Column Totals:</td> <td style="text-align: center;"><u>69</u> (A)</td> <td></td> <td style="text-align: center;"><u>219</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A =</td> <td></td> <td style="text-align: center;"><u>3.17</u></td> </tr> </table>	Total % Cover of:		Multiply by:		OBL species	<u>0</u>	x 1 =	<u>0</u>	FACW species	<u>0</u>	x 2 =	<u>0</u>	FAC species	<u>57</u>	x 3 =	<u>171</u>	FACU species	<u>12</u>	x 4 =	<u>48</u>	UPL species	<u>0</u>	x 5 =	<u>0</u>	Column Totals:	<u>69</u> (A)		<u>219</u> (B)	Prevalence Index = B/A =			<u>3.17</u>
Total % Cover of:		Multiply by:																																		
OBL species	<u>0</u>	x 1 =	<u>0</u>																																	
FACW species	<u>0</u>	x 2 =	<u>0</u>																																	
FAC species	<u>57</u>	x 3 =	<u>171</u>																																	
FACU species	<u>12</u>	x 4 =	<u>48</u>																																	
UPL species	<u>0</u>	x 5 =	<u>0</u>																																	
Column Totals:	<u>69</u> (A)		<u>219</u> (B)																																	
Prevalence Index = B/A =			<u>3.17</u>																																	
2. <u> </u>																																				
3. <u> </u>																																				
4. <u> </u>																																				
5. <u> </u>																																				
<u>2</u> =Total Cover																																				
Herb Stratum (Plot size: <u>1m</u>)																																				
1. <u>Rubus ursinus</u>	<u>7</u>	No	FACU	Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u> X </u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> 5 - Wetland Non-Vascular Plants ¹ <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																																
2. <u>Agrostis capillaris</u>	<u>30</u>	Yes	FAC																																	
3. <u>Carex deweyana</u>	<u>10</u>	Yes	FAC																																	
4. <u> </u>																																				
5. <u> </u>																																				
6. <u> </u>																																				
7. <u> </u>																																				
8. <u> </u>																																				
9. <u> </u>																																				
10. <u> </u>																																				
11. <u> </u>																																				
<u>47</u> =Total Cover																																				
Woody Vine Stratum (Plot size: <u> </u>)																																				
1. <u> </u>				Hydrophytic Vegetation Present? Yes <u> X </u> No <u> </u>																																
2. <u> </u>																																				
<u> </u> =Total Cover																																				
% Bare Ground in Herb Stratum <u>53</u>																																				

Remarks:
Vegetation indicator met.

SOIL

Sampling Point: SP3

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		
0-14	10YR 2/2	100					Loamy/Clayey	Sandy loam

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

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

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

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Remarks:
No hydric soil indicators present.

HYDROLOGY

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

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

Remarks:
Hydrology indicators not present.

Project/Site: Hundred Acre Wood City/County: Bellingham/Whatcom Sampling Date: 2/15/24
 Applicant/Owner: City of Bellingham State: WA Sampling Point: SP4
 Investigator(s): D. Rapoza, L. Hansen Section, Township, Range: S12 T37N R02E
 Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): Convex Slope (%): 0
 Subregion (LRR): LRR A Lat: 48.71091240562887 Long: -122.49329506632819 Datum: WGS 84
 Soil Map Unit Name: Everett-Urban land complex, 5 to 20 percent slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If no, explain in Remarks.)
 Are Vegetation X, Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No X
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
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Remarks:
 Wetland AX - all three wetland indicators present, larger new boundary, vegetation and soil disturbed by trail users. Climatic conditions wetter than normal.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>3m</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Populus balsamifera</u>	<u>15</u>	Yes	FAC	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
<u>15</u> =Total Cover																				
Sapling/Shrub Stratum (Plot size: <u>2m</u>)				Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="text-align: right;">Total % Cover of:</td> <td style="text-align: center;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>1</u></td> <td>x 2 = <u>2</u></td> </tr> <tr> <td>FAC species <u>105</u></td> <td>x 3 = <u>315</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>106</u> (A)</td> <td><u>317</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>2.99</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>1</u>	x 2 = <u>2</u>	FAC species <u>105</u>	x 3 = <u>315</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>106</u> (A)	<u>317</u> (B)	Prevalence Index = B/A = <u>2.99</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>1</u>	x 2 = <u>2</u>																			
FAC species <u>105</u>	x 3 = <u>315</u>																			
FACU species <u>0</u>	x 4 = <u>0</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>106</u> (A)	<u>317</u> (B)																			
Prevalence Index = B/A = <u>2.99</u>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
_____ =Total Cover																				
Herb Stratum (Plot size: <u>1m</u>)				Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u>X</u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> 5 - Wetland Non-Vascular Plants ¹ <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
1. <u>Carex deweyana</u>	<u>5</u>	No	FAC																	
2. <u>Ranunculus repens</u>	<u>5</u>	No	FAC																	
3. <u>Juncus effusus</u>	<u>1</u>	No	FACW																	
4. <u>Agrostis capillaris</u>	<u>80</u>	Yes	FAC																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
<u>91</u> =Total Cover																				
Woody Vine Stratum (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
_____ =Total Cover																				
% Bare Ground in Herb Stratum <u>9</u>																				

Remarks:
 Vegetation indicator present.

SOIL

Sampling Point: SP4

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		
0-2	2.5Y 3/1	100					Loamy/Clayey	Sandy loam with gravel
2-14	2.5Y 4/2	80	10YR 3/6	20	C	M	Sandy	Prominent redox concentrations

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

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

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

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks:
A11 and S5 hydric soil indicators present. Gravel pit disturbance.

HYDROLOGY

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

Field Observations:		Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____		
Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>4</u>		
Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> (includes capillary fringe)		

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

Remarks:
A2 and A3 hydrology indicators present.

Project/Site: Hundred Acre Woods City/County: Bellingham/Whatcom Sampling Date: 2/15/24
 Applicant/Owner: City of Bellingham State: WA Sampling Point: SP5
 Investigator(s): D. Rapoza, L. Hansen Section, Township, Range: S12 T37N R02E
 Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 0
 Subregion (LRR): LRR A Lat: 48.7109010211007 Long: -122.4929954707615 Datum: WGS 84
 Soil Map Unit Name: Everett-Urban land complex, 5 to 20 percent slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Remarks:
 Upland plot associated with AZ - no wetland indicators present. Climatic conditions wetter than normal.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>3m</u>)	Absolute % Cover	Dominant Species?	Indicator Status																																	
1. <u><i>Pseudotsuga menziesii</i></u>	95	Yes	FACU	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>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>20.0%</u> (A/B)																																
2. _____																																				
3. _____																																				
4. _____																																				
95 =Total Cover																																				
Sapling/Shrub Stratum (Plot size: <u>2m</u>)																																				
1. <u><i>Crataegus douglasii</i></u>	15	Yes	FAC	Prevalence Index worksheet: <table style="width:100%; font-size: small;"> <tr> <td style="text-align: right;">Total % Cover of:</td> <td></td> <td style="text-align: right;">Multiply by:</td> <td></td> </tr> <tr> <td>OBL species</td> <td style="text-align: center;">0</td> <td>x 1 =</td> <td style="text-align: center;">0</td> </tr> <tr> <td>FACW species</td> <td style="text-align: center;">0</td> <td>x 2 =</td> <td style="text-align: center;">0</td> </tr> <tr> <td>FAC species</td> <td style="text-align: center;">15</td> <td>x 3 =</td> <td style="text-align: center;">45</td> </tr> <tr> <td>FACU species</td> <td style="text-align: center;">122</td> <td>x 4 =</td> <td style="text-align: center;">488</td> </tr> <tr> <td>UPL species</td> <td style="text-align: center;">0</td> <td>x 5 =</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Column Totals:</td> <td style="text-align: center;">137 (A)</td> <td></td> <td style="text-align: center;">533 (B)</td> </tr> <tr> <td colspan="4" style="text-align: center;">Prevalence Index = B/A = <u>3.89</u></td> </tr> </table>	Total % Cover of:		Multiply by:		OBL species	0	x 1 =	0	FACW species	0	x 2 =	0	FAC species	15	x 3 =	45	FACU species	122	x 4 =	488	UPL species	0	x 5 =	0	Column Totals:	137 (A)		533 (B)	Prevalence Index = B/A = <u>3.89</u>			
Total % Cover of:		Multiply by:																																		
OBL species	0	x 1 =	0																																	
FACW species	0	x 2 =	0																																	
FAC species	15	x 3 =	45																																	
FACU species	122	x 4 =	488																																	
UPL species	0	x 5 =	0																																	
Column Totals:	137 (A)		533 (B)																																	
Prevalence Index = B/A = <u>3.89</u>																																				
2. <u><i>Ilex aquifolium</i></u>	5	Yes	FACU																																	
3. <u><i>Oemleria cerasiformis</i></u>	2	No	FACU																																	
4. _____																																				
5. _____																																				
22 =Total Cover																																				
Herb Stratum (Plot size: <u>1m</u>)																																				
1. <u><i>Polystichum munitum</i></u>	10	Yes	FACU	Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																																
2. <u><i>Rubus ursinus</i></u>	10	Yes	FACU																																	
3. _____																																				
4. _____																																				
5. _____																																				
6. _____																																				
7. _____																																				
8. _____																																				
9. _____																																				
10. _____																																				
11. _____																																				
20 =Total Cover																																				
Woody Vine Stratum (Plot size: _____)																																				
1. _____				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																																
2. _____																																				
_____ =Total Cover																																				
% Bare Ground in Herb Stratum <u>80</u>																																				

Remarks:
 Vegetatio indicator not present.

SOIL

Sampling Point: SP5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	10YR 2/2	100					Loamy/Clayey	Sandy loam
7-14	2.5Y 4/3	98	10YR 3/4	2	C	M	Loamy/Clayey	Sandy loam, cobbly

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

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

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

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes _____ No <u>X</u>
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Remarks:
Soil indicator not present.

HYDROLOGY

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

Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <u>X</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Hydrology indicator not present.

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Western Mountains, Valleys, and Coast Region See ERDC/EL TR-10-3; the proponent agency is CECW-CO-R	OMB Control #: 0710-0024, Exp: 11/30/2024 Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)
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Project/Site: Hundred Acre Wood City/County: Bellingham/Whatcom Sampling Date: 2/15/24
 Applicant/Owner: City of Bellingham State: WA Sampling Point: SP6
 Investigator(s): D. Rapoza, L. Hansen Section, Township, Range: S12 T37N R02E
 Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 0
 Subregion (LRR): LRR E Lat: 48.71096327966116 Long: -122.4929976406437 Datum: WGS 84
 Soil Map Unit Name: Everett-Urban land complex, 5 to 20 percent slopes NWI classification: None

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks:
 Wetland AZ - all wetland indicators present. New wetland east of AX. Informal boardwalk, vegetation/soil disturbed by trail users. Climatic conditions wetter than normal.

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>3m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1.					Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
2.					
3.					
4.					
				=Total Cover	
Sapling/Shrub Stratum	(Plot size: <u>2m</u>)				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>72</u> x 3 = <u>216</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>72</u> (A) <u>216</u> (B) Prevalence Index = B/A = <u>3.00</u>
1.	<u>Crataegus douglasii</u>	<u>2</u>	<u>No</u>	<u>FAC</u>	
2.					
3.					
4.					
5.					
		<u>2</u>		=Total Cover	
Herb Stratum	(Plot size: <u>1m</u>)				Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> <u>2</u> - Dominance Test is >50% <input checked="" type="checkbox"/> <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u>5</u> - Wetland Non-Vascular Plants ¹ <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1.	<u>Ranunculus repens</u>	<u>60</u>	<u>Yes</u>	<u>FAC</u>	
2.	<u>Agrostis capillaris</u>	<u>10</u>	<u>No</u>	<u>FAC</u>	
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
		<u>70</u>		=Total Cover	
Woody Vine Stratum	(Plot size: <u> </u>)				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1.					
2.					
				=Total Cover	
% Bare Ground in Herb Stratum <u>30</u>					

Remarks:
 Vegetation indicator met.

SOIL

Sampling Point: SP6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 2/2	100					Loamy/Clayey	Sandy loam
4-12	5Y 4/1	90	10YR 3/6	10	C	M	Sandy	Gravel cobble

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

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

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

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks:
A11 and S5 hydric soil indicators present.

HYDROLOGY

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

Field Observations:	
Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u>	
Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> (includes capillary fringe)	

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

Remarks:
A1, A2, and A3 hydrology indicators present.

Project/Site: Hundred Acre Wood City/County: Bellingham/Whatcom Sampling Date: 2/21/24
 Applicant/Owner: City of Bellingham State: WA Sampling Point: SP7
 Investigator(s): D. Rapoza, L. Hansen Section, Township, Range: S12 T37N R02E
 Landform (hillside, terrace, etc.): top of hill Local relief (concave, convex, none): convex Slope (%): 0
 Subregion (LRR): LRR A Lat: 48.70880795384152 Long: -122.4912991980474 Datum: WGS 84
 Soil Map Unit Name: Everett-Urban land complex, 5 to 20 percent slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
---	--

Remarks:
 Wetland KK - Pit in trail, trail users are preventing establishment of plants. New boundary near trail flagged. Soil compaction has led to expansion of wetland conditions. Conditions wetter than normal.

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>3m</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1.					Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)																
2.																					
3.																					
4.																					
				=Total Cover																	
Sapling/Shrub Stratum	(Plot size: <u>2m</u>)				Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse; font-size: small;"> <tr> <td style="text-align: right;">Total % Cover of:</td> <td style="text-align: center;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>5</u></td> <td>x 3 = <u>15</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>5</u> (A)</td> <td><u>15</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>3.00</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>5</u>	x 3 = <u>15</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>5</u> (A)	<u>15</u> (B)	Prevalence Index = B/A = <u>3.00</u>	
Total % Cover of:	Multiply by:																				
OBL species <u>0</u>	x 1 = <u>0</u>																				
FACW species <u>0</u>	x 2 = <u>0</u>																				
FAC species <u>5</u>	x 3 = <u>15</u>																				
FACU species <u>0</u>	x 4 = <u>0</u>																				
UPL species <u>0</u>	x 5 = <u>0</u>																				
Column Totals: <u>5</u> (A)	<u>15</u> (B)																				
Prevalence Index = B/A = <u>3.00</u>																					
1. <u>Rubus spectabilis</u>		<u>5</u>	Yes	FAC																	
2.																					
3.																					
4.																					
5.																					
		<u>5</u>		=Total Cover																	
Herb Stratum	(Plot size: <u>1m</u>)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤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.																
1.																					
2.																					
3.																					
4.																					
5.																					
6.																					
7.																					
8.																					
9.																					
10.																					
11.																					
				=Total Cover																	
Woody Vine Stratum	(Plot size: _____)				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																
1.																					
2.																					
				=Total Cover																	
% Bare Ground in Herb Stratum <u>95</u>																					

Remarks:
 Vegetation disturbed by trampling, if normal conditions allowed to persist, would be vegetated. Vegetation indicator present.

SOIL

Sampling Point: SP7

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		
0-0.5	10YR 2/2	100					Loamy/Clayey	
0.5-2.5	10Y 5/1	85	10YR 4/6	15	C	M	Loamy/Clayey	Prominent redox concentrations
2.5-12	10YR 3/2	85	10YR 3/6	15	C	M	Loamy/Clayey	sandy loam

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

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

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

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks:
F2 and F6 soil indicators present.

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is 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) (MLRA 1, 2, 4A, and 4B)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input checked="" type="checkbox"/> Saturation (A3)	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input checked="" type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	

Field Observations: Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>7</u> Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>5</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Surface water present due to perched clay layer. A1, A2, A3, B8, B10, and D3 hydrology indicators present.

Project/Site: Hundred Acre Wood City/County: Bellingham/Whatcom Sampling Date: 2/21/24
 Applicant/Owner: City of Bellingham State: WA Sampling Point: SP8
 Investigator(s): D. Rapoza, L. Hansen Section, Township, Range: S12 T37N R02E
 Landform (hillside, terrace, etc.): top of hill Local relief (concave, convex, none): concave Slope (%): 0
 Subregion (LRR): LRR E Lat: 48.70884194314254 Long: -122.49131827947151 Datum: WGS 84
 Soil Map Unit Name: Everett-Urban land complex, 5 to 20 percent slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
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Remarks:
 Upland pit associated with KK and JJ1 - Hydrology indicator present. Located at crest of hill between Wetland KK and JJ1, between two trail segments

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>3m</u>)	Absolute % Cover	Dominant Species?	Indicator Status																																	
1. <u><i>Pseudotsuga menziesii</i></u>	40	Yes	FACU	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>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25.0%</u> (A/B)																																
2. <u><i>Thuja plicata</i></u>	40	Yes	FAC																																	
3. <u><i>Acer macrophyllum</i></u>	20	Yes	FACU																																	
4. <u> </u>																																				
100 = Total Cover				Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="text-align: right;">Total % Cover of:</td> <td style="text-align: center;"> </td> <td style="text-align: right;">Multiply by:</td> <td style="text-align: center;"> </td> </tr> <tr> <td>OBL species</td> <td style="text-align: center;">0</td> <td>x 1 =</td> <td style="text-align: center;">0</td> </tr> <tr> <td>FACW species</td> <td style="text-align: center;">0</td> <td>x 2 =</td> <td style="text-align: center;">0</td> </tr> <tr> <td>FAC species</td> <td style="text-align: center;">40</td> <td>x 3 =</td> <td style="text-align: center;">120</td> </tr> <tr> <td>FACU species</td> <td style="text-align: center;">130</td> <td>x 4 =</td> <td style="text-align: center;">520</td> </tr> <tr> <td>UPL species</td> <td style="text-align: center;">0</td> <td>x 5 =</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Column Totals:</td> <td style="text-align: center;">170 (A)</td> <td></td> <td style="text-align: center;">640 (B)</td> </tr> <tr> <td colspan="4">Prevalence Index = B/A = <u>3.76</u></td> </tr> </table>	Total % Cover of:		Multiply by:		OBL species	0	x 1 =	0	FACW species	0	x 2 =	0	FAC species	40	x 3 =	120	FACU species	130	x 4 =	520	UPL species	0	x 5 =	0	Column Totals:	170 (A)		640 (B)	Prevalence Index = B/A = <u>3.76</u>			
Total % Cover of:		Multiply by:																																		
OBL species	0	x 1 =	0																																	
FACW species	0	x 2 =	0																																	
FAC species	40	x 3 =	120																																	
FACU species	130	x 4 =	520																																	
UPL species	0	x 5 =	0																																	
Column Totals:	170 (A)		640 (B)																																	
Prevalence Index = B/A = <u>3.76</u>																																				
= Total Cover																																				
Sapling/Shrub Stratum (Plot size: <u>2m</u>)																																				
1. <u> </u>																																				
2. <u> </u>																																				
3. <u> </u>																																				
4. <u> </u>																																				
5. <u> </u>																																				
= Total Cover																																				
Herb Stratum (Plot size: <u>1m</u>)																																				
1. <u><i>Polystichum munitum</i></u>	60	Yes	FACU	Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u> </u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> 5 - Wetland Non-Vascular Plants ¹ <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																																
2. <u><i>Rubus ursinus</i></u>	10	No	FACU																																	
3. <u> </u>																																				
4. <u> </u>																																				
5. <u> </u>																																				
6. <u> </u>																																				
7. <u> </u>																																				
8. <u> </u>																																				
9. <u> </u>																																				
10. <u> </u>																																				
11. <u> </u>																																				
70 = Total Cover																																				
Woody Vine Stratum (Plot size: <u> </u>)																																				
1. <u> </u>																																				
2. <u> </u>																																				
= Total Cover																																				
% Bare Ground in Herb Stratum <u>10</u>																																				

Remarks:
 Vegetation indicator not present. Bare ground includes moss.

SOIL

Sampling Point: SP8

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		
0-8	10YR 2/2	100					Loamy/Clayey	
8-11	2.5YR 4/3	100					Loamy/Clayey	Sandy gravelly loam
11-16	2.5Y 4/2	90	10YR 3/4	10	C	M	Loamy/Clayey	Sandy gravelly loam

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

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

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

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Remarks:
Soil indicator not met.

HYDROLOGY

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

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>12</u> Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>10</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Hydrology indicators present.

Project/Site: Hundred Acre Wood City/County: Bellingham/Whatcom Sampling Date: 2/21/24
 Applicant/Owner: City of Bellingham State: WA Sampling Point: SP9
 Investigator(s): D. Rapoza, L. Hansen Section, Township, Range: S12 T37N R02E
 Landform (hillside, terrace, etc.): hillside Local relief (concave, convex, none): convex Slope (%): 1
 Subregion (LRR): LRR A Lat: 48.708545941690645 Long: -122.49082186597792 Datum: WGS 84
 Soil Map Unit Name: Everett-Urban land complex, 5 to 20 percent slopes NWI classification: None
 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 <u> </u> Hydric Soil Present? Yes <u> X </u> No <u> </u> Wetland Hydrology Present? Yes <u> X </u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u> X </u> No <u> </u>
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Remarks:
Wetland JJ1 - all three wetland parameters met. Climatic conditions wetter than normal.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>3m</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u><i>Alnus rubra</i></u>	40	Yes	FAC	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
40 =Total Cover																				
Sapling/Shrub Stratum (Plot size: <u>2m</u>)																				
1. <u><i>Acer circinatum</i></u>	40	Yes	FAC	Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="text-align: right;">Total % Cover of:</td> <td style="text-align: center;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>130</u></td> <td>x 3 = <u>390</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>130</u> (A)</td> <td><u>390</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>3.00</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>130</u>	x 3 = <u>390</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>130</u> (A)	<u>390</u> (B)	Prevalence Index = B/A = <u>3.00</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>0</u>	x 2 = <u>0</u>																			
FAC species <u>130</u>	x 3 = <u>390</u>																			
FACU species <u>0</u>	x 4 = <u>0</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>130</u> (A)	<u>390</u> (B)																			
Prevalence Index = B/A = <u>3.00</u>																				
2. <u><i>Rubus spectabilis</i></u>	40	Yes	FAC																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
80 =Total Cover																				
Herb Stratum (Plot size: <u>1m</u>)																				
1. <u><i>Athyrium filix-femina</i></u>	10	Yes	FAC	Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u> X </u> 2 - Dominance Test is >50% <u> X </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> 5 - Wetland Non-Vascular Plants ¹ <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
10 =Total Cover																				
Woody Vine Stratum (Plot size: _____)																				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u> X </u> No <u> </u>																
2. _____	_____	_____	_____																	
_____ =Total Cover																				
% Bare Ground in Herb Stratum <u>90</u>																				

Remarks:
Vegetation indicator present. Polystichum munitum rooted on hummocks.

SOIL

Sampling Point: SP9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR 2/2	100					Loamy/Clayey	Silt loam
10-16	2.5Y 5/2	80	10YR 3/4	20	C	M	Sandy	loamy sand

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

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

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

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks:
A11 soil indicator present.

HYDROLOGY

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

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>6</u> Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
A2 and A3 hydrology indicators present.

Project/Site: Hundred Acre Wood City/County: Bellingham/Whatcom Sampling Date: 2/29/24
 Applicant/Owner: City of Bellingham State: WA Sampling Point: SP10
 Investigator(s): D. Rapoza, T. Mirabile Section, Township, Range: S12 T37N R02E
 Landform (hillside, terrace, etc.): Hillside Local relief (concave, convex, none): Convex Slope (%): 2
 Subregion (LRR): LRR A Lat: 48.709823679323605 Long: -122.48656087024956 Datum: WGS 84
 Soil Map Unit Name: Pangborn muck, drained, 0 to 2 percent slopes NWI classification: PFOC
 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 <u> </u> Hydric Soil Present? Yes <u> X </u> No <u> </u> Wetland Hydrology Present? Yes <u> X </u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u> X </u> No <u> </u>
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Remarks:
 Wetland JJ2 - All three wetland indicators met. Climatic conditions for Feburary wetter than normal.

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>3m</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1.					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> 66.7% </u> (A/B)																
2.																					
3.																					
4.																					
=Total Cover																					
Sapling/Shrub Stratum	(Plot size: <u>2m</u>)				Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u> 0 </u></td> <td>x 1 = <u> 0 </u></td> </tr> <tr> <td>FACW species <u> 10 </u></td> <td>x 2 = <u> 20 </u></td> </tr> <tr> <td>FAC species <u> 10 </u></td> <td>x 3 = <u> 30 </u></td> </tr> <tr> <td>FACU species <u> 13 </u></td> <td>x 4 = <u> 52 </u></td> </tr> <tr> <td>UPL species <u> 0 </u></td> <td>x 5 = <u> 0 </u></td> </tr> <tr> <td>Column Totals: <u> 33 </u> (A)</td> <td><u> 102 </u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u> 3.09 </u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u> 0 </u>	x 1 = <u> 0 </u>	FACW species <u> 10 </u>	x 2 = <u> 20 </u>	FAC species <u> 10 </u>	x 3 = <u> 30 </u>	FACU species <u> 13 </u>	x 4 = <u> 52 </u>	UPL species <u> 0 </u>	x 5 = <u> 0 </u>	Column Totals: <u> 33 </u> (A)	<u> 102 </u> (B)	Prevalence Index = B/A = <u> 3.09 </u>	
Total % Cover of:	Multiply by:																				
OBL species <u> 0 </u>	x 1 = <u> 0 </u>																				
FACW species <u> 10 </u>	x 2 = <u> 20 </u>																				
FAC species <u> 10 </u>	x 3 = <u> 30 </u>																				
FACU species <u> 13 </u>	x 4 = <u> 52 </u>																				
UPL species <u> 0 </u>	x 5 = <u> 0 </u>																				
Column Totals: <u> 33 </u> (A)	<u> 102 </u> (B)																				
Prevalence Index = B/A = <u> 3.09 </u>																					
1.	<u>Oemleria cerasiformis</u>	<u> 10 </u>	<u> Yes </u>	<u> FACU </u>																	
2.	<u>Hedera helix</u>	<u> 2 </u>	<u> No </u>	<u> FACU </u>																	
3.																					
4.																					
5.																					
=Total Cover																					
Herb Stratum	(Plot size: <u>1m</u>)				Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u> X </u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> 5 - Wetland Non-Vascular Plants ¹ <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
1.	<u>Dryopteris expansa</u>	<u> 10 </u>	<u> Yes </u>	<u> FACW </u>																	
2.	<u>Athyrium filix-femina</u>	<u> 10 </u>	<u> Yes </u>	<u> FAC </u>																	
3.	<u>Rubus ursinus</u>	<u> 1 </u>	<u> No </u>	<u> FACU </u>																	
4.																					
5.																					
6.																					
7.																					
8.																					
9.																					
10.																					
11.																					
=Total Cover																					
Woody Vine Stratum	(Plot size: <u> </u>)				Hydrophytic Vegetation Present? Yes <u> X </u> No <u> </u>																
1.																					
2.																					
=Total Cover																					
% Bare Ground in Herb Stratum		<u> 75 </u>																			

Remarks:
 Vegetation indicator present. Polystichum munitum on hummucks. Trees out of plot.

SOIL

Sampling Point: SP10

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		
0-6	7.5YR 4/2	98	7.5YR 4/4	2			Loamy/Clayey	silt loam
6-14	10YR 4/2	85	10YR 5/6	15	C	M	Loamy/Clayey	silt loam

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

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

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

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks:
F3 soil indicator present.

HYDROLOGY

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

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>14</u> Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>7</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
A3 hydrology indicator is present.

Project/Site: Hundred Acre Wood City/County: Bellingham/Whatcom Sampling Date: 2/29/24
 Applicant/Owner: City of Bellingham State: WA Sampling Point: SP11
 Investigator(s): D. Rapoza, T. Mirabile Section, Township, Range: S12 T37N R02E
 Landform (hillside, terrace, etc.): hillside Local relief (concave, convex, none): convex Slope (%): 4
 Subregion (LRR): LRR A Lat: 48.70954956725744 Long: -122.48747257611977 Datum: WGS 84
 Soil Map Unit Name: Chuckanut gravelly ashy sandy loam, 15 to 30 percent slopes NWI classification: PFOC
 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 <u> </u> Hydric Soil Present? Yes <u> X </u> No <u> </u> Wetland Hydrology Present? Yes <u> X </u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u> X </u> No <u> </u>
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Remarks:
 SP11 (wetland) - all three wetland indicators present. Wetland JJ3, new wetland on the north side of the trail. Climatic conditions wetter than normal.

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>3m</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1.					Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)																
2.																					
3.																					
4.																					
=Total Cover																					
Sapling/Shrub Stratum	(Plot size: <u>2m</u>)				Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u>70</u></td> <td>x 1 = <u>70</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>30</u></td> <td>x 3 = <u>90</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>100</u> (A)</td> <td><u>160</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>1.60</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>70</u>	x 1 = <u>70</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>30</u>	x 3 = <u>90</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>100</u> (A)	<u>160</u> (B)	Prevalence Index = B/A = <u>1.60</u>	
Total % Cover of:	Multiply by:																				
OBL species <u>70</u>	x 1 = <u>70</u>																				
FACW species <u>0</u>	x 2 = <u>0</u>																				
FAC species <u>30</u>	x 3 = <u>90</u>																				
FACU species <u>0</u>	x 4 = <u>0</u>																				
UPL species <u>0</u>	x 5 = <u>0</u>																				
Column Totals: <u>100</u> (A)	<u>160</u> (B)																				
Prevalence Index = B/A = <u>1.60</u>																					
1.	<u>Rubus spectabilis</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>																	
2.																					
3.																					
4.																					
5.																					
=Total Cover																					
Herb Stratum	(Plot size: <u>1m</u>)				Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u> X </u> 2 - Dominance Test is >50% <u> X </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> 5 - Wetland Non-Vascular Plants ¹ <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
1.	<u>Carex obnupta</u>	<u>70</u>	<u>Yes</u>	<u>OBL</u>																	
2.	<u>Ranunculus repens</u>	<u>10</u>	<u>No</u>	<u>FAC</u>																	
3.																					
4.																					
5.																					
6.																					
7.																					
8.																					
9.																					
10.																					
11.																					
=Total Cover																					
Woody Vine Stratum	(Plot size: <u> </u>)				Hydrophytic Vegetation Present? Yes <u> X </u> No <u> </u>																
1.																					
2.																					
=Total Cover																					
% Bare Ground in Herb Stratum		<u>20</u>																			

Remarks:
 Vegetation indicator present. Trace amounts of Carex deflecta(?) in herb stratum.

SOIL

Sampling Point: SP11

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		
0-5	10YR 4/2						Loamy/Clayey	Silt loam
5-16	10YR 4/2	70	10YR 4/6	30	C	M	Loamy/Clayey	Prominent redox concentrations

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

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

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

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks:
F3 hydric soil indicator present.

HYDROLOGY

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

Field Observations:	
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>7</u>	
Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u>	
(includes capillary fringe)	

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

Remarks:
A2 and A3 hydrology indicators present.

Project/Site: Hundred Acre Wood City/County: Bellingham/Whatcom Sampling Date: 2/29/24
 Applicant/Owner: City of Bellingham State: WA Sampling Point: SP12
 Investigator(s): D. Rapoza, T. Mirabile Section, Township, Range: S12 T37N R02E
 Landform (hillside, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 2
 Subregion (LRR): LRR E Lat: 48.70953501370949 Long: -122.48735598049316 Datum: WGS 84
 Soil Map Unit Name: Chuckanut gravelly ashy sandy loam, 15 to 30 percent slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Remarks:
 Upland plot associated with JJ2/JJ3 - Soil indicator present. Upland lowest point between, on slope between JJ2 and JJ3. Climatic conditions wetter than normal.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>3m</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u><i>Pseudotsuga menziesii</i></u>	80	Yes	FACU	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</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>0.0%</u> (A/B)																
2. <u><i>Thuja plicata</i></u>	10	No	FAC																	
3. _____																				
4. _____																				
90 =Total Cover																				
Sapling/Shrub Stratum (Plot size: <u>2m</u>)																				
1. <u><i>Vaccinium parvifolium</i></u>	10	Yes	FACU	Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="text-align: right;">Total % Cover of:</td> <td style="text-align: center;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>10</u></td> <td>x 3 = <u>30</u></td> </tr> <tr> <td>FACU species <u>185</u></td> <td>x 4 = <u>740</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>195</u> (A)</td> <td><u>770</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>3.95</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>10</u>	x 3 = <u>30</u>	FACU species <u>185</u>	x 4 = <u>740</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>195</u> (A)	<u>770</u> (B)	Prevalence Index = B/A = <u>3.95</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>0</u>	x 2 = <u>0</u>																			
FAC species <u>10</u>	x 3 = <u>30</u>																			
FACU species <u>185</u>	x 4 = <u>740</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>195</u> (A)	<u>770</u> (B)																			
Prevalence Index = B/A = <u>3.95</u>																				
2. _____																				
3. _____																				
4. _____																				
5. _____																				
10 =Total Cover																				
Herb Stratum (Plot size: <u>1m</u>)																				
1. <u><i>Polystichum munitum</i></u>	80	Yes	FACU	Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u><i>Gaultheria shallon</i></u>	10	No	FACU																	
3. <u><i>Rubus ursinus</i></u>	5	No	FACU																	
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
9. _____																				
10. _____																				
11. _____																				
95 =Total Cover																				
Woody Vine Stratum (Plot size: _____)																				
1. _____				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																
2. _____																				
_____ =Total Cover																				
% Bare Ground in Herb Stratum <u>5</u>																				

Remarks:
 Vegetation indicator not present.

SOIL

Sampling Point: SP12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	7.5YR 3/2	100					Loamy/Clayey	Silty loam, gravel
4-12	7.5YR 4/2	85	7.5YR 4/4	15	C	M	Loamy/Clayey	Distinct redox concentrations

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

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

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

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks:
F3 hydric soil indicator present.

HYDROLOGY

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

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

Remarks:
No hydrology indicators present.

Project/Site: Hundred Acre Wood City/County: Bellingham/Whatcom Sampling Date: 3/6/24
 Applicant/Owner: City of Bellingham State: WA Sampling Point: SP13
 Investigator(s): D. Rapoza, L. Hansen Section, Township, Range: S12 T37N R02E
 Landform (hillside, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 3
 Subregion (LRR): LRR A Lat: 48.708388109702625 Long: -122.4882007804351 Datum: WGS 84
 Soil Map Unit Name: Everett-Urban land complex, 5 to 20 percent slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: Upland plot associated with JJ2 - two wetland indicators present. Climatic conditions wetter than normal.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>3m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:																
1. <u><i>Acer macrophyllum</i></u>	<u>20</u>	Yes	FACU	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>60.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
<u>20</u> =Total Cover																				
Sapling/Shrub Stratum (Plot size: <u>2m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:																
1. <u><i>Rubus spectabilis</i></u>	<u>30</u>	Yes	FAC	<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>60</u></td> <td>x 3 = <u>180</u></td> </tr> <tr> <td>FACU species <u>35</u></td> <td>x 4 = <u>140</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>95</u> (A)</td> <td><u>320</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>3.37</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>60</u>	x 3 = <u>180</u>	FACU species <u>35</u>	x 4 = <u>140</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>95</u> (A)	<u>320</u> (B)	Prevalence Index = B/A = <u>3.37</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>0</u>	x 2 = <u>0</u>																			
FAC species <u>60</u>	x 3 = <u>180</u>																			
FACU species <u>35</u>	x 4 = <u>140</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>95</u> (A)	<u>320</u> (B)																			
Prevalence Index = B/A = <u>3.37</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. <u><i>Ranunculus repens</i></u>	<u>20</u>	Yes	FAC	1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> 5 - Wetland Non-Vascular Plants ¹ <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u><i>Dicentra formosa</i></u>	<u>15</u>	Yes	FACU																	
3. <u><i>Tolmiea menziesii</i></u>	<u>10</u>	Yes	FAC																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
<u>45</u> =Total Cover																				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?																
1. _____	_____	_____	_____	Yes <u>X</u> No <u> </u>																
2. _____	_____	_____	_____																	
_____ =Total Cover																				
% Bare Ground in Herb Stratum <u>55</u>																				

Remarks:
Bleeding heart was newly emerged shoots. Vegetation indicator present.

SOIL

Sampling Point: SP13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR 2/2	100					Loamy/Clayey	Silt loam
10-14	10YR 3/2	100					Loamy/Clayey	Silt loam
14-16	10YR 3/1	97	7.5YR 5/6	3	C	M	Loamy/Clayey	Prominent redox concentrations

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

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

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

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes _____ No <u>X</u>
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Remarks:
No hydric soil indicators present

HYDROLOGY

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

Field Observations:		Wetland Hydrology Present? Yes <u>X</u> No _____
Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____		
Water Table Present? Yes <u>X</u> No _____ Depth (inches): <u>10</u>		
Saturation Present? Yes <u>X</u> No _____ Depth (inches): <u>0</u> (includes capillary fringe)		

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

Remarks:
Hydrology indicators A2 and A3 present.

Project/Site: Hundred Acre Wood City/County: Bellingham/Whatcom Sampling Date: 3/12/24
 Applicant/Owner: City of Bellingham State: WA Sampling Point: SP14
 Investigator(s): D. Rapoza, L. Hansen Section, Township, Range: S12 T37N R02E
 Landform (hillside, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 8
 Subregion (LRR): LRR A Lat: 48.70595904496906 Long: -122.48637770734429 Datum: WGS 84
 Soil Map Unit Name: Everett-Urban land complex, 5 to 20 percent slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Remarks: Wetland JJ4 - all three wetland parameters met, new wetland, slope wetland connects to stream. Climatic conditions wetter than normal.	

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>3m</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1.					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>100.0%</u> (A/B)																
2.																					
3.																					
4.																					
		=Total Cover																			
Sapling/Shrub Stratum	(Plot size: <u>2m</u>)																				
1.	<u>Rubus spectabilis</u>	5	Yes	FAC	Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>51</u></td> <td>x 3 = <u>153</u></td> </tr> <tr> <td>FACU species <u>5</u></td> <td>x 4 = <u>20</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>56</u> (A)</td> <td><u>173</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>3.09</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>51</u>	x 3 = <u>153</u>	FACU species <u>5</u>	x 4 = <u>20</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>56</u> (A)	<u>173</u> (B)	Prevalence Index = B/A = <u>3.09</u>	
Total % Cover of:	Multiply by:																				
OBL species <u>0</u>	x 1 = <u>0</u>																				
FACW species <u>0</u>	x 2 = <u>0</u>																				
FAC species <u>51</u>	x 3 = <u>153</u>																				
FACU species <u>5</u>	x 4 = <u>20</u>																				
UPL species <u>0</u>	x 5 = <u>0</u>																				
Column Totals: <u>56</u> (A)	<u>173</u> (B)																				
Prevalence Index = B/A = <u>3.09</u>																					
2.	<u>Thuja plicata</u>	1	No	FAC																	
3.																					
4.																					
5.																					
		6 =Total Cover																			
Herb Stratum	(Plot size: <u>1m</u>)																				
1.	<u>Tolmiea menziesii</u>	30	Yes	FAC	Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> 5 - Wetland Non-Vascular Plants ¹ <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2.	<u>Hydrophyllum tenuipes</u>	15	Yes	FAC																	
3.	<u>Polystichum munitum</u>	5	No	FACU																	
4.																					
5.																					
6.																					
7.																					
8.																					
9.																					
10.																					
11.																					
		50 =Total Cover																			
Woody Vine Stratum	(Plot size: <u> </u>)																				
1.					Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>																
2.																					
		=Total Cover																			
% Bare Ground in Herb Stratum <u>50</u>																					

Remarks:
Vegetation indicator present

SOIL

Sampling Point: SP14

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		
0-14	10YR 3/1	95	10YR 3/3	5	C	M	Loamy/Clayey	Distinct redox concentrations
14-16	2.5Y 4/2	90	10YR 4/6	5	C	M	Loamy/Clayey	Prominent redox concentrations
			10YR 4/2	5	D	M		

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

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

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks:
Indicator F6 present.

HYDROLOGY

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

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 checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
A3 hydrology indicator present.

Project/Site: Hundred Acre Wood City/County: Bellingham/Whatcom Sampling Date: 3/12/24
 Applicant/Owner: City of Bellingham State: WA Sampling Point: SP15
 Investigator(s): D. Rapoza, L. Hansen Section, Township, Range: S12 T37N R02E
 Landform (hillside, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 0
 Subregion (LRR): LRR A Lat: 48.7060185799618 Long: -122.48680064684264 Datum: WGS 84
 Soil Map Unit Name: Everett-Urban land complex, 5 to 20 percent slopes NWI classification: None
 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 <u> </u> Hydric Soil Present? Yes <u> X </u> No <u> </u> Wetland Hydrology Present? Yes <u> X </u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u> X </u> No <u> </u>
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Remarks:
 Wetland JJ5 - All three wetland indicators present. New wetland, depressional, 2 outlets to stream. Climatic conditions are wetter than normal.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>3m</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u><i>Thuja plicata</i></u>	<u>80</u>	Yes	FAC	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>100.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
<u>80</u> =Total Cover																				
Sapling/Shrub Stratum (Plot size: <u>2m</u>)																				
1. <u><i>Rubus spectabilis</i></u>	<u>5</u>	Yes	FAC	Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Total % Cover of:</td> <td style="text-align: center;">Multiply by:</td> </tr> <tr> <td>OBL species <u>70</u></td> <td>x 1 = <u>70</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>90</u></td> <td>x 3 = <u>270</u></td> </tr> <tr> <td>FACU species <u>5</u></td> <td>x 4 = <u>20</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>165</u> (A)</td> <td><u>360</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>2.18</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>70</u>	x 1 = <u>70</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>90</u>	x 3 = <u>270</u>	FACU species <u>5</u>	x 4 = <u>20</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>165</u> (A)	<u>360</u> (B)	Prevalence Index = B/A = <u>2.18</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>70</u>	x 1 = <u>70</u>																			
FACW species <u>0</u>	x 2 = <u>0</u>																			
FAC species <u>90</u>	x 3 = <u>270</u>																			
FACU species <u>5</u>	x 4 = <u>20</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>165</u> (A)	<u>360</u> (B)																			
Prevalence Index = B/A = <u>2.18</u>																				
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
<u>5</u> =Total Cover																				
Herb Stratum (Plot size: <u>1m</u>)																				
1. <u><i>Carex obnupta</i></u>	<u>65</u>	Yes	OBL	Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u> X </u> 2 - Dominance Test is >50% <u> X </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> 5 - Wetland Non-Vascular Plants ¹ <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u><i>Lysichiton americanus</i></u>	<u>5</u>	No	OBL																	
3. <u><i>Hydrophyllum tenuipes</i></u>	<u>5</u>	No	FAC																	
4. <u><i>Polystichum munitum</i></u>	<u>5</u>	No	FACU																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
<u>80</u> =Total Cover																				
Woody Vine Stratum (Plot size: _____)																				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u> X </u> No <u> </u>																
2. _____	_____	_____	_____																	
_____ =Total Cover																				
% Bare Ground in Herb Stratum <u>20</u>																				

Remarks:
 Moss and open water = bare ground. Vegetation indicator present.

SOIL

Sampling Point: SP15

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	2.5Y 3/1	100					Loamy/Clayey	Sandy loam
7-16	5Y 5/4	80	10YR 5/8	20	C	M	Loamy/Clayey	Prominent redox concentrations

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

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

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

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks:
F7 soil indicator present.

HYDROLOGY

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

Field Observations:	
Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u>	
Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> (includes capillary fringe)	

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

Remarks:
A1, A2, and A3 hydrology indicators present.

Project/Site: Hundred Acre Wood City/County: Bellingham/Whatcom Sampling Date: 3/12/24
 Applicant/Owner: City of Bellingham State: WA Sampling Point: SP16
 Investigator(s): D. Rapoza, L. Hansen Section, Township, Range: S12 T37N R02E
 Landform (hillside, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 0
 Subregion (LRR): LRR A Lat: 48.70618126826863 Long: -122.48696490248669 Datum: WGS 84
 Soil Map Unit Name: Everett-Urban land complex, 5 to 20 percent slopes NWI classification: None
 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> </u> No <u>X</u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
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Remarks:
 Upland plot associated with JJ2 and JJ5 - hydrology indicator present. Located between wetlands JJ2 and JJ5. Climatic conditions wetter than normal.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>3m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:																																								
1. <u><i>Pseudotsuga menziesii</i></u>	50	Yes	FACU	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</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>20.0%</u> (A/B)																																								
2. <u><i>Thuja plicata</i></u>	50	Yes	FAC																																									
3. <u> </u>																																												
4. <u> </u>																																												
<u>100</u> =Total Cover																																												
Sapling/Shrub Stratum (Plot size: <u>2m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:																																								
1. <u><i>Vaccinium parvifolium</i></u>	10	Yes	FACU	<table style="width:100%; border-collapse: collapse;"> <tr> <td style="text-align: right;">Total % Cover of:</td> <td style="width: 10%;"></td> <td style="text-align: right;">Multiply by:</td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td>OBL species</td> <td style="text-align: center;">0</td> <td>x 1 =</td> <td style="text-align: center;">0</td> <td></td> </tr> <tr> <td>FACW species</td> <td style="text-align: center;">0</td> <td>x 2 =</td> <td style="text-align: center;">0</td> <td></td> </tr> <tr> <td>FAC species</td> <td style="text-align: center;">50</td> <td>x 3 =</td> <td style="text-align: center;">150</td> <td></td> </tr> <tr> <td>FACU species</td> <td style="text-align: center;">105</td> <td>x 4 =</td> <td style="text-align: center;">420</td> <td></td> </tr> <tr> <td>UPL species</td> <td style="text-align: center;">0</td> <td>x 5 =</td> <td style="text-align: center;">0</td> <td></td> </tr> <tr> <td>Column Totals:</td> <td style="text-align: center;">155 (A)</td> <td></td> <td style="text-align: center;">570 (B)</td> <td></td> </tr> <tr> <td colspan="5">Prevalence Index = B/A = <u>3.68</u></td> </tr> </table>	Total % Cover of:		Multiply by:			OBL species	0	x 1 =	0		FACW species	0	x 2 =	0		FAC species	50	x 3 =	150		FACU species	105	x 4 =	420		UPL species	0	x 5 =	0		Column Totals:	155 (A)		570 (B)		Prevalence Index = B/A = <u>3.68</u>				
Total % Cover of:		Multiply by:																																										
OBL species	0	x 1 =	0																																									
FACW species	0	x 2 =	0																																									
FAC species	50	x 3 =	150																																									
FACU species	105	x 4 =	420																																									
UPL species	0	x 5 =	0																																									
Column Totals:	155 (A)		570 (B)																																									
Prevalence Index = B/A = <u>3.68</u>																																												
2. <u> </u>																																												
3. <u> </u>																																												
4. <u> </u>																																												
5. <u> </u>																																												
<u>10</u> =Total Cover																																												
Herb Stratum (Plot size: <u>1m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:																																								
1. <u><i>Polystichum munitum</i></u>	20	Yes	FACU	1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																																								
2. <u><i>Mahonia nervosa</i></u>	20	Yes	FACU																																									
3. <u><i>Rubus ursinus</i></u>	5	No	FACU																																									
4. <u> </u>																																												
5. <u> </u>																																												
6. <u> </u>																																												
7. <u> </u>																																												
8. <u> </u>																																												
9. <u> </u>																																												
10. <u> </u>																																												
11. <u> </u>																																												
<u>45</u> =Total Cover																																												
Woody Vine Stratum (Plot size: <u> </u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?																																								
1. <u> </u>				Yes <u> </u> No <u>X</u>																																								
2. <u> </u>																																												
<u> </u> =Total Cover																																												
% Bare Ground in Herb Stratum <u>55</u>																																												

Remarks:
 Bare ground with moss. Vegetation indicator not present.

SOIL

Sampling Point: SP16

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR 3/2	100					Loamy/Clayey	
10-16	2.5Y 4/3	90	10YR 4/6	10	C	M	Loamy/Clayey	Prominent redox concentrations

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

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

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

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Remarks:
No hydric soil indicators present.

HYDROLOGY

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

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>11</u> Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>10</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
A2 and A3 hydrology indicators present. Early growing season after heavy rain, water levels not likely to last long.

Appendix C

NRCS Soil Report

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United States
Department of
Agriculture

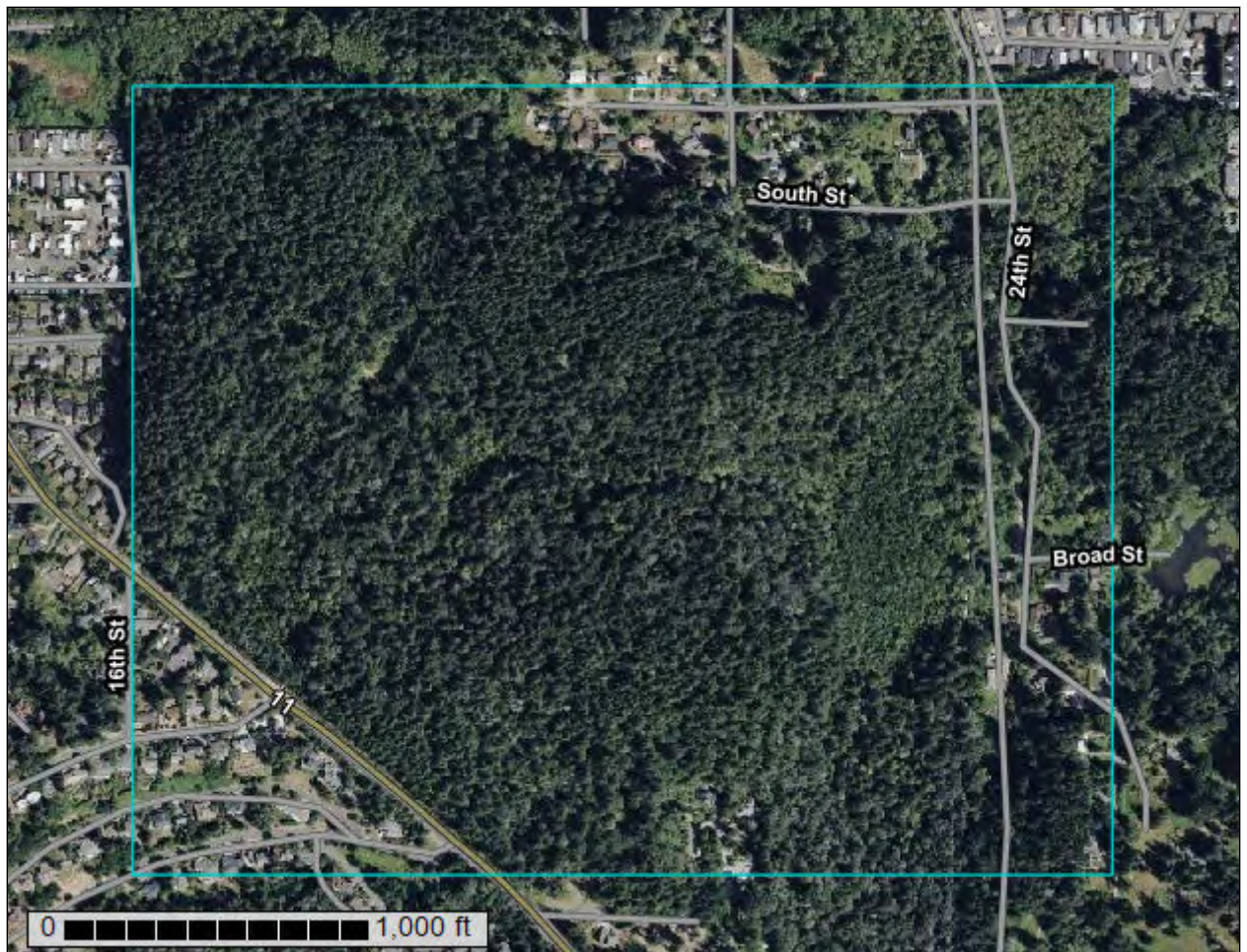
NRCS

Natural
Resources
Conservation
Service

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

Custom Soil Resource Report for Whatcom County Area, Washington

Hundred Acre Wood Phase 1



Preface

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

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

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

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

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

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

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How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

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

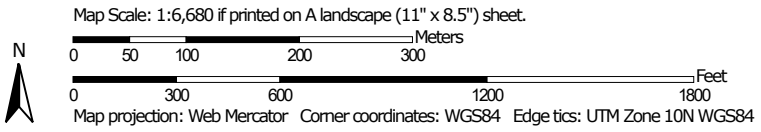
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identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

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

Custom Soil Resource Report Soil Map



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)




















Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features


Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Whatcom County Area, Washington
 Survey Area Data: Version 23, Aug 29, 2023

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

Date(s) aerial images were photographed: Aug 14, 2022—Sep 1, 2022

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
26	Chuckanut gravelly ashy sandy loam, 15 to 30 percent slopes	28.8	15.0%
27	Chuckanut gravelly ashy sandy loam, 30 to 65 percent slopes	2.8	1.5%
52	Everett-Urban land complex, 5 to 20 percent slopes	120.4	62.6%
116	Pangborn muck, drained, 0 to 2 percent slopes	14.0	7.3%
156	Squalicum gravelly loam, 5 to 15 percent slopes	9.2	4.8%
159	Squalicum-Urban land complex, 5 to 20 percent slopes	9.0	4.7%
172	Urban land-Whatcom-Labounty complex, 0 to 8 percent slopes	8.2	4.3%
Totals for Area of Interest		192.5	100.0%

Map Unit Descriptions

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

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

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit

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descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

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

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

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

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

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

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

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

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

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

Whatcom County Area, Washington

26—Chuckanut gravelly ashy sandy loam, 15 to 30 percent slopes

Map Unit Setting

National map unit symbol: 2r3lb

Elevation: 390 to 1,870 feet

Mean annual precipitation: 35 to 45 inches

Mean annual air temperature: 46 to 52 degrees F

Frost-free period: 160 to 200 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Chuckanut and similar soils: 80 percent

Minor components: 20 percent

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

Description of Chuckanut

Setting

Landform: Hillslopes

Landform position (two-dimensional): Footslope, backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Volcanic ash mixed with colluvium derived from sandstone over dense glacial till

Typical profile

O_i - 0 to 5 inches: slightly decomposed plant material

O_e - 5 to 7 inches: moderately decomposed plant material

E - 7 to 9 inches: gravelly ashy sandy loam

B_{s1} - 9 to 16 inches: gravelly ashy loam

B_{s2} - 16 to 22 inches: gravelly ashy loam

2BC - 22 to 42 inches: gravelly sandy loam

2C - 42 to 56 inches: gravelly loam

2Cr - 56 to 60 inches: bedrock

Properties and qualities

Slope: 15 to 30 percent

Depth to restrictive feature: 39 to 60 inches to paralithic bedrock

Drainage class: Well drained

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

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: High (about 10.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: B

Ecological site: F002XA005WA - Puget Lowlands Moist Forest

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Forage suitability group: Soils with Moderate Limitations (G002XF603WA),
Sloping to Steep Soils (G002XF703WA)
Other vegetative classification: Soils with Moderate Limitations (G002XF603WA),
Sloping to Steep Soils (G002XF703WA)
Hydric soil rating: No

Minor Components

Beausite

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Nose slope, base slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Bellingham

Percent of map unit: 5 percent
Landform: Depressions
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Rock outcrop

Percent of map unit: 5 percent
Hydric soil rating: No

Tokul

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

27—Chuckanut gravelly ashy sandy loam, 30 to 65 percent slopes

Map Unit Setting

National map unit symbol: 2r3lc
Elevation: 390 to 1,870 feet
Mean annual precipitation: 35 to 45 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 160 to 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Chuckanut and similar soils: 80 percent
Minor components: 20 percent

Custom Soil Resource Report

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

Description of Chuckanut

Setting

Landform: Hillslopes

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Volcanic ash mixed with colluvium derived from sandstone over dense glacial till

Typical profile

Oi - 0 to 5 inches: slightly decomposed plant material

Oe - 5 to 7 inches: moderately decomposed plant material

E - 7 to 9 inches: gravelly ashy sandy loam

Bs1 - 9 to 16 inches: gravelly ashy loam

Bs2 - 16 to 22 inches: gravelly ashy loam

2BC - 22 to 42 inches: gravelly sandy loam

2C - 42 to 56 inches: gravelly loam

2Cr - 56 to 60 inches: bedrock

Properties and qualities

Slope: 30 to 65 percent

Depth to restrictive feature: 39 to 60 inches to paralithic bedrock

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: High (about 10.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: B

Ecological site: F002XA005WA - Puget Lowlands Moist Forest

Hydric soil rating: No

Minor Components

Tokul

Percent of map unit: 5 percent

Landform: Hillslopes

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope, base slope

Down-slope shape: Convex

Across-slope shape: Convex

Hydric soil rating: No

Beausite

Percent of map unit: 5 percent

Landform: Hillslopes

Landform position (two-dimensional): Shoulder, backslope

Landform position (three-dimensional): Side slope, base slope

Custom Soil Resource Report

Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Bellingham

Percent of map unit: 5 percent
Landform: Depressions
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Rock outcrop

Percent of map unit: 5 percent
Hydric soil rating: No

52—Everett-Urban land complex, 5 to 20 percent slopes

Map Unit Setting

National map unit symbol: 2j52
Elevation: 50 to 250 feet
Mean annual precipitation: 30 to 50 inches
Mean annual air temperature: 50 degrees F
Frost-free period: 180 days
Farmland classification: Not prime farmland

Map Unit Composition

Everett and similar soils: 50 percent
Urban land: 30 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Everett

Setting

Landform: Terraces, moraines
Parent material: Loess and volcanic ash over glacial outwash

Typical profile

H1 - 0 to 6 inches: gravelly ashy sandy loam
H2 - 6 to 13 inches: gravelly ashy sandy loam
H3 - 13 to 25 inches: very gravelly sandy loam
H4 - 25 to 41 inches: very gravelly loamy sand
H5 - 41 to 60 inches: very gravelly sand

Properties and qualities

Slope: 5 to 20 percent
Depth to restrictive feature: 40 to 60 inches to densic material
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Custom Soil Resource Report

Depth to water table: About 39 to 59 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F002XA004WA - Puget Lowlands Forest
Forage suitability group: Droughty Soils (G002XN402WA)
Other vegetative classification: Droughty Soils (G002XN402WA)
Hydric soil rating: No

Description of Urban Land

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: No

Minor Components

Squalicum

Percent of map unit: 5 percent
Hydric soil rating: No

Sehome

Percent of map unit: 5 percent
Hydric soil rating: No

Chuckanut

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

Whatcom

Percent of map unit: 3 percent
Hydric soil rating: No

Labounty, undrained

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

116—Pangborn muck, drained, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2j15
Elevation: 0 to 600 feet
Mean annual precipitation: 35 to 55 inches

Custom Soil Resource Report

Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 150 to 190 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Pangborn, drained, and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pangborn, Drained

Setting

Landform: Depressions on outwash terraces
Parent material: Woody and herbaceous organic material

Typical profile

Oa - 0 to 15 inches: muck
Oa2 - 15 to 60 inches: muck

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very high (about 26.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C
Ecological site: R002XA003WA - Puget Lowlands Bogs and Fens
Forage suitability group: Soils with Few Limitations (G002XN502WA)
Other vegetative classification: Soils with Few Limitations (G002XN502WA)
Hydric soil rating: Yes

Minor Components

Fishtrap, undrained

Percent of map unit: 2 percent
Landform: Flood plains
Other vegetative classification: Wet Soils (G002XN102WA)
Hydric soil rating: Yes

Puget, undrained

Percent of map unit: 2 percent
Landform: Flood plains
Other vegetative classification: Wet Soils (G002XN102WA)
Hydric soil rating: Yes

Shalcar, undrained

Percent of map unit: 2 percent
Landform: Flood plains
Other vegetative classification: Wet Soils (G002XN102WA)
Hydric soil rating: Yes

Snohomish, undrained

Percent of map unit: 1 percent

Landform: Flood plains

Other vegetative classification: Wet Soils (G002XN102WA)

Hydric soil rating: Yes

Pangborn, undrained

Percent of map unit: 1 percent

Other vegetative classification: Wet Soils (G002XN102WA)

Hydric soil rating: Yes

Hale, undrained

Percent of map unit: 1 percent

Other vegetative classification: Seasonally Wet Soils (G002XN202WA)

Hydric soil rating: Yes

Bellingham, undrained

Percent of map unit: 1 percent

Landform: Depressions

Other vegetative classification: Wet Soils (G002XN102WA)

Hydric soil rating: Yes

156—Squalicum gravelly loam, 5 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2j2l

Elevation: 200 to 1,500 feet

Mean annual precipitation: 45 inches

Mean annual air temperature: 48 degrees F

Frost-free period: 140 to 220 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Squalicum and similar soils: 85 percent

Minor components: 15 percent

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

Description of Squalicum

Setting

Landform: Hillslopes

Parent material: Volcanic ash, loess, and slope alluvium over glacial drift

Typical profile

H1 - 0 to 7 inches: gravelly ashy loam

H2 - 7 to 30 inches: gravelly ashy loam

H3 - 30 to 44 inches: gravelly ashy loam

H4 - 44 to 60 inches: gravelly ashy loam

Properties and qualities

Slope: 5 to 15 percent

Custom Soil Resource Report

Depth to restrictive feature: 40 to 60 inches to densic material
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 39 to 59 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 10.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F002XA004WA - Puget Lowlands Forest
Forage suitability group: Soils with Moderate Limitations (G002XF603WA)
Other vegetative classification: Soils with Moderate Limitations (G002XF603WA)
Hydric soil rating: No

Minor Components

Nati

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

Everett

Percent of map unit: 2 percent
Hydric soil rating: No

Whatcom

Percent of map unit: 2 percent
Hydric soil rating: No

Chuckanut

Percent of map unit: 2 percent
Hydric soil rating: No

Squires

Percent of map unit: 2 percent
Hydric soil rating: No

Bellingham, undrained

Percent of map unit: 1 percent
Landform: Depressions
Other vegetative classification: Wet Soils (G002XN102WA)
Hydric soil rating: Yes

Blethen

Percent of map unit: 1 percent
Hydric soil rating: No

Labounty, undrained

Percent of map unit: 1 percent
Landform: Depressions
Other vegetative classification: Wet Soils (G002XN102WA)
Hydric soil rating: Yes

159—Squalicum-Urban land complex, 5 to 20 percent slopes

Map Unit Setting

National map unit symbol: 2j2p
Elevation: 200 to 600 feet
Mean annual precipitation: 45 inches
Mean annual air temperature: 48 degrees F
Frost-free period: 140 to 220 days
Farmland classification: Not prime farmland

Map Unit Composition

Squalicum and similar soils: 50 percent
Urban land: 30 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Squalicum

Setting

Landform: Hillslopes
Parent material: Volcanic ash, loess, and slope alluvium over glacial drift

Typical profile

H1 - 0 to 7 inches: gravelly ashy loam
H2 - 7 to 30 inches: gravelly ashy loam
H3 - 30 to 44 inches: gravelly ashy loam
H4 - 44 to 60 inches: gravelly ashy loam

Properties and qualities

Slope: 5 to 20 percent
Depth to restrictive feature: 40 to 60 inches to densic material
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 39 to 59 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 10.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F002XA004WA - Puget Lowlands Forest
Forage suitability group: Soils with Moderate Limitations (G002XF603WA)
Other vegetative classification: Soils with Moderate Limitations (G002XF603WA)
Hydric soil rating: No

Description of Urban Land

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8

Hydric soil rating: No

Minor Components

Everett

Percent of map unit: 5 percent

Hydric soil rating: No

Whatcom

Percent of map unit: 5 percent

Hydric soil rating: No

Labounty, undrained

Percent of map unit: 4 percent

Landform: Depressions

Other vegetative classification: Wet Soils (G002XN102WA)

Hydric soil rating: Yes

Sehome

Percent of map unit: 3 percent

Hydric soil rating: No

Squires

Percent of map unit: 2 percent

Hydric soil rating: No

Blethen

Percent of map unit: 1 percent

Hydric soil rating: No

172—Urban land-Whatcom-Labounty complex, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2j35

Elevation: 0 to 200 feet

Mean annual precipitation: 35 to 50 inches

Mean annual air temperature: 48 to 52 degrees F

Frost-free period: 150 to 190 days

Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 40 percent

Whatcom and similar soils: 30 percent

Labounty, undrained, and similar soils: 20 percent

Minor components: 10 percent

Custom Soil Resource Report

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

Description of Urban Land

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8

Hydric soil rating: No

Description of Whatcom

Setting

Landform: Hillslopes

Parent material: Volcanic ash and loess over glaciomarine deposits

Typical profile

H1 - 0 to 9 inches: ashy silt loam

H2 - 9 to 16 inches: ashy silt loam

H3 - 16 to 26 inches: loam

H4 - 26 to 60 inches: loam

Properties and qualities

Slope: 0 to 8 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

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

Depth to water table: About 18 to 36 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 5 percent

Available water supply, 0 to 60 inches: Very high (about 12.7 inches)

Interpretive groups

Land capability classification (irrigated): 3w

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: C

Ecological site: F002XA005WA - Puget Lowlands Moist Forest

Forage suitability group: Seasonally Wet Soils (G002XN202WA)

Other vegetative classification: Seasonally Wet Soils (G002XN202WA)

Hydric soil rating: No

Description of Labounty, Undrained

Setting

Landform: Depressions

Parent material: Volcanic ash, loess, glaciomarine deposits

Typical profile

H1 - 0 to 10 inches: ashy silt loam

H2 - 10 to 16 inches: loam

H3 - 16 to 35 inches: loam

H4 - 35 to 60 inches: loam

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Custom Soil Resource Report

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

Depth to water table: About 0 to 12 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 5w

Hydrologic Soil Group: C/D

Ecological site: F002XA007WA - Puget Lowlands Wet Forest

Forage suitability group: Wet Soils (G002XN102WA)

Other vegetative classification: Wet Soils (G002XN102WA)

Hydric soil rating: Yes

Minor Components

Everett

Percent of map unit: 3 percent

Hydric soil rating: No

Birchbay

Percent of map unit: 2 percent

Hydric soil rating: No

Bellingham, undrained

Percent of map unit: 2 percent

Landform: Depressions

Other vegetative classification: Wet Soils (G002XN102WA)

Hydric soil rating: Yes

Squalicum

Percent of map unit: 1 percent

Hydric soil rating: No

Chuckanut

Percent of map unit: 1 percent

Hydric soil rating: No

Kickerville

Percent of map unit: 1 percent

Hydric soil rating: No

Soil Information for All Uses

Suitabilities and Limitations for Use

The Suitabilities and Limitations for Use section includes various soil interpretations displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each interpretation.

Land Classifications

Land Classifications are specified land use and management groupings that are assigned to soil areas because combinations of soil have similar behavior for specified practices. Most are based on soil properties and other factors that directly influence the specific use of the soil. Example classifications include ecological site classification, farmland classification, irrigated and nonirrigated land capability classification, and hydric rating.

Hydric Rating by Map Unit (Soil Map For Hundred Acre Wood Phase 1)

This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is rated based on its respective components and the percentage of each component within the map unit.

The thematic map is color coded based on the composition of hydric components. The five color classes are separated as 100 percent hydric components, 66 to 99 percent hydric components, 33 to 65 percent hydric components, 1 to 32 percent hydric components, and less than one percent hydric components.

Custom Soil Resource Report

In Web Soil Survey, the Summary by Map Unit table that is displayed below the map pane contains a column named 'Rating'. In this column the percentage of each map unit that is classified as hydric is displayed.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

References:

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

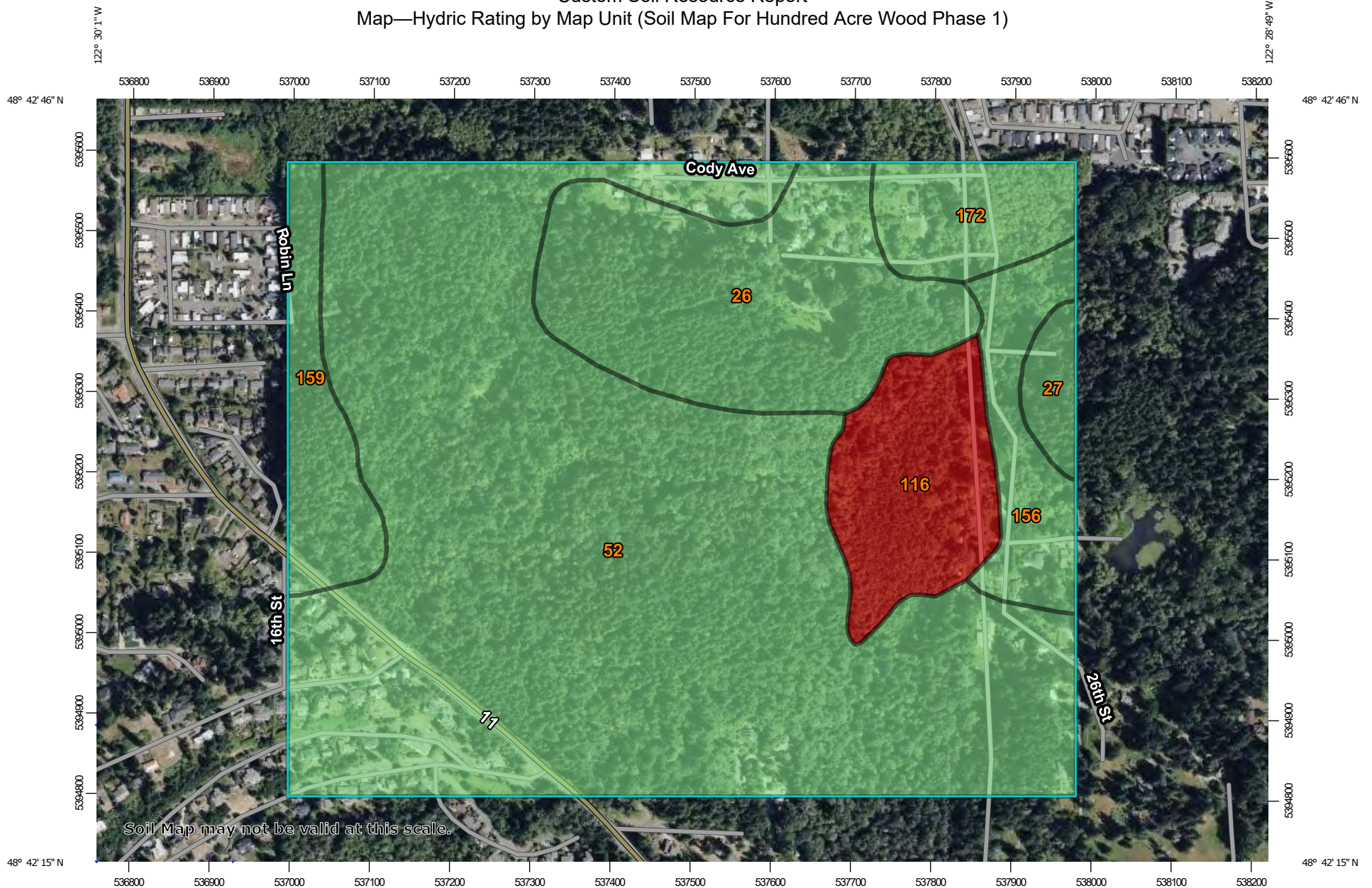
Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Custom Soil Resource Report
Map—Hydric Rating by Map Unit (Soil Map For Hundred Acre Wood Phase 1)



Map Scale: 1:6,680 if printed on A landscape (11" x 8.5") sheet.


0 50 100 200 300 Meters

0 300 600 1200 1800 Feet

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







MAP LEGEND

Area of Interest (AOI)







 Area of Interest (AOI)

Soils







Soil Rating Polygons

-  Hydric (100%)
-  Hydric (66 to 99%)
-  Hydric (33 to 65%)
-  Hydric (1 to 32%)
-  Not Hydric (0%)
-  Not rated or not available


Soil Rating Lines

-  Hydric (100%)
-  Hydric (66 to 99%)
-  Hydric (33 to 65%)
-  Hydric (1 to 32%)
-  Not Hydric (0%)
-  Not rated or not available






Soil Rating Points

-  Hydric (100%)
-  Hydric (66 to 99%)
-  Hydric (33 to 65%)
-  Hydric (1 to 32%)
-  Not Hydric (0%)
-  Not rated or not available


Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Whatcom County Area, Washington
 Survey Area Data: Version 23, Aug 29, 2023

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

Date(s) aerial images were photographed: Aug 14, 2022—Sep 1, 2022

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

Table—Hydric Rating by Map Unit (Soil Map For Hundred Acre Wood Phase 1)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
26	Chuckanut gravelly ashy sandy loam, 15 to 30 percent slopes	5	28.8	15.0%
27	Chuckanut gravelly ashy sandy loam, 30 to 65 percent slopes	5	2.8	1.5%
52	Everett-Urban land complex, 5 to 20 percent slopes	3	120.4	62.6%
116	Pangborn muck, drained, 0 to 2 percent slopes	100	14.0	7.3%
156	Squalicum gravelly loam, 5 to 15 percent slopes	2	9.2	4.8%
159	Squalicum-Urban land complex, 5 to 20 percent slopes	4	9.0	4.7%
172	Urban land-Whatcom-Labounty complex, 0 to 8 percent slopes	22	8.2	4.3%
Totals for Area of Interest			192.5	100.0%

Rating Options—Hydric Rating by Map Unit (Soil Map For Hundred Acre Wood Phase 1)

Aggregation Method: Percent Present

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

References

- American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.
- American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.
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- Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.
- United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.
- United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374
- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

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United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

Appendix D

Wetland Rating Forms

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Wetland name or number: AA

RATING SUMMARY - Western Washington

Name of wetland (or ID#): AA Date of site visit: 10/29/2018

Rated By: Danielle Rapoza Trained by Ecology? Yes [X] No [] Date of Training: 10/29/2018

HGM Class used for rating: Depressional

Wetland has multiple HGM classes? Yes [] No [X]

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

Source of base aerial photo/map: WATOR

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

1. Category of wetland based on FUNCTIONS

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

Score for each function based on three ratings

(order of ratings is not important)

9 = H,H,H

8 = H,H,M

7 = H,H,L

7 = H,M,M

6 = H,M,L

6 = M,M,M

5 = H,L,L

5 = M,M,L

4 = M,L,L

3 = L,L,L

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
Site Potential	M	M	L	
Landscape Potential	M	L	L	
Value	H	H	M	Total
Score Based on Ratings	7	6	4	17

2. Category based on SPECIAL CHARACTERISTICS of wetland

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

Wetland name or number: AA

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	AA-2
Hydroperiods	D 1.4, H 1.2	AA-3
Location of outlet (<i>can be added to map of hydroperiods</i>)	D 1.1, D 4.1	AA-1
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	D 2.2, D 5.2	AA-8
Map of the contributing basin	D 4.3, D 5.3	AA-4
1km Polygon: Area that extends 1km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	AA-5
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	AA-6
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	AA-7

Wetland name or number: AA

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 <u>What are the characteristics of surface water outflows from the wetland?</u>		
Wetland has no surface water outlet.	points = 3	
Wetland has an intermittently flowing, or highly constricted, outlet.	points = 2	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 1	
Wetland is a flat depression whose outlet is a permanently flowing ditch.	points = 1	Score: 2
D 1.2 <u>Is the soil 2 in. below the surface a true clay or organic soil?</u>		
Mapped as true clay or organic (muck or peat)	points = 4	
Soil texture identified as clay or organic in field	points = 4	
Soil texture identified as clay or organic by laboratory test	points = 4	
None of the above	points = 0	Score: 0
D 1.3 <u>What are the characteristics and distribution of persistent plants?</u>		
Wetland has persistent, ungrazed, plants > 95% of area	points = 5	
Wetland has persistent, ungrazed, plants > 50% of area	points = 3	
Wetland has persistent, ungrazed plants > 10% of area	points = 1	
Wetland has persistent, ungrazed plants < 10% of area	points = 0	Score: 5
D 1.4 <u>What are the characteristics of seasonal ponding or inundation in the wetland area?</u>		
Area seasonally ponded is > 50% total area of wetland	points = 4	
Area seasonally ponded is equal to or > 25% total area of wetland	points = 2	
Area seasonally ponded is < 25% total area of wetland	points = 0	Score: 0
Total for D 1:		7

Rating of Site Potential

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

Record the rating on the first page

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

Wetland name or number: AA

D 2.5 <u>What are the other sources of pollutants coming into the wetland?</u>	
Trails, dog waste	
Total for D 2:	1

Rating of Landscape Potential 3-4 = H 1-2 = M 0 = L *Record the rating on the first page*

D 3.0 <u>Is the water quality improvement provided by the site valuable to society?</u>	
D 3.1 <u>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?</u>	
Yes	points = 1
No	points = 0 Score: 0
D 3.2 <u>Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?</u>	
Yes	points = 1
No	points = 0 Score: 1
D 3.3 <u>Has the site been identified in a watershed or local plan as important for maintaining water quality?</u>	
Yes	points = 2
No	points = 0 Score: 2
Total for D 3:	3

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

<p><u>DEPRESSIONAL AND FLATS WETLANDS</u></p> <p>Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation</p>	
D 4.0 <u>Does the site have the potential to reduce flooding and erosion?</u>	
D 4.1 <u>What are the characteristics of surface water outflows from the wetland?</u>	
Wetland has no surface water outlet.	points = 4
Wetland has an intermittently flowing, or highly constricted, outlet.	points = 2
Wetland is a flat depression whose outlet is a permanently flowing ditch.	points = 1
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0 Score: 2
D 4.2 <u>What is the depth of storage during the wet periods?</u>	
Marks of ponding are 3ft or more above the surface or bottom of the outlet.	points = 7
Marks of ponding are between 2ft to <3ft from the surface or bottom of the outlet.	points = 5
Marks of ponding are at least 0.5ft to <2ft from the surface or the bottom of the outlet.	points = 3
The wetland is a "headwater" wetland.	points = 3
The wetland is flat but has small depressions on the surface that trap water.	points = 1
Marks of ponding are less than 0.5ft (6in).	points = 0 Score: 0

Wetland name or number: AA

D 4.3 <u>What is the contribution of the wetland to storage in the watershed?</u>		
The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
Entire wetland is in the Flats class	points = 5	Score: 5
Total for D 4:		7

Rating of Site Potential

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

Record the rating on the first page

D 5.0 Does the landscape have the potential to support hydrologic functions of the site?		
D 5.1 <u>Does the wetland unit receive stormwater discharges?</u>		
Yes	points = 1	
No	points = 0	Score: 0
D 5.2 <u>Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff?</u>		
Yes	points = 1	
No	points = 0	Score: 0
D 5.3 <u>Is more than 25% of the contributing basin of the wetland covered with intensive human land uses?</u>		
Yes	points = 1	
No	points = 0	Score: 0
Total for D 5:		0

Rating of Landscape Potential

3 = H 1-2 = 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 <u>Is the wetland in a landscape that has flooding problems?</u>		
Flooding occurs in a sub-basin that is immediately down-gradient of the wetland.	points = 2	
Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
Flooding from groundwater is an issue in the basin.	points = 1	
The existing or potential outflow from the wetland is so constrained that water cannot reach areas that flood.	points = 0	
There are no problems with flooding downstream of the wetland.	points = 0	Score: 2
D 6.2 <u>Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?</u>		
Yes	points = 2	
No	points = 0	Score: 0
Total for D 6:		2

Rating of Value

2-4 = H 1 = M 0 = L

Record the rating on the first page

Wetland name or number: AA

HABITAT FUNCTIONS

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

H 1.0 Does the wetland have the potential to provide habitat for many species?

H 1.1 What is the structure of the plant community?

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

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

H 1.2 What are the hydroperiods that meet the size thresholds in the wetland?

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

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

H 1.3 What is the richness of the plant species in the wetland?

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

Wetland name or number: AA

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

Rating of Site Potential

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

Record the rating on the first page

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

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

Wetland name or number: AA

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

Rating of Landscape Potential

[] 4-6 = H [] 1-3 = M [X] 0 = L

Record the rating on the first page

H 3.0 Is the habitat provided by the site valuable to society?

H 3.1 Does the site provide habitat for species valued in laws, regulations, or policies?		
<input type="checkbox"/> Aspen Stands		
<input type="checkbox"/> Biodiversity Areas and Corridors		
<input type="checkbox"/> Herbaceous Balds		
<input checked="" type="checkbox"/> Old-growth/Mature Forests		
<input type="checkbox"/> Oregon White Oak		
<input type="checkbox"/> Riparian		
<input type="checkbox"/> Westside Prarie		
<input type="checkbox"/> Fresh Deepwater		
<input type="checkbox"/> Instream		
<input type="checkbox"/> Nearshore (Coastal, Open Coast, Puget Sound)		
<input type="checkbox"/> Caves		
<input type="checkbox"/> Cliffs		
<input checked="" type="checkbox"/> Snags and Logs		
<input type="checkbox"/> Talus		
The following criteria automatically score 2 points:		
<input type="checkbox"/> The wetland provides habitat for Threatened or Endangered species		
<input type="checkbox"/> The wetland is mapped as a location for an individual WDFW priority species		
<input type="checkbox"/> The wetland is a Wetland of High Conservation Value		
<input type="checkbox"/> The wetland has been categorized as an important habitat site in a local plan		
The wetland has 3 or more WDFW priority habitats within 100m, or meets the criteria for societal value	points = 2	
The site has 1 or 2 WDFW priority habitats within 100m	points = 1	
The site does not meet any of the criteria for societal value	points = 0	Score: 1
Total for H 3:		1

Rating of Value

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

Record the rating on the first page

Wetland name or number: AA

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

SC 1.0 Estuarine Wetlands

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

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

Yes - Go to SC 1.2

No - Not an Estuarine Wetland

**Result: Not an
Estuarine Wetland**

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

Yes - Category I Estuarine Wetland

No - Go to SC 1.3

Result:

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

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

Yes - Category I Estuarine Wetland

No - Category II Estuarine Wetland

Result:

SC 2.0 Wetlands of High Conservation Value

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

Yes - Category I Wetland of High Conservation Value

No - Go to SC 2.2

Result: Go to SC 2.2

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

Yes - Category I Wetland of High Conservation Value

No - Not a Wetland of High Conservation Value

Result:

Wetland name or number: AA

SC 3.0 Bogs

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

Yes - Go to SC 3.3

No - Go to SC 3.2

Result: Go to SC 3.2

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

Yes - Go to SC 3.3

No - Not a Bog Wetland

Result: Not a Bog Wetland

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

Yes - Category I Bog Wetland

No - Go to SC 3.4

Result:

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

Yes - Category I Bog Wetland

No - Not a Bog Wetland

Result:

SC 4.0 Forested Wetlands

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

Old-growth forests

Mature forests

Yes - Category I Forested Wetland

No - Not a Forested Wetland

Result: Not a Forested Wetland

Wetland name or number: AA

SC 5.0 Wetlands in Coastal Lagoons

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

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

Yes - Go to SC 5.2

No - Not a Coastal Lagoon Wetland

Result: Not a Coastal Lagoon Wetland

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

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

Yes - Category I Coastal Lagoon

No - Category II Coastal Lagoon

Result:

SC 6.0 Interdunal Wetlands

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

Yes - Go to SC 6.2

No - Not an Interdunal Wetland

Result: Not an Interdunal Wetland

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

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

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

No - Go to SC 6.4

Result:

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

Yes - Category I Interdunal Wetland

No - Category II Interdunal Wetland

Result:

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

Yes - Category III Interdunal Wetland

No - Category IV Interdunal Wetland

Result:

Wetland name or number: AA

Category of wetland based on Special Characteristics

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

**Final Category: Not
Applicable**

Figure AA-1. Location of Outlet.



Figure AA-2. Map of Cowardin Classes.



Figure AA-3. Map of Hydroperiods.



Figure AA-4. Contributing Basin.



Figure AA-5. Habitat Within 1-kilometer.

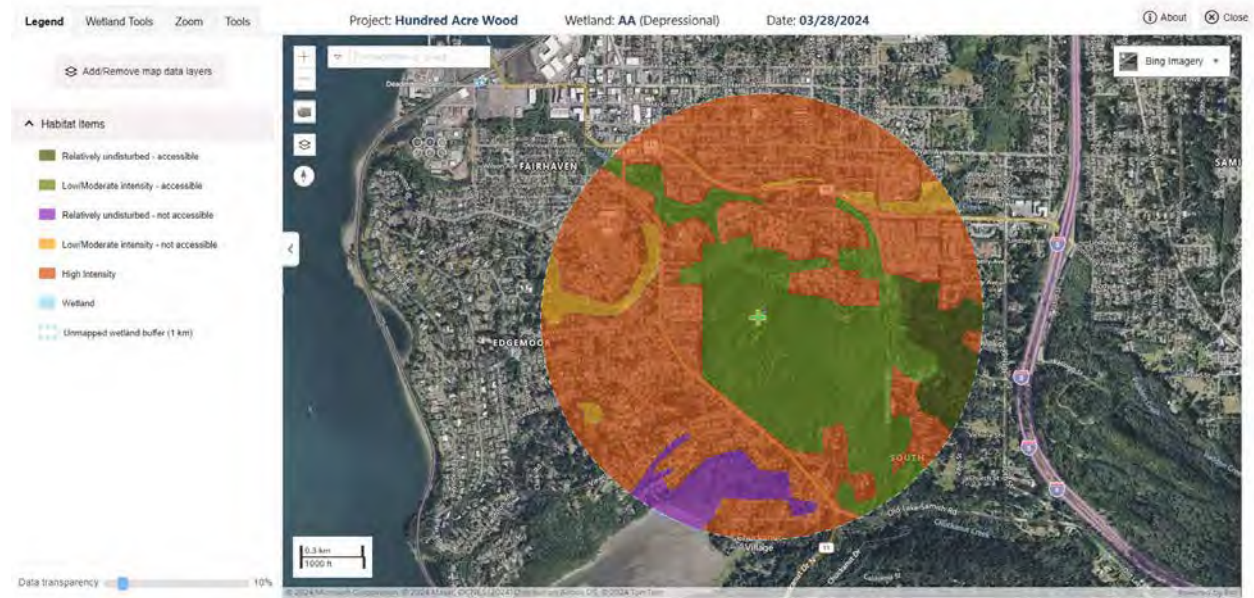


Figure AA-6. 303(d) Listed Waters in Basin.

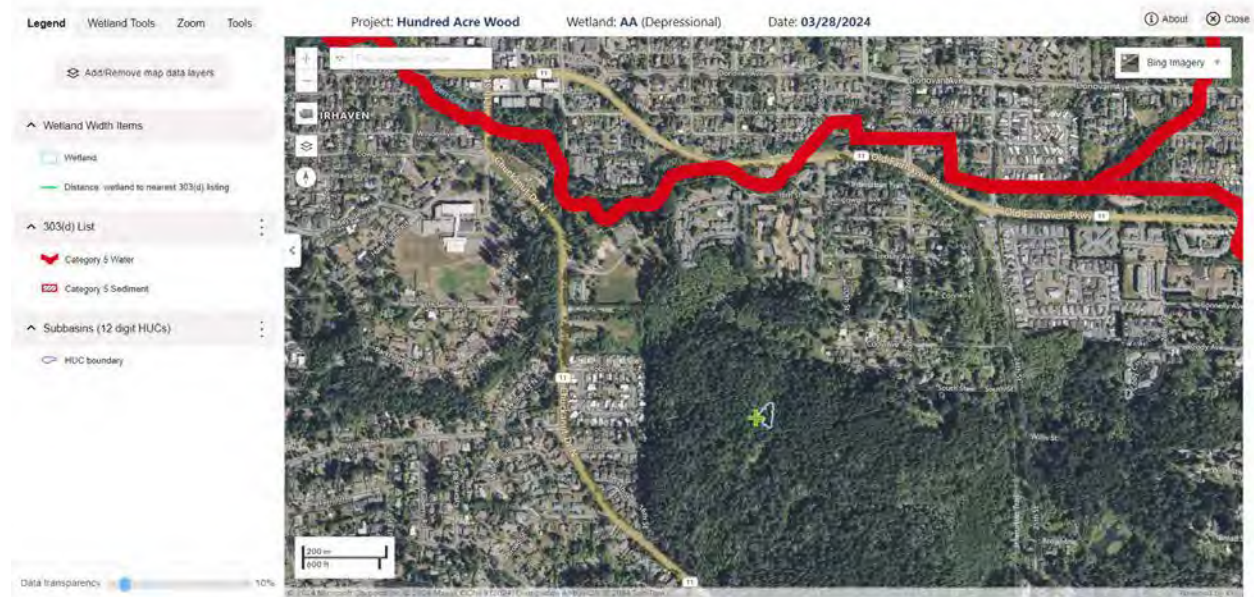


Figure AA-7. TMDLs in WRIA.

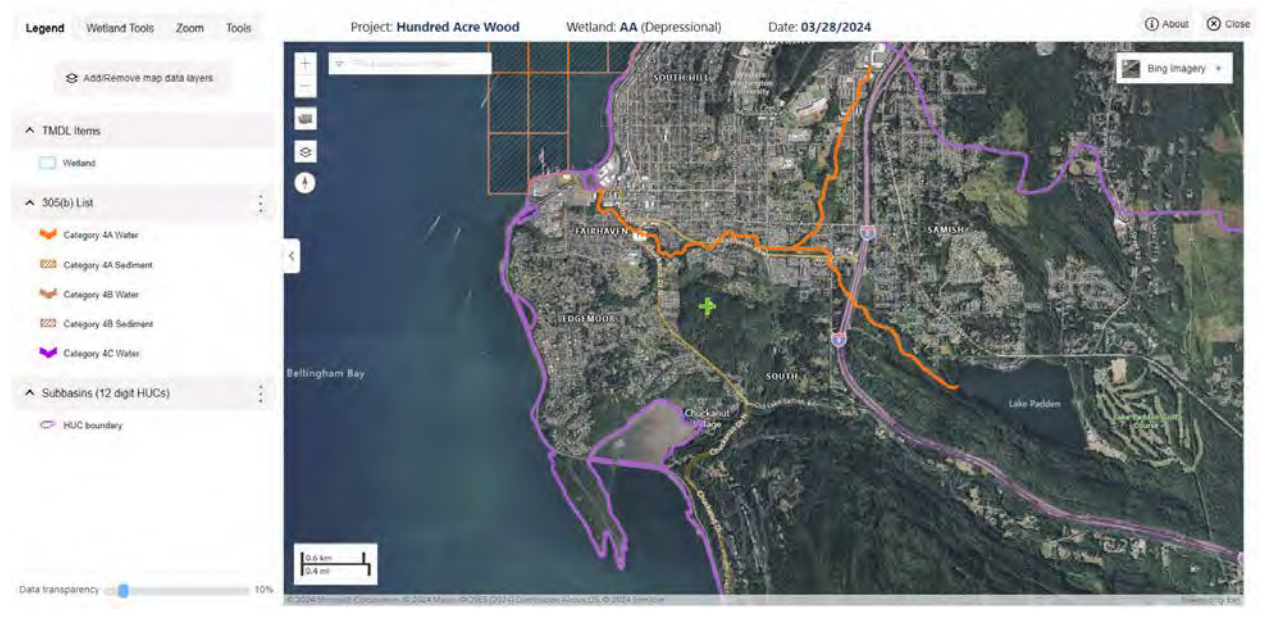


Figure AA-8. 150-foot Boundary and Land Use.



Wetland name or number: AX

RATING SUMMARY - Western Washington

Name of wetland (or ID#): AX Date of site visit: 02/15/2024

Rated By: Danielle Rapoza Trained by Ecology? Yes [X] No [] Date of Training: 10/29/2018

HGM Class used for rating: Depressional

Wetland has multiple HGM classes? Yes [] No [X]

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

Source of base aerial photo/map: WATOR

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

1. Category of wetland based on FUNCTIONS

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

Score for each function based on three ratings

(order of ratings is not important)

9 = H,H,H

8 = H,H,M

7 = H,H,L

7 = H,M,M

6 = H,M,L

6 = M,M,M

5 = H,L,L

5 = M,M,L

4 = M,L,L

3 = L,L,L

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
Site Potential	M	M	L	
Landscape Potential	M	L	L	
Value	H	H	M	Total
Score Based on Ratings	7	6	4	17

2. Category based on SPECIAL CHARACTERISTICS of wetland

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

Wetland name or number: AX

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	AX-2
Hydroperiods	D 1.4, H 1.2	AX-3
Location of outlet (<i>can be added to map of hydroperiods</i>)	D 1.1, D 4.1	AX-1
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	D 2.2, D 5.2	AX-8
Map of the contributing basin	D 4.3, D 5.3	AX-4
1km Polygon: Area that extends 1km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	AX-5
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	AX-6
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	AX-7

Wetland name or number: AX

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 <u>What are the characteristics of surface water outflows from the wetland?</u>		
Wetland has no surface water outlet.	points = 3	
Wetland has an intermittently flowing, or highly constricted, outlet.	points = 2	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 1	
Wetland is a flat depression whose outlet is a permanently flowing ditch.	points = 1	Score: 2
D 1.2 <u>Is the soil 2 in. below the surface a true clay or organic soil?</u>		
Mapped as true clay or organic (muck or peat)	points = 4	
Soil texture identified as clay or organic in field	points = 4	
Soil texture identified as clay or organic by laboratory test	points = 4	
None of the above	points = 0	Score: 0
D 1.3 <u>What are the characteristics and distribution of persistent plants?</u>		
Wetland has persistent, ungrazed, plants > 95% of area	points = 5	
Wetland has persistent, ungrazed, plants > 50% of area	points = 3	
Wetland has persistent, ungrazed plants > 10% of area	points = 1	
Wetland has persistent, ungrazed plants < 10% of area	points = 0	Score: 5
D 1.4 <u>What are the characteristics of seasonal ponding or inundation in the wetland area?</u>		
Area seasonally ponded is > 50% total area of wetland	points = 4	
Area seasonally ponded is equal to or > 25% total area of wetland	points = 2	
Area seasonally ponded is < 25% total area of wetland	points = 0	Score: 0
Total for D 1:		7

Rating of Site Potential

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

Record the rating on the first page

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

Wetland name or number: AX

D 2.5 <u>What are the other sources of pollutants coming into the wetland?</u>	
Trails, dog waste	
Total for D 2:	1

Rating of Landscape Potential 3-4 = H 1-2 = M 0 = L *Record the rating on the first page*

D 3.0 <u>Is the water quality improvement provided by the site valuable to society?</u>	
D 3.1 <u>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?</u>	
Yes	points = 1
No	points = 0 Score: 0
D 3.2 <u>Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?</u>	
Yes	points = 1
No	points = 0 Score: 1
D 3.3 <u>Has the site been identified in a watershed or local plan as important for maintaining water quality?</u>	
Yes	points = 2
No	points = 0 Score: 2
Total for D 3:	3

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

<p><u>DEPRESSIONAL AND FLATS WETLANDS</u></p> <p>Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation</p>	
D 4.0 <u>Does the site have the potential to reduce flooding and erosion?</u>	
D 4.1 <u>What are the characteristics of surface water outflows from the wetland?</u>	
Wetland has no surface water outlet.	points = 4
Wetland has an intermittently flowing, or highly constricted, outlet.	points = 2
Wetland is a flat depression whose outlet is a permanently flowing ditch.	points = 1
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0 Score: 2
D 4.2 <u>What is the depth of storage during the wet periods?</u>	
Marks of ponding are 3ft or more above the surface or bottom of the outlet.	points = 7
Marks of ponding are between 2ft to <3ft from the surface or bottom of the outlet.	points = 5
Marks of ponding are at least 0.5ft to <2ft from the surface or the bottom of the outlet.	points = 3
The wetland is a "headwater" wetland.	points = 3
The wetland is flat but has small depressions on the surface that trap water.	points = 1
Marks of ponding are less than 0.5ft (6in).	points = 0 Score: 0

Wetland name or number: AX

D 4.3 <u>What is the contribution of the wetland to storage in the watershed?</u>		
The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
Entire wetland is in the Flats class	points = 5	Score: 5
Total for D 4:		7

Rating of Site Potential

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

Record the rating on the first page

D 5.0 <u>Does the landscape have the potential to support hydrologic functions of the site?</u>		
D 5.1 <u>Does the wetland unit receive stormwater discharges?</u>		
Yes	points = 1	
No	points = 0	Score: 0
D 5.2 <u>Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff?</u>		
Yes	points = 1	
No	points = 0	Score: 0
D 5.3 <u>Is more than 25% of the contributing basin of the wetland covered with intensive human land uses?</u>		
Yes	points = 1	
No	points = 0	Score: 0
Total for D 5:		0

Rating of Landscape Potential

3 = H 1-2 = M 0 = L

Record the rating on the first page

D 6.0 <u>Are the hydrologic functions provided by the site valuable to society?</u>		
D 6.1 <u>Is the wetland in a landscape that has flooding problems?</u>		
Flooding occurs in a sub-basin that is immediately down-gradient of the wetland.	points = 2	
Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
Flooding from groundwater is an issue in the basin.	points = 1	
The existing or potential outflow from the wetland is so constrained that water cannot reach areas that flood.	points = 0	
There are no problems with flooding downstream of the wetland.	points = 0	Score: 2
D 6.2 <u>Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?</u>		
Yes	points = 2	
No	points = 0	Score: 0
Total for D 6:		2

Rating of Value

2-4 = H 1 = M 0 = L

Record the rating on the first page

Wetland name or number: AX

HABITAT FUNCTIONS

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

H 1.0 Does the wetland have the potential to provide habitat for many species?

H 1.1 What is the structure of the plant community?

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

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

H 1.2 What are the hydroperiods that meet the size thresholds in the wetland?

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

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

H 1.3 What is the richness of the plant species in the wetland?

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

Wetland name or number: AX

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

Rating of Site Potential

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

Record the rating on the first page

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

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

Wetland name or number: AX

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

Rating of Landscape Potential [] 4-6 = H [] 1-3 = M [X] 0 = L *Record the rating on the first page*

H 3.0 Is the habitat provided by the site valuable to society?

H 3.1 Does the site provide habitat for species valued in laws, regulations, or policies?		
<input type="checkbox"/> Aspen Stands		
<input type="checkbox"/> Biodiversity Areas and Corridors		
<input type="checkbox"/> Herbaceous Balds		
<input checked="" type="checkbox"/> Old-growth/Mature Forests		
<input type="checkbox"/> Oregon White Oak		
<input type="checkbox"/> Riparian		
<input type="checkbox"/> Westside Prarie		
<input type="checkbox"/> Fresh Deepwater		
<input type="checkbox"/> Instream		
<input type="checkbox"/> Nearshore (Coastal, Open Coast, Puget Sound)		
<input type="checkbox"/> Caves		
<input type="checkbox"/> Cliffs		
<input checked="" type="checkbox"/> Snags and Logs		
<input type="checkbox"/> Talus		
The following criteria automatically score 2 points:		
<input type="checkbox"/> The wetland provides habitat for Threatened or Endangered species		
<input type="checkbox"/> The wetland is mapped as a location for an individual WDFW priority species		
<input type="checkbox"/> The wetland is a Wetland of High Conservation Value		
<input type="checkbox"/> The wetland has been categorized as an important habitat site in a local plan		
The wetland has 3 or more WDFW priority habitats within 100m, or meets the criteria for societal value	points = 2	
The site has 1 or 2 WDFW priority habitats within 100m	points = 1	
The site does not meet any of the criteria for societal value	points = 0	Score: 1
Total for H 3:		1

Rating of Value [] 2 = H [X] 1 = M [] 0 = L *Record the rating on the first page*

Wetland name or number: AX

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

SC 1.0 Estuarine Wetlands

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

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

Yes - Go to SC 1.2

No - Not an Estuarine Wetland

**Result: Not an
Estuarine Wetland**

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

Yes - Category I Estuarine Wetland

No - Go to SC 1.3

Result:

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

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

Yes - Category I Estuarine Wetland

No - Category II Estuarine Wetland

Result:

SC 2.0 Wetlands of High Conservation Value

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

Yes - Category I Wetland of High Conservation Value

No - Go to SC 2.2

Result: Go to SC 2.2

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

Yes - Category I Wetland of High Conservation Value

No - Not a Wetland of High Conservation Value

**Result: Not a Wetland
of High Conservation
Value**

Wetland name or number: AX

SC 3.0 Bogs

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

Yes - Go to SC 3.3

No - Go to SC 3.2

Result: Go to SC 3.2

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

Yes - Go to SC 3.3

No - Not a Bog Wetland

Result: Not a Bog Wetland

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

Yes - Category I Bog Wetland

No - Go to SC 3.4

Result:

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

Yes - Category I Bog Wetland

No - Not a Bog Wetland

Result:

SC 4.0 Forested Wetlands

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

Old-growth forests

Mature forests

Yes - Category I Forested Wetland

No - Not a Forested Wetland

Result: Not a Forested Wetland

Wetland name or number: AX

SC 5.0 Wetlands in Coastal Lagoons

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

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

Yes - Go to SC 5.2

No - Not a Coastal Lagoon Wetland

Result: Not a Coastal Lagoon Wetland

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

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

Yes - Category I Coastal Lagoon

No - Category II Coastal Lagoon

Result:

SC 6.0 Interdunal Wetlands

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

Yes - Go to SC 6.2

No - Not an Interdunal Wetland

Result: Not an Interdunal Wetland

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

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

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

No - Go to SC 6.4

Result:

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

Yes - Category I Interdunal Wetland

No - Category II Interdunal Wetland

Result:

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

Yes - Category III Interdunal Wetland

No - Category IV Interdunal Wetland

Result:

Wetland name or number: AX

Category of wetland based on Special Characteristics

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

**Final Category: Not
Applicable**

Figure AX-1. Location of Outlet.



Figure AX-2. Map of Cowardin Classes.

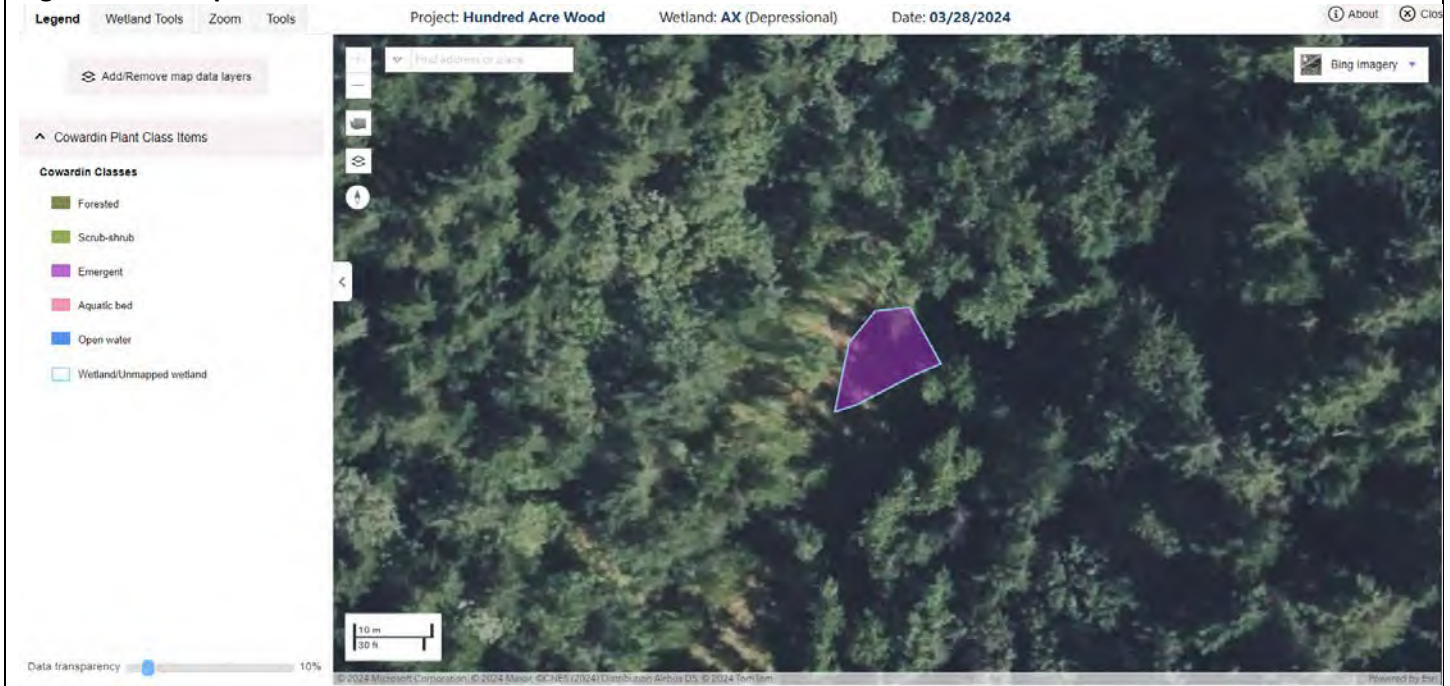


Figure AX-3. Map of Hydroperiods.

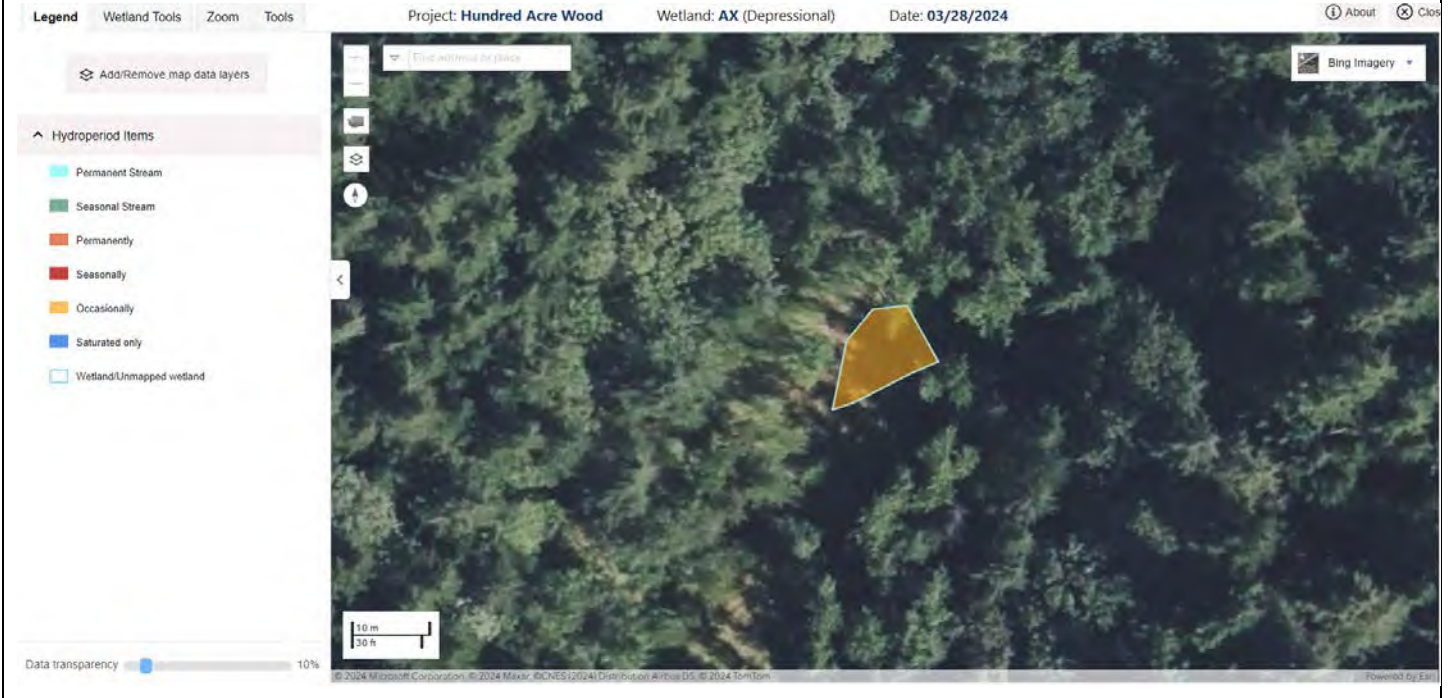


Figure AX-4. Contributing Basin.



Figure AX-5. Habitat Within 1-kilometer.



Figure AX-6. 303(d) Listed Waters in Basin.

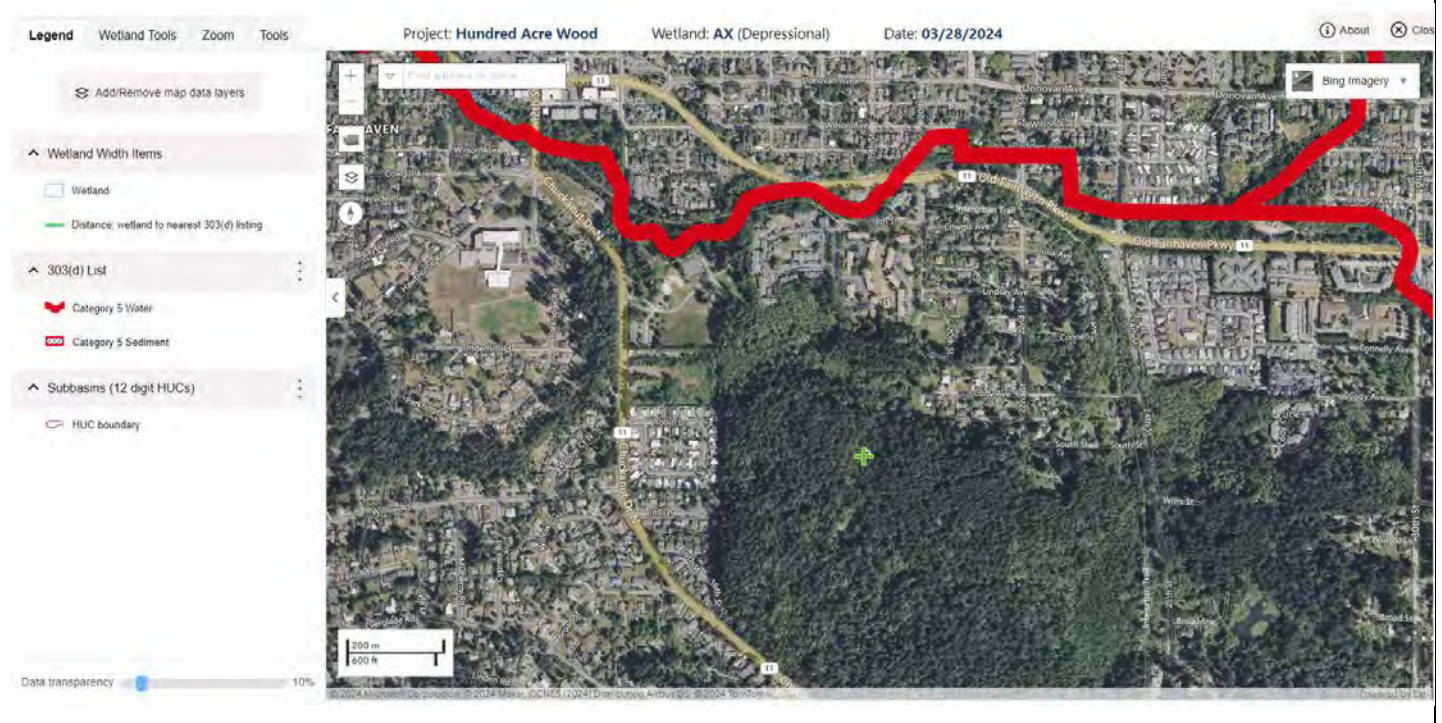


Figure AX-7. TMDLs in WRIA.

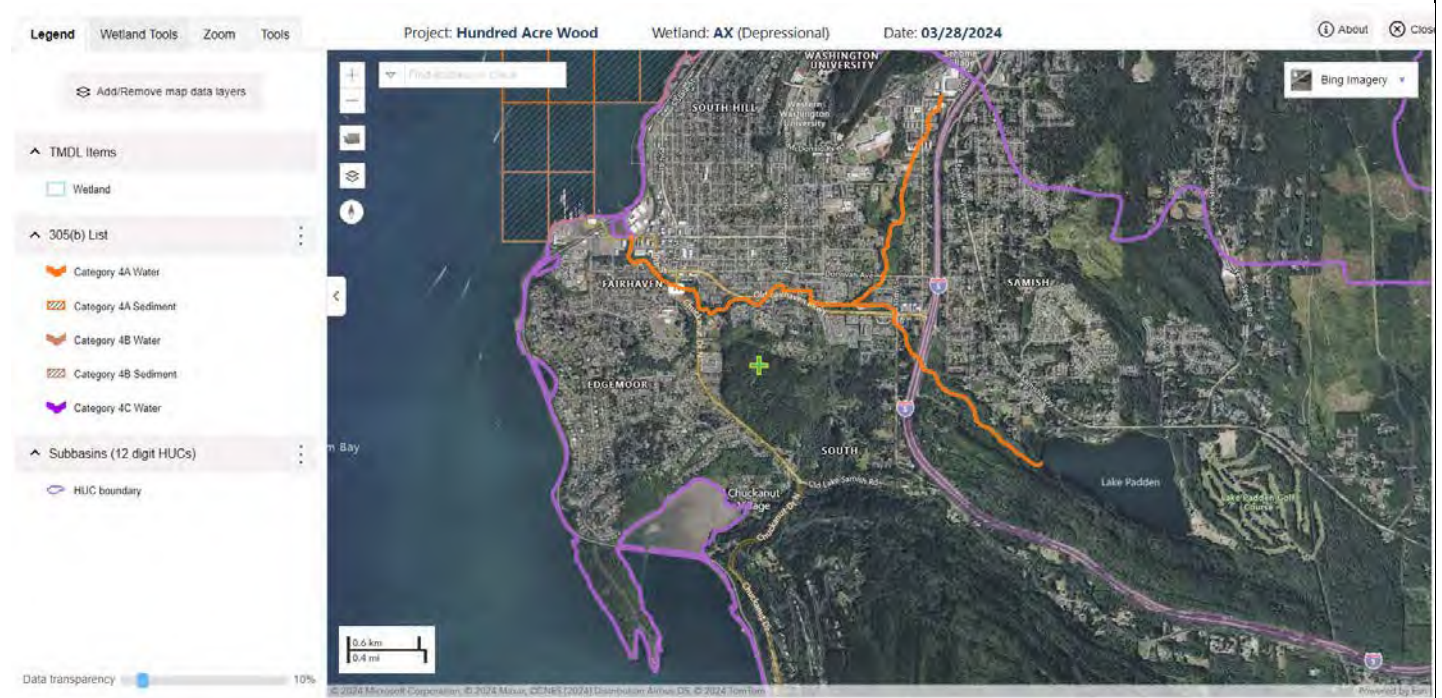


Figure AX-8. 150-foot Boundary and Land Use.



Wetland name or number: AY

RATING SUMMARY - Western Washington

Name of wetland (or ID#): AY Date of site visit: 02/15/2024

Rated By: Danielle Rapoza Trained by Ecology? Yes [X] No [] Date of Training: 10/29/2018

HGM Class used for rating: Depressional

Wetland has multiple HGM classes? Yes [] No [X]

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

Source of base aerial photo/map: WATOR

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

1. Category of wetland based on FUNCTIONS

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

Score for each function based on three ratings

(order of ratings is not important)

9 = H,H,H

8 = H,H,M

7 = H,H,L

7 = H,M,M

6 = H,M,L

6 = M,M,M

5 = H,L,L

5 = M,M,L

4 = M,L,L

3 = L,L,L

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
Site Potential	M	L	L	
Landscape Potential	M	L	L	
Value	H	H	M	Total
Score Based on Ratings	7	5	4	16

2. Category based on SPECIAL CHARACTERISTICS of wetland

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

Wetland name or number: AY

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	AY-2
Hydroperiods	D 1.4, H 1.2	AY-3
Location of outlet (<i>can be added to map of hydroperiods</i>)	D 1.1, D 4.1	AY-1
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	D 2.2, D 5.2	AY-8
Map of the contributing basin	D 4.3, D 5.3	AY-4
1km Polygon: Area that extends 1km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	AY-5
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	AY-6
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	AY-7

Wetland name or number: AY

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** What are the characteristics of surface water outflows from the wetland?

Wetland has no surface water outlet.	points = 3	
Wetland has an intermittently flowing, or highly constricted, outlet.	points = 2	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 1	
Wetland is a flat depression whose outlet is a permanently flowing ditch.	points = 1	Score: 2

D 1.2 Is the soil 2 in. below the surface a true clay or organic soil?

Mapped as true clay or organic (muck or peat)	points = 4	
Soil texture identified as clay or organic in field	points = 4	
Soil texture identified as clay or organic by laboratory test	points = 4	
None of the above	points = 0	Score: 0

D 1.3 What are the characteristics and distribution of persistent plants?

Wetland has persistent, ungrazed, plants > 95% of area	points = 5	
Wetland has persistent, ungrazed, plants > 50% of area	points = 3	
Wetland has persistent, ungrazed plants > 10% of area	points = 1	
Wetland has persistent, ungrazed plants < 10% of area	points = 0	Score: 5

D 1.4 What are the characteristics of seasonal ponding or inundation in the wetland area?

Area seasonally ponded is > 50% total area of wetland	points = 4	
Area seasonally ponded is equal to or > 25% total area of wetland	points = 2	
Area seasonally ponded is < 25% total area of wetland	points = 0	Score: 0

Total for D 1: **7****Rating of Site Potential**

[] 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	points = 1	
No	points = 0	Score: 0

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

Yes	points = 1	
No	points = 0	Score: 0

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

Yes	points = 1	
No	points = 0	Score: 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	points = 1	
No	points = 0	Score: 1

Wetland name or number: AY

D 2.5 <u>What are the other sources of pollutants coming into the wetland?</u>	
Trails, pet waste	
Total for D 2:	1

Rating of Landscape Potential 3-4 = H 1-2 = M 0 = L *Record the rating on the first page*

D 3.0 <u>Is the water quality improvement provided by the site valuable to society?</u>	
D 3.1 <u>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?</u>	
Yes	points = 1
No	points = 0 Score: 0
D 3.2 <u>Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?</u>	
Yes	points = 1
No	points = 0 Score: 1
D 3.3 <u>Has the site been identified in a watershed or local plan as important for maintaining water quality?</u>	
Yes	points = 2
No	points = 0 Score: 2
Total for D 3:	3

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

<p><u>DEPRESSIONAL AND FLATS WETLANDS</u></p> <p>Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation</p>	
D 4.0 <u>Does the site have the potential to reduce flooding and erosion?</u>	
D 4.1 <u>What are the characteristics of surface water outflows from the wetland?</u>	
Wetland has no surface water outlet.	points = 4
Wetland has an intermittently flowing, or highly constricted, outlet.	points = 2
Wetland is a flat depression whose outlet is a permanently flowing ditch.	points = 1
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0 Score: 2
D 4.2 <u>What is the depth of storage during the wet periods?</u>	
Marks of ponding are 3ft or more above the surface or bottom of the outlet.	points = 7
Marks of ponding are between 2ft to <3ft from the surface or bottom of the outlet.	points = 5
Marks of ponding are at least 0.5ft to <2ft from the surface or the bottom of the outlet.	points = 3
The wetland is a "headwater" wetland.	points = 3
The wetland is flat but has small depressions on the surface that trap water.	points = 1
Marks of ponding are less than 0.5ft (6in).	points = 0 Score: 0

Wetland name or number: AY

D 4.3 <u>What is the contribution of the wetland to storage in the watershed?</u>		
The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
Entire wetland is in the Flats class	points = 5	Score: 3
Total for D 4:		5

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

D 5.0 <u>Does the landscape have the potential to support hydrologic functions of the site?</u>		
D 5.1 <u>Does the wetland unit receive stormwater discharges?</u>		
Yes	points = 1	
No	points = 0	Score: 0
D 5.2 <u>Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff?</u>		
Yes	points = 1	
No	points = 0	Score: 0
D 5.3 <u>Is more than 25% of the contributing basin of the wetland covered with intensive human land uses?</u>		
Yes	points = 1	
No	points = 0	Score: 0
Total for D 5:		0

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

D 6.0 <u>Are the hydrologic functions provided by the site valuable to society?</u>		
D 6.1 <u>Is the wetland in a landscape that has flooding problems?</u>		
Flooding occurs in a sub-basin that is immediately down-gradient of the wetland.	points = 2	
Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
Flooding from groundwater is an issue in the basin.	points = 1	
The existing or potential outflow from the wetland is so constrained that water cannot reach areas that flood.	points = 0	
There are no problems with flooding downstream of the wetland.	points = 0	Score: 2
D 6.2 <u>Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?</u>		
Yes	points = 2	
No	points = 0	Score: 0
Total for D 6:		2

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

Wetland name or number: AY

HABITAT FUNCTIONS

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

H 1.0 Does the wetland have the potential to provide habitat for many species?

H 1.1 What is the structure of the plant community?

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

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

H 1.2 What are the hydroperiods that meet the size thresholds in the wetland?

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

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

H 1.3 What is the richness of the plant species in the wetland?

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

Wetland name or number: AY

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

Rating of Site Potential

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

Record the rating on the first page

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

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

Wetland name or number: AY

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

Rating of Landscape Potential

[] 4-6 = H [] 1-3 = M [X] 0 = L

Record the rating on the first page

H 3.0 Is the habitat provided by the site valuable to society?

H 3.1 Does the site provide habitat for species valued in laws, regulations, or policies?		
<input type="checkbox"/> Aspen Stands		
<input type="checkbox"/> Biodiversity Areas and Corridors		
<input type="checkbox"/> Herbaceous Balds		
<input checked="" type="checkbox"/> Old-growth/Mature Forests		
<input type="checkbox"/> Oregon White Oak		
<input type="checkbox"/> Riparian		
<input type="checkbox"/> Westside Prarie		
<input type="checkbox"/> Fresh Deepwater		
<input type="checkbox"/> Instream		
<input type="checkbox"/> Nearshore (Coastal, Open Coast, Puget Sound)		
<input type="checkbox"/> Caves		
<input type="checkbox"/> Cliffs		
<input checked="" type="checkbox"/> Snags and Logs		
<input type="checkbox"/> Talus		
The following criteria automatically score 2 points:		
<input type="checkbox"/> The wetland provides habitat for Threatened or Endangered species		
<input type="checkbox"/> The wetland is mapped as a location for an individual WDFW priority species		
<input type="checkbox"/> The wetland is a Wetland of High Conservation Value		
<input type="checkbox"/> The wetland has been categorized as an important habitat site in a local plan		
The wetland has 3 or more WDFW priority habitats within 100m, or meets the criteria for societal value	points = 2	
The site has 1 or 2 WDFW priority habitats within 100m	points = 1	
The site does not meet any of the criteria for societal value	points = 0	Score: 1
Total for H 3:		1

Rating of Value

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

Record the rating on the first page

Wetland name or number: AY

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

SC 1.0 Estuarine Wetlands

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

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

Yes - Go to SC 1.2

No - Not an Estuarine Wetland

**Result: Not an
Estuarine Wetland**

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

Yes - Category I Estuarine Wetland

No - Go to SC 1.3

Result:

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

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

Yes - Category I Estuarine Wetland

No - Category II Estuarine Wetland

Result:

SC 2.0 Wetlands of High Conservation Value

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

Yes - Category I Wetland of High Conservation Value

No - Go to SC 2.2

Result: Go to SC 2.2

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

Yes - Category I Wetland of High Conservation Value

No - Not a Wetland of High Conservation Value

**Result: Not a Wetland
of High Conservation
Value**

Wetland name or number: AY

SC 3.0 Bogs

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

Yes - Go to SC 3.3

No - Go to SC 3.2

Result: Go to SC 3.2

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

Yes - Go to SC 3.3

No - Not a Bog Wetland

Result: Not a Bog Wetland

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

Yes - Category I Bog Wetland

No - Go to SC 3.4

Result:

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

Yes - Category I Bog Wetland

No - Not a Bog Wetland

Result:

SC 4.0 Forested Wetlands

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

Old-growth forests

Mature forests

Yes - Category I Forested Wetland

No - Not a Forested Wetland

Result: Not a Forested Wetland

Wetland name or number: AY

SC 5.0 Wetlands in Coastal Lagoons

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

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

Yes - Go to SC 5.2

No - Not a Coastal Lagoon Wetland

Result: Not a Coastal Lagoon Wetland

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

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

Yes - Category I Coastal Lagoon

No - Category II Coastal Lagoon

Result:

SC 6.0 Interdunal Wetlands

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

Yes - Go to SC 6.2

No - Not an Interdunal Wetland

Result: Not an Interdunal Wetland

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

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

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

No - Go to SC 6.4

Result:

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

Yes - Category I Interdunal Wetland

No - Category II Interdunal Wetland

Result:

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

Yes - Category III Interdunal Wetland

No - Category IV Interdunal Wetland

Result:

Wetland name or number: AY

Category of wetland based on Special Characteristics

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

**Final Category: Not
Applicable**

Figure AY-1. Location of Outlet.



Figure AY-2. Map of Cowardin Classes.



Figure AY-3. Map of Hydroperiods.

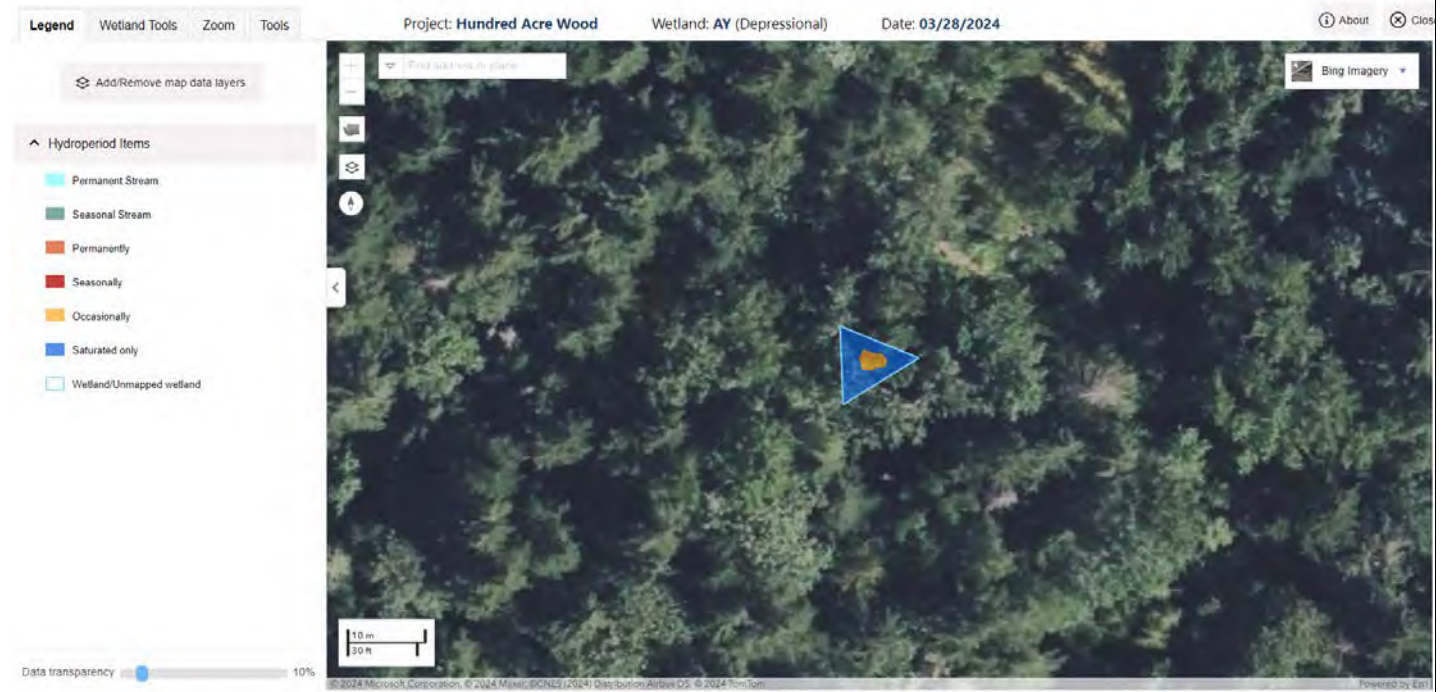


Figure AY-4. Contributing Basin.



Figure AY-5. Habitat Within 1-kilometer.



Figure AY-6. 303(d) Listed Waters in Basin.

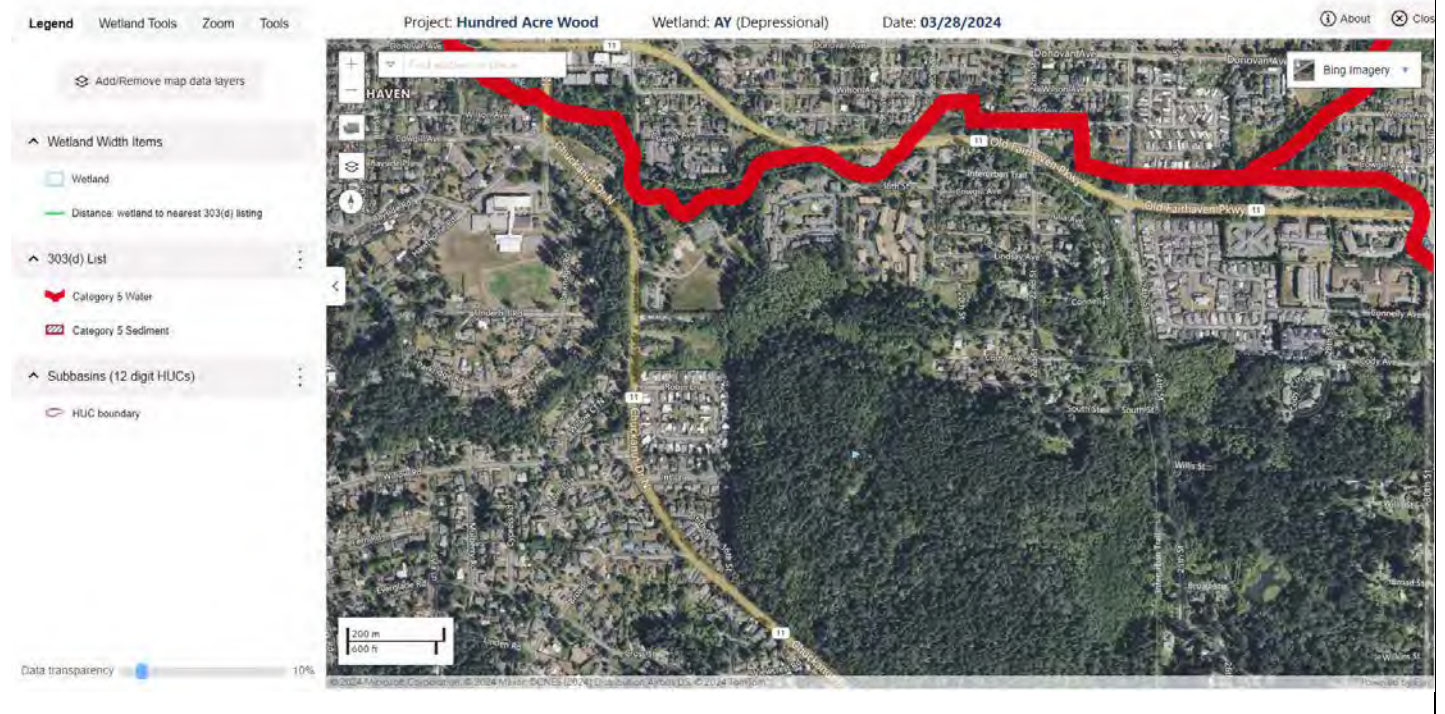


Figure AY-7. TMDLs in WRIA.

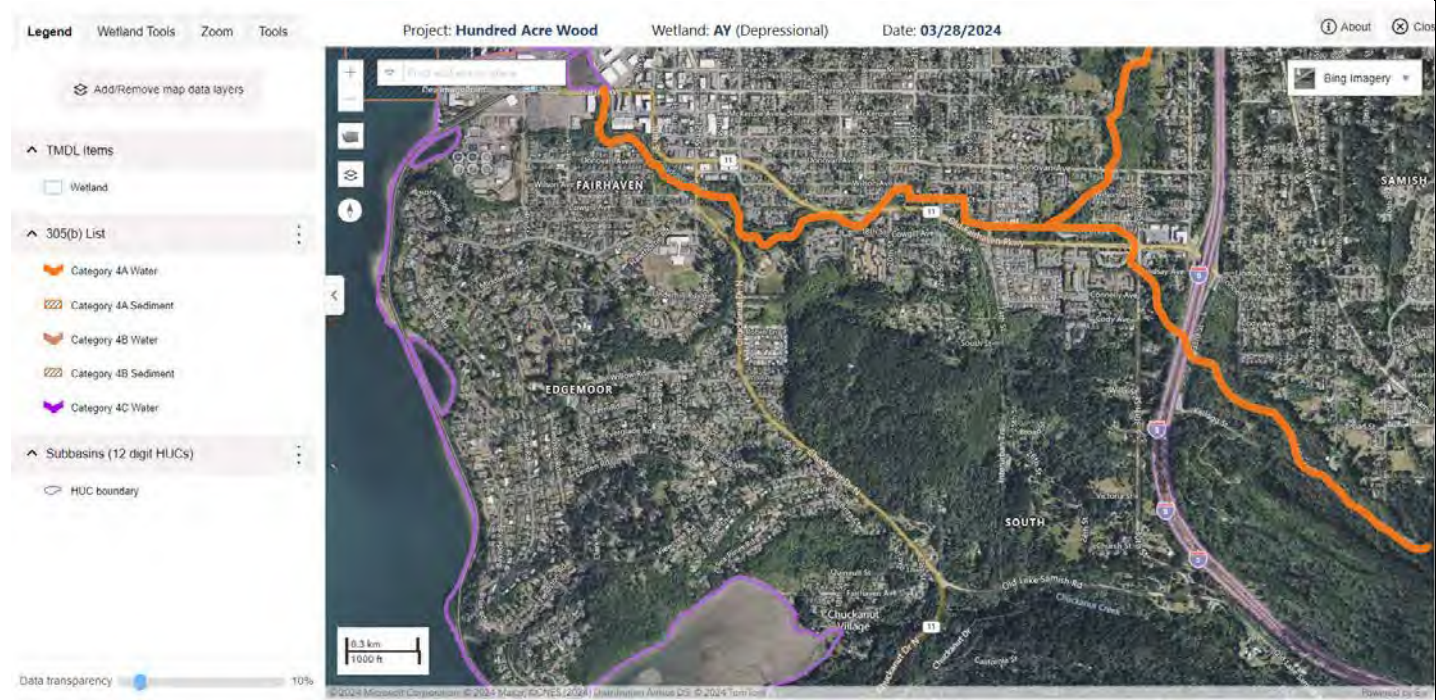


Figure AY-8. 150-foot Boundary and Land Use.



Wetland name or number: AZ

RATING SUMMARY - Western Washington

Name of wetland (or ID#): AZ Date of site visit: 02/15/2024

Rated By: Danielle Rapoza Trained by Ecology? Yes No Date of Training: 10/29/2018

HGM Class used for rating: Depressional

Wetland has multiple HGM classes? Yes No

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

Source of base aerial photo/map: WATOR

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

1. Category of wetland based on FUNCTIONS

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

Score for each function based on three ratings

(order of ratings is not important)

9 = H,H,H

8 = H,H,M

7 = H,H,L

7 = H,M,M

6 = H,M,L

6 = M,M,M

5 = H,L,L

5 = M,M,L

4 = M,L,L

3 = L,L,L

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
Site Potential	L	L	L	
Landscape Potential	M	L	L	
Value	H	H	M	Total
Score Based on Ratings	6	5	4	15

2. Category based on SPECIAL CHARACTERISTICS of wetland

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

Wetland name or number: AZ

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	AZ-2
Hydroperiods	D 1.4, H 1.2	AZ-3
Location of outlet (<i>can be added to map of hydroperiods</i>)	D 1.1, D 4.1	AZ-1
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	D 2.2, D 5.2	AZ-8
Map of the contributing basin	D 4.3, D 5.3	AZ-4
1km Polygon: Area that extends 1km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	AZ-5
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	AZ-6
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	AZ-7

Wetland name or number: AZ

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** What are the characteristics of surface water outflows from the wetland?

Wetland has no surface water outlet.	points = 3	
Wetland has an intermittently flowing, or highly constricted, outlet.	points = 2	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 1	
Wetland is a flat depression whose outlet is a permanently flowing ditch.	points = 1	Score: 2

D 1.2 Is the soil 2 in. below the surface a true clay or organic soil?

Mapped as true clay or organic (muck or peat)	points = 4	
Soil texture identified as clay or organic in field	points = 4	
Soil texture identified as clay or organic by laboratory test	points = 4	
None of the above	points = 0	Score: 0

D 1.3 What are the characteristics and distribution of persistent plants?

Wetland has persistent, ungrazed, plants > 95% of area	points = 5	
Wetland has persistent, ungrazed, plants > 50% of area	points = 3	
Wetland has persistent, ungrazed plants > 10% of area	points = 1	
Wetland has persistent, ungrazed plants < 10% of area	points = 0	Score: 1

D 1.4 What are the characteristics of seasonal ponding or inundation in the wetland area?

Area seasonally ponded is > 50% total area of wetland	points = 4	
Area seasonally ponded is equal to or > 25% total area of wetland	points = 2	
Area seasonally ponded is < 25% total area of wetland	points = 0	Score: 0

Total for D 1: **3****Rating of Site Potential**

[] 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	points = 1	
No	points = 0	Score: 0

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

Yes	points = 1	
No	points = 0	Score: 0

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

Yes	points = 1	
No	points = 0	Score: 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	points = 1	
No	points = 0	Score: 1

Wetland name or number: AZ**D 2.5** What are the other sources of pollutants coming into the wetland?

Trails, pet waste

Total for D 2:**1****Rating of Landscape Potential**

[] 3-4 = H [X] 1-2 = 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 points = 1

No points = 0

Score: 0**D 3.2** Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?

Yes points = 1

No points = 0

Score: 1**D 3.3** Has the site been identified in a watershed or local plan as important for maintaining water quality?

Yes points = 2

No points = 0

Score: 2**Total for D 3:****3****Rating of Value**

[X] 2-4 = H [] 1 = M [] 0 = L

Record the rating on the first page

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions

 - Indicators that the site functions to reduce flooding and stream degradation**D 4.0** Does the site have the potential to reduce flooding and erosion?**D 4.1** What are the characteristics of surface water outflows from the wetland?

Wetland has no surface water outlet. points = 4

Wetland has an intermittently flowing, or highly constricted, outlet. points = 2

Wetland is a flat depression whose outlet is a permanently flowing ditch. points = 1

Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 0

Score: 2**D 4.2** What is the depth of storage during the wet periods?

Marks of ponding are 3ft or more above the surface or bottom of the outlet. points = 7

Marks of ponding are between 2ft to <3ft from the surface or bottom of the outlet. points = 5

Marks of ponding are at least 0.5ft to <2ft from the surface or the bottom of the outlet. points = 3

The wetland is a "headwater" wetland. points = 3

The wetland is flat but has small depressions on the surface that trap water. points = 1

Marks of ponding are less than 0.5ft (6in). points = 0

Score: 0

Wetland name or number: AZ

D 4.3 <u>What is the contribution of the wetland to storage in the watershed?</u>		
The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
Entire wetland is in the Flats class	points = 5	Score: 3
Total for D 4:		5

Rating of Site Potential

[] 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 <u>Does the wetland unit receive stormwater discharges?</u>		
Yes	points = 1	
No	points = 0	Score: 0
D 5.2 <u>Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff?</u>		
Yes	points = 1	
No	points = 0	Score: 0
D 5.3 <u>Is more than 25% of the contributing basin of the wetland covered with intensive human land uses?</u>		
Yes	points = 1	
No	points = 0	Score: 0
Total for D 5:		0

Rating of Landscape Potential

[] 3 = H [] 1-2 = M [X] 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 <u>Is the wetland in a landscape that has flooding problems?</u>		
Flooding occurs in a sub-basin that is immediately down-gradient of the wetland.	points = 2	
Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
Flooding from groundwater is an issue in the basin.	points = 1	
The existing or potential outflow from the wetland is so constrained that water cannot reach areas that flood.	points = 0	
There are no problems with flooding downstream of the wetland.	points = 0	Score: 2
D 6.2 <u>Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?</u>		
Yes	points = 2	
No	points = 0	Score: 0
Total for D 6:		2

Rating of Value

[X] 2-4 = H [] 1 = M [] 0 = L

Record the rating on the first page

Wetland name or number: AZ

HABITAT FUNCTIONS

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

H 1.0 Does the wetland have the potential to provide habitat for many species?

H 1.1 What is the structure of the plant community?

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

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

H 1.2 What are the hydroperiods that meet the size thresholds in the wetland?

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

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

H 1.3 What is the richness of the plant species in the wetland?

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

Wetland name or number: AZ

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

Rating of Site Potential

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

*Record the rating on the first page***H 2.0 Does the landscape have the potential to support habitat functions of the site?**

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

Wetland name or number: AZ

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

Rating of Landscape Potential

[] 4-6 = H [] 1-3 = M [X] 0 = L

Record the rating on the first page

H 3.0 Is the habitat provided by the site valuable to society?

H 3.1 Does the site provide habitat for species valued in laws, regulations, or policies?		
<input type="checkbox"/> Aspen Stands		
<input type="checkbox"/> Biodiversity Areas and Corridors		
<input type="checkbox"/> Herbaceous Balds		
<input checked="" type="checkbox"/> Old-growth/Mature Forests		
<input type="checkbox"/> Oregon White Oak		
<input type="checkbox"/> Riparian		
<input type="checkbox"/> Westside Prarie		
<input type="checkbox"/> Fresh Deepwater		
<input type="checkbox"/> Instream		
<input type="checkbox"/> Nearshore (Coastal, Open Coast, Puget Sound)		
<input type="checkbox"/> Caves		
<input type="checkbox"/> Cliffs		
<input checked="" type="checkbox"/> Snags and Logs		
<input type="checkbox"/> Talus		
The following criteria automatically score 2 points:		
<input type="checkbox"/> The wetland provides habitat for Threatened or Endangered species		
<input type="checkbox"/> The wetland is mapped as a location for an individual WDFW priority species		
<input type="checkbox"/> The wetland is a Wetland of High Conservation Value		
<input type="checkbox"/> The wetland has been categorized as an important habitat site in a local plan		
The wetland has 3 or more WDFW priority habitats within 100m, or meets the criteria for societal value	points = 2	
The site has 1 or 2 WDFW priority habitats within 100m	points = 1	
The site does not meet any of the criteria for societal value	points = 0	Score: 1
Total for H 3:		1

Rating of Value

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

Record the rating on the first page

Wetland name or number: AZ

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

SC 1.0 Estuarine Wetlands

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

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

Yes - Go to SC 1.2

No - Not an Estuarine Wetland

**Result: Not an
Estuarine Wetland**

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

Yes - Category I Estuarine Wetland

No - Go to SC 1.3

Result:

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

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

Yes - Category I Estuarine Wetland

No - Category II Estuarine Wetland

Result:

SC 2.0 Wetlands of High Conservation Value

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

Yes - Category I Wetland of High Conservation Value

No - Go to SC 2.2

Result: Go to SC 2.2

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

Yes - Category I Wetland of High Conservation Value

No - Not a Wetland of High Conservation Value

**Result: Not a Wetland
of High Conservation
Value**

Wetland name or number: AZ

SC 3.0 Bogs

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

Yes - Go to SC 3.3

No - Go to SC 3.2

Result: Go to SC 3.2

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

Yes - Go to SC 3.3

No - Not a Bog Wetland

Result: Not a Bog Wetland

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

Yes - Category I Bog Wetland

No - Go to SC 3.4

Result:

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

Yes - Category I Bog Wetland

No - Not a Bog Wetland

Result:

SC 4.0 Forested Wetlands

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

Old-growth forests

Mature forests

Yes - Category I Forested Wetland

No - Not a Forested Wetland

Result: Not a Forested Wetland

Wetland name or number: AZ

SC 5.0 Wetlands in Coastal Lagoons

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

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

Yes - Go to SC 5.2

No - Not a Coastal Lagoon Wetland

Result: Not a Coastal Lagoon Wetland

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

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

Yes - Category I Coastal Lagoon

No - Category II Coastal Lagoon

Result:

SC 6.0 Interdunal Wetlands

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

Yes - Go to SC 6.2

No - Not an Interdunal Wetland

Result: Not an Interdunal Wetland

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

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

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

No - Go to SC 6.4

Result:

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

Yes - Category I Interdunal Wetland

No - Category II Interdunal Wetland

Result:

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

Yes - Category III Interdunal Wetland

No - Category IV Interdunal Wetland

Result:

Wetland name or number: AZ

Category of wetland based on Special Characteristics

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

**Final Category: Not
Applicable**

Figure AZ-1. Location of Outlet.

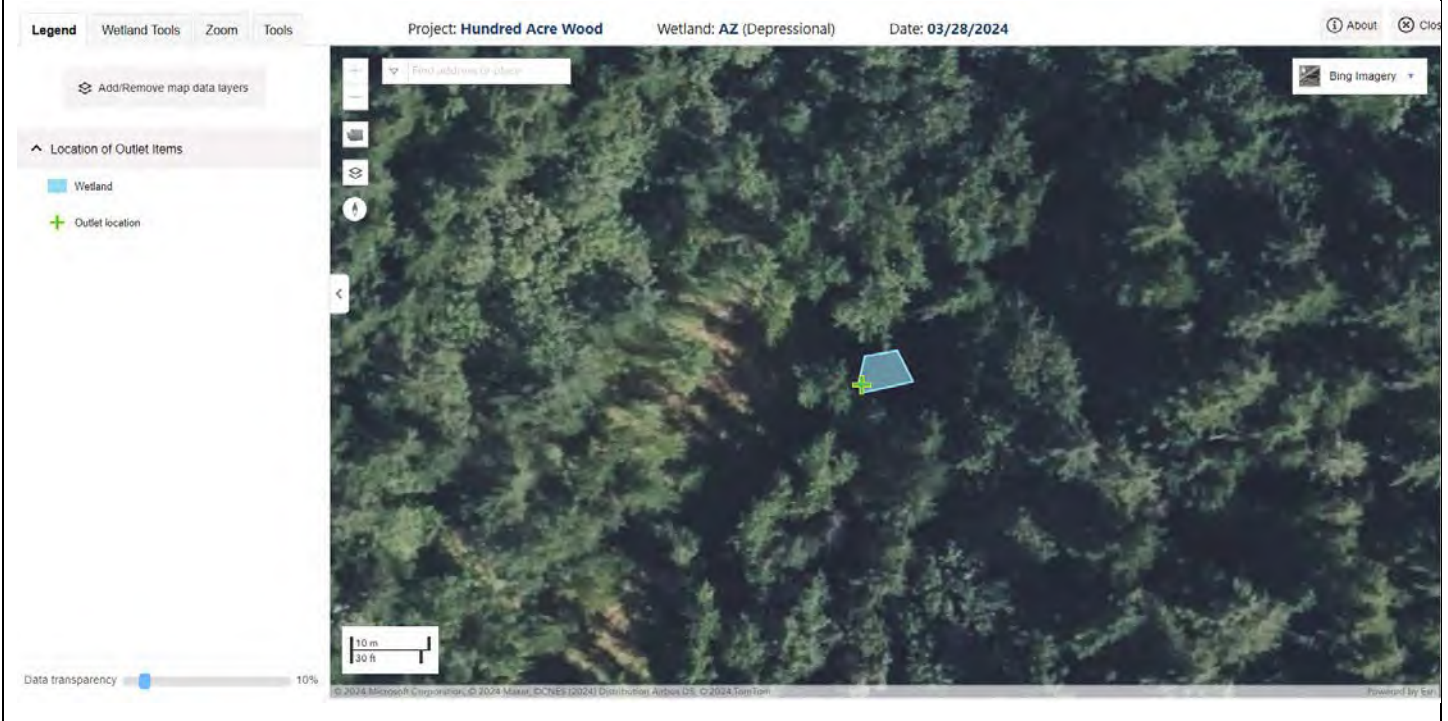


Figure AZ-2. Map of Cowardin Classes.

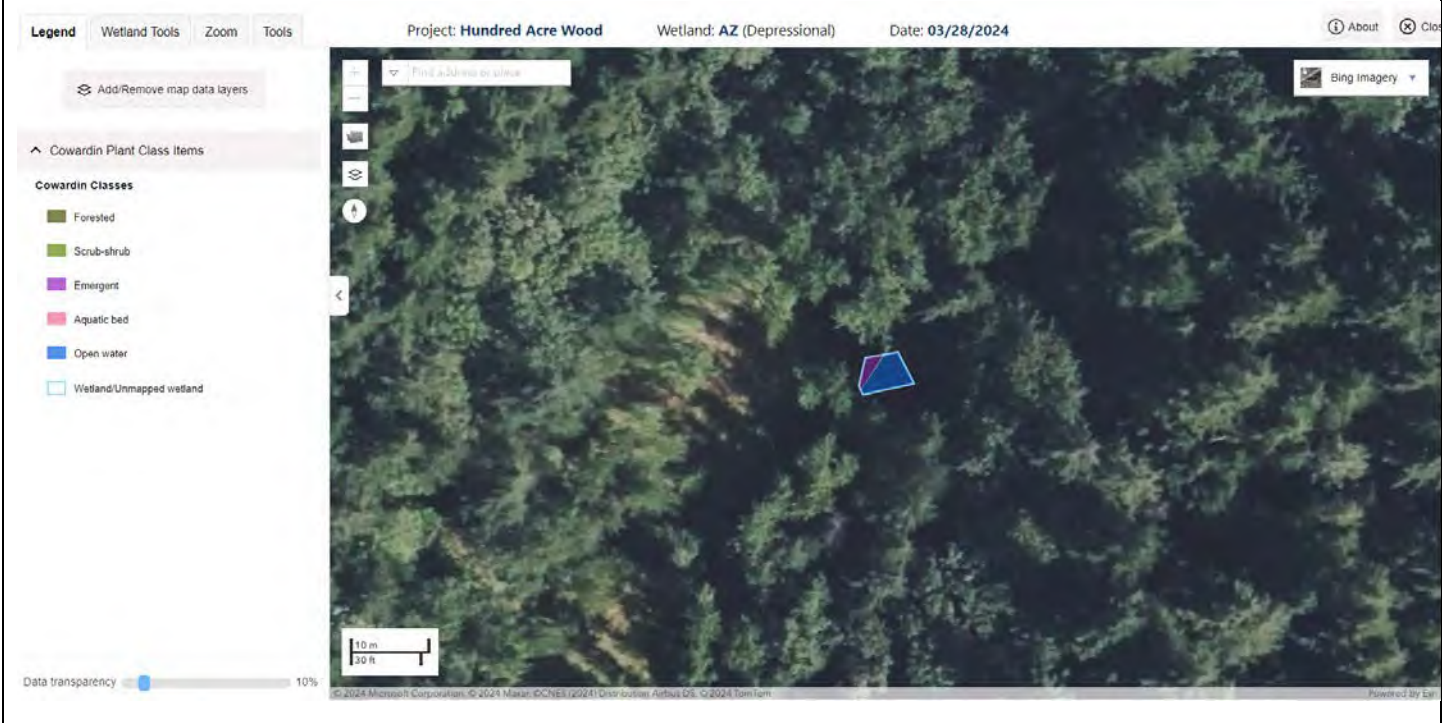


Figure AZ-3. Map of Hydroperiods.



Figure AZ-4. Contributing Basin.



Figure AZ-5. Habitat Within 1-kilometer.



Figure AZ-6. 303(d) Listed Waters in Basin.



Figure AZ-7. TMDLs in WRIA.

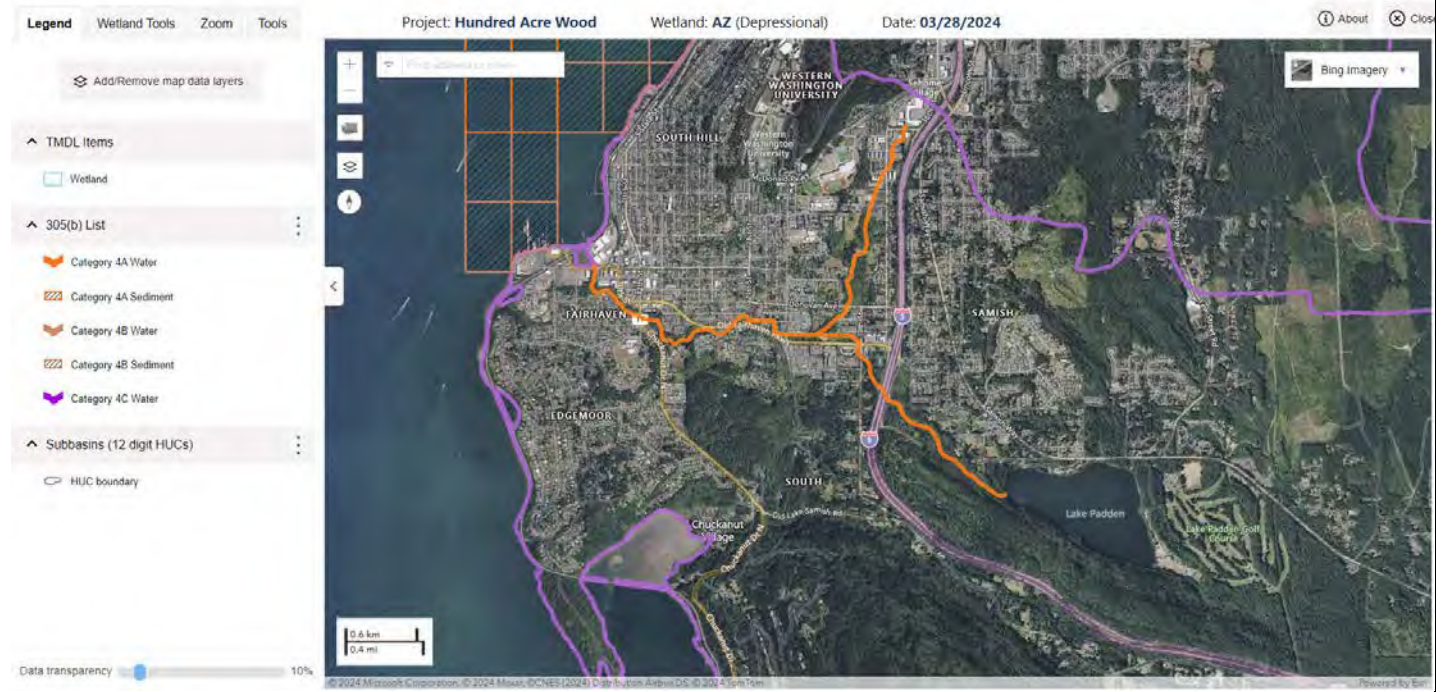


Figure AZ-8. 150-foot Boundary and Land Use.



Wetland name or number: FF

RATING SUMMARY - Western Washington

Name of wetland (or ID#): FF Date of site visit: 02/15/2024

Rated By: Danielle Rapoza Trained by Ecology? Yes No Date of Training: 10/29/2018

HGM Class used for rating: Slope

Wetland has multiple HGM classes? Yes No

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

Source of base aerial photo/map:

OVERALL WETLAND CATEGORY: **Category I** (based on functions or special characteristics)

1. Category of wetland based on FUNCTIONS

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

Score for each function based on three ratings

(order of ratings is not important)

9 = H,H,H

8 = H,H,M

7 = H,H,L

7 = H,M,M

6 = H,M,L

6 = M,M,M

5 = H,L,L

5 = M,M,L

4 = M,L,L

3 = L,L,L

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
Site Potential	L	M	M	
Landscape Potential	M	L	L	
Value	H	H	M	Total
Score Based on Ratings	6	6	5	17

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	
Wetland of High Conservation Value	
Bog	
Forested	Category I
Coastal Lagoon	
Interdunal	
None of the above	

Wetland name or number: FF

Maps and figures required to answer questions correctly for Western Washington

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	FF-2
Hydroperiods	H 1.2	FF-3
Plant cover of dense trees, shrubs, and herbaceous plants	S 1.3	FF-1
Plant cover of dense, rigid trees, shrubs, and herbaceous plants (<i>can be added to figure above</i>)	S 4.1	FF-4
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	S 2.1, S 5.1	FF-8
1km Polygon: Area that extends 1km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	FF-5
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	FF-6
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	FF-7

Wetland name or number: FF

SLOPE WETLANDS**Water Quality Functions** - Indicators that the site functions to improve water quality**S 1.0 Does the site have the potential to improve water quality?****S 1.1** What are the characteristics of the average slope of the wetland?

Slope is 1% or less	points = 3	
Slope is >1%-2%	points = 2	
Slope is >2%-5%	points = 1	
Slope is greater than 5%	points = 0	Score: 0

S 1.2 What is the soil 2in below the surface or duff layer?

Mapped as true clay or organic (muck or peat)	points = 3	
Soil texture identified as clay or organic in field	points = 3	
Soil texture identified as clay or organic by laboratory test	points = 3	
None of the above	points = 0	Score: 0

S 1.3 Characteristics of the plants in the wetland that trap sediments and pollutants

Dense, uncut, herbaceous plants cover >90% of the wetland area	points = 6	
Dense, uncut, herbaceous plants cover >50% of the wetland area	points = 3	
Dense, woody, plants cover >50% of the wetland area	points = 2	
Dense, uncut, herbaceous plants cover >25% of the wetland area	points = 1	
Does not meet any of the criteria above for plants	points = 0	Score: 2

Total for S 1: **2****Rating of Site Potential**

[] 12-16 = H [] 6-11 = M [X] 0-5 = L

Record the rating on the first page

S 2.0 Does the landscape have the potential to support the water quality function of the site?**S 2.1** Is >10% of the area within 150ft on the uphill side of the wetland in land uses that generate pollutants?

Yes	points = 1	
No	points = 0	Score: 0

S 2.2 Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1?

Yes	points = 1	
No	points = 0	Score: 1

S 2.3 What are the other sources of pollutants coming into the wetland?

Trails, pet waste, lawn clippings/yard waste

Total for S 2: **1****Rating of Landscape Potential**

[] 3-4 = H [X] 1-2 = M [] 0 = L

Record the rating on the first page

Wetland name or number: FF

S 3.0 Is the water quality improvement provided by the site valuable to society?		
S 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	points = 1	
No	points = 0	Score: 0
S 3.2 Is the wetland in a basin or sub-basin where water quality is an issue?		
Yes	points = 1	
No	points = 0	Score: 1
S 3.3 Has the site been identified in a watershed or local plan as important for maintaining water quality?		
Yes	points = 2	
No	points = 0	Score: 2
Total for S 3:		3

Rating of Value

[X] 2-4 = H [] 1 = M [] 0 = L

Record the rating on the first page

SLOPE WETLANDS

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

S 4.0 Does the site have the potential to reduce flooding and erosion?		
S 4.1 What are the characteristics of the plants that reduce the velocity of surface flows during storms?		
Dense, uncut, rigid plants cover >90% of the wetland area	points = 1	
All other conditions	points = 0	Score: 1
Total for S 4:		1

Rating of Site Potential

[X] 1 = M [] 0 = L

Record the rating on the first page

S 5.0 Does the landscape have the potential to support the hydrologic functions of the site?		
S 5.1 Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff?		
Yes	points = 1	
No	points = 0	Score: 0
Total for S 5:		0

Rating of Landscape Potential

[] 1 = M [X] 0 = L

Record the rating on the first page

Wetland name or number: FF

S 6.0 Are the hydrologic functions provided by the site valuable to society?		
S 6.1 <u>Is the wetland in a landscape that has flooding problems?</u>		
Flooding occurs in a sub-basin that is immediately down-gradient of wetland.	points = 2	
Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
There are no problems with flooding downstream of the wetland	points = 0	Score: 2
S 6.2 <u>Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?</u>		
Yes	points = 2	
No	points = 0	Score: 0
Total for S 6:		2

Rating of Value

2-4 = H 1 = M 0 = L

Record the rating on the first page

Wetland name or number: FF

HABITAT FUNCTIONS

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

H 1.0 Does the wetland have the potential to provide habitat for many species?

H 1.1 What is the structure of the plant community?

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

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

H 1.2 What are the hydroperiods that meet the size thresholds in the wetland?

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

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

H 1.3 What is the richness of the plant species in the wetland?

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

Wetland name or number: FF

H 1.4 <u>What is the interspersions of habitats?</u>	
High	points = 3
Moderate	points = 2
Low	points = 1
None	points = 0
Score: 2	
H 1.5 <u>What are the special habitat features in the wetland?</u>	
<input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (>4in diameter and 6ft long).	
<input checked="" type="checkbox"/> Standing snags (dbh >4in) within the wetland	
<input type="checkbox"/> Undercut banks are present for at least 6.6ft (2m) and/or overhanging plants extend at least 3.3ft (1m) over open water or a stream (or ditch) in, or contiguous with the wetland, for at least 33ft (10m)	
<input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet weathered where wood is exposed)	
<input type="checkbox"/> At least 0.25ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (structures for egg-laying by amphibians)	
<input checked="" type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (see H 1.1 for list of strata)	
6 habitats selected	points = 6
5 habitats selected	points = 5
4 habitats selected	points = 4
3 habitats selected	points = 3
2 habitats selected	points = 2
1 habitat selected	points = 1
No habitats selected	points = 0
Score: 3	
Total for H 1: 9	

Rating of Site Potential

[] 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 habitat functions of the site?

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

Wetland name or number: FF

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

Rating of Landscape Potential

[] 4-6 = H [] 1-3 = M [X] 0 = L

Record the rating on the first page

H 3.0 Is the habitat provided by the site valuable to society?

H 3.1 Does the site provide habitat for species valued in laws, regulations, or policies?		
<input type="checkbox"/> Aspen Stands		
<input type="checkbox"/> Biodiversity Areas and Corridors		
<input type="checkbox"/> Herbaceous Balds		
<input checked="" type="checkbox"/> Old-growth/Mature Forests		
<input type="checkbox"/> Oregon White Oak		
<input type="checkbox"/> Riparian		
<input type="checkbox"/> Westside Prarie		
<input type="checkbox"/> Fresh Deepwater		
<input type="checkbox"/> Instream		
<input type="checkbox"/> Nearshore (Coastal, Open Coast, Puget Sound)		
<input type="checkbox"/> Caves		
<input type="checkbox"/> Cliffs		
<input checked="" type="checkbox"/> Snags and Logs		
<input type="checkbox"/> Talus		
The following criteria automatically score 2 points:		
<input type="checkbox"/> The wetland provides habitat for Threatened or Endangered species		
<input type="checkbox"/> The wetland is mapped as a location for an individual WDFW priority species		
<input type="checkbox"/> The wetland is a Wetland of High Conservation Value		
<input type="checkbox"/> The wetland has been categorized as an important habitat site in a local plan		
The wetland has 3 or more WDFW priority habitats within 100m, or meets the criteria for societal value	points = 2	
The site has 1 or 2 WDFW priority habitats within 100m	points = 1	
The site does not meet any of the criteria for societal value	points = 0	Score: 1
Total for H 3:		1

Rating of Value

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

Record the rating on the first page

Wetland name or number: FF

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

SC 1.0 Estuarine Wetlands

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

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

Yes - Go to SC 1.2

No - Not an Estuarine Wetland

**Result: Not an
Estuarine Wetland**

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

Yes - Category I Estuarine Wetland

No - Go to SC 1.3

Result:

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

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

Yes - Category I Estuarine Wetland

No - Category II Estuarine Wetland

Result:

SC 2.0 Wetlands of High Conservation Value

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

Yes - Category I Wetland of High Conservation Value

No - Go to SC 2.2

Result: Go to SC 2.2

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

Yes - Category I Wetland of High Conservation Value

No - Not a Wetland of High Conservation Value

**Result: Not a Wetland
of High Conservation
Value**

Wetland name or number: FF

SC 3.0 Bogs

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

Yes - Go to SC 3.3

No - Go to SC 3.2

Result: Go to SC 3.2

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

Yes - Go to SC 3.3

No - Not a Bog Wetland

Result: Not a Bog Wetland

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

Yes - Category I Bog Wetland

No - Go to SC 3.4

Result:

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

Yes - Category I Bog Wetland

No - Not a Bog Wetland

Result:

SC 4.0 Forested Wetlands

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

Old-growth forests

Mature forests

Yes - Category I Forested Wetland

No - Not a Forested Wetland

Result: Category I Forested Wetland

Wetland name or number: FF

SC 5.0 Wetlands in Coastal Lagoons

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

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

Yes - Go to SC 5.2

No - Not a Coastal Lagoon Wetland

Result: Not a Coastal Lagoon Wetland

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

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

Yes - Category I Coastal Lagoon

No - Category II Coastal Lagoon

Result:

SC 6.0 Interdunal Wetlands

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

Yes - Go to SC 6.2

No - Not an Interdunal Wetland

Result: Not an Interdunal Wetland

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

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

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

No - Go to SC 6.4

Result:

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

Yes - Category I Interdunal Wetland

No - Category II Interdunal Wetland

Result:

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

Yes - Category III Interdunal Wetland

No - Category IV Interdunal Wetland

Result:

Wetland name or number: FF

Category of wetland based on Special Characteristics

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

**Final Category:
Category I**

Figure FF-1. Plant Cover.



Figure FF-2. Map of Cowardin Classes.



Figure FF-3. Map of Hydroperiods.

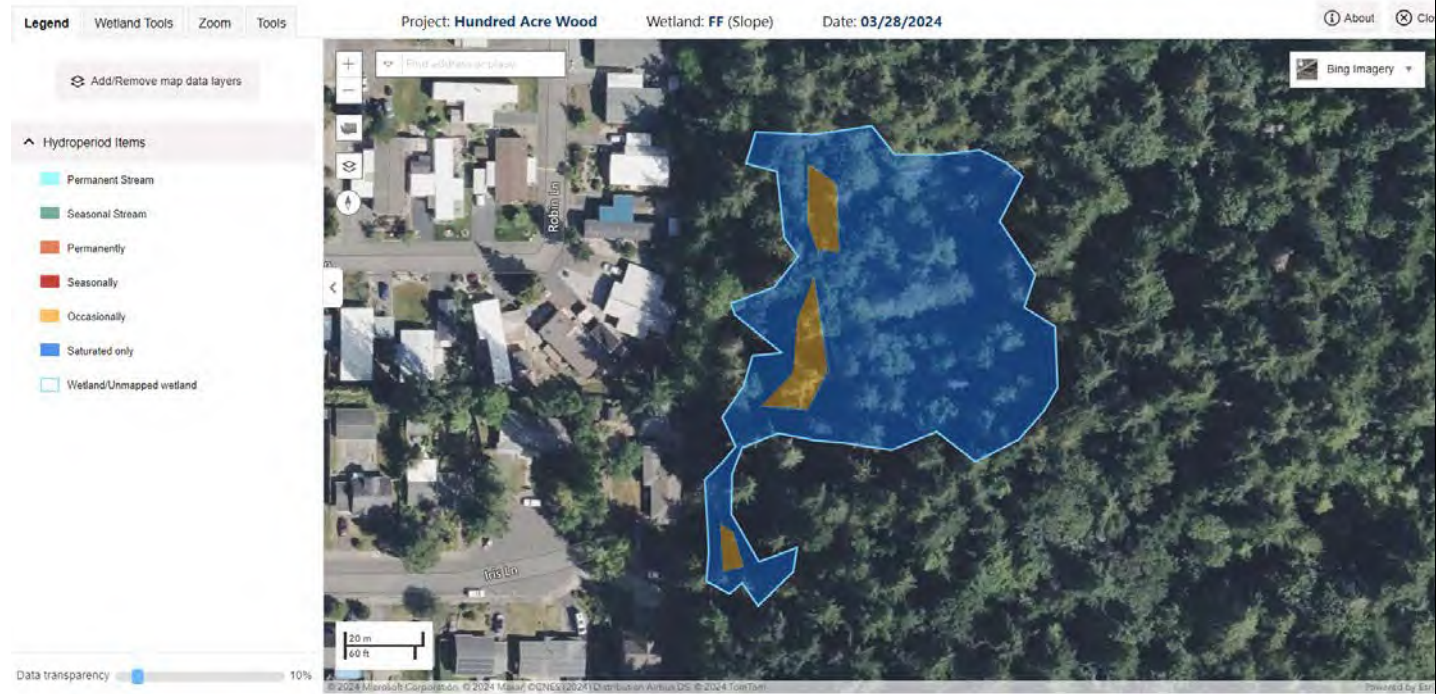


Figure FF-5. Habitat Within 1-kilometer.



Figure FF-6. 303(d) Listed Waters in Basin.

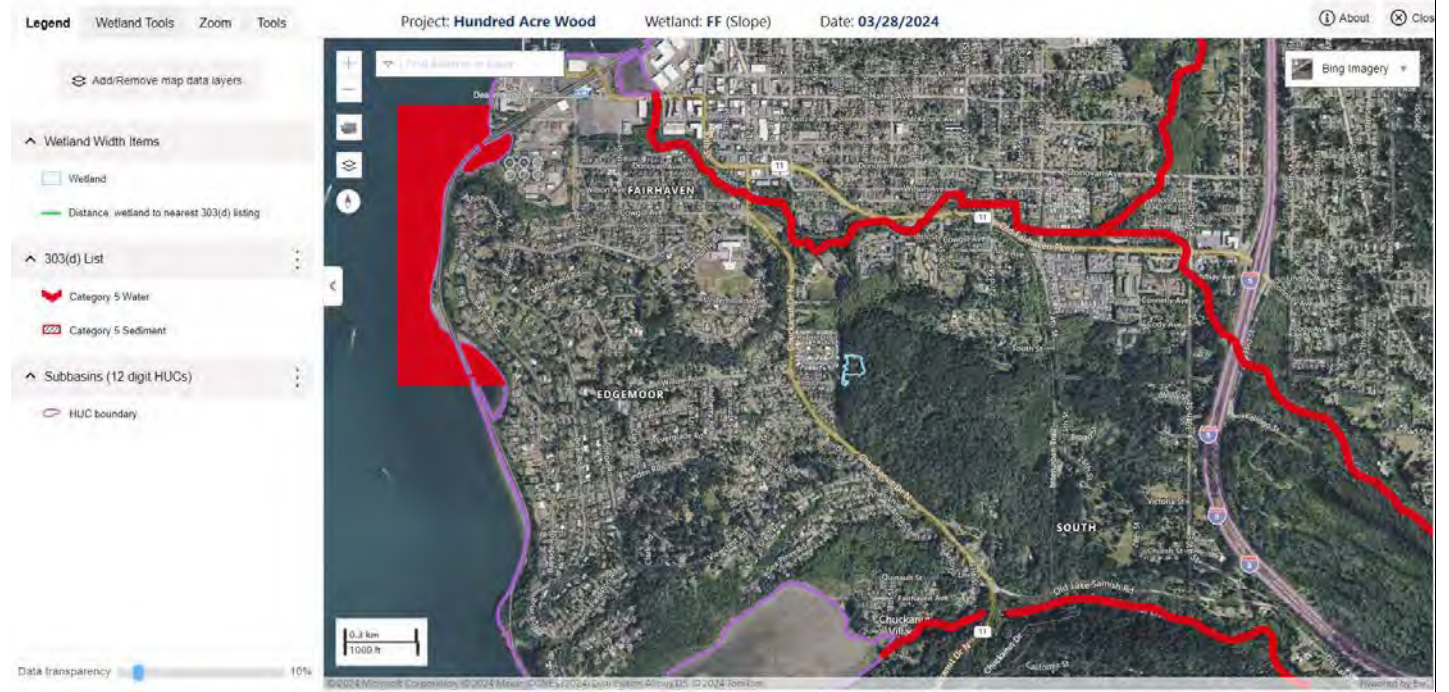


Figure FF-7. TMDLs in WRIA.

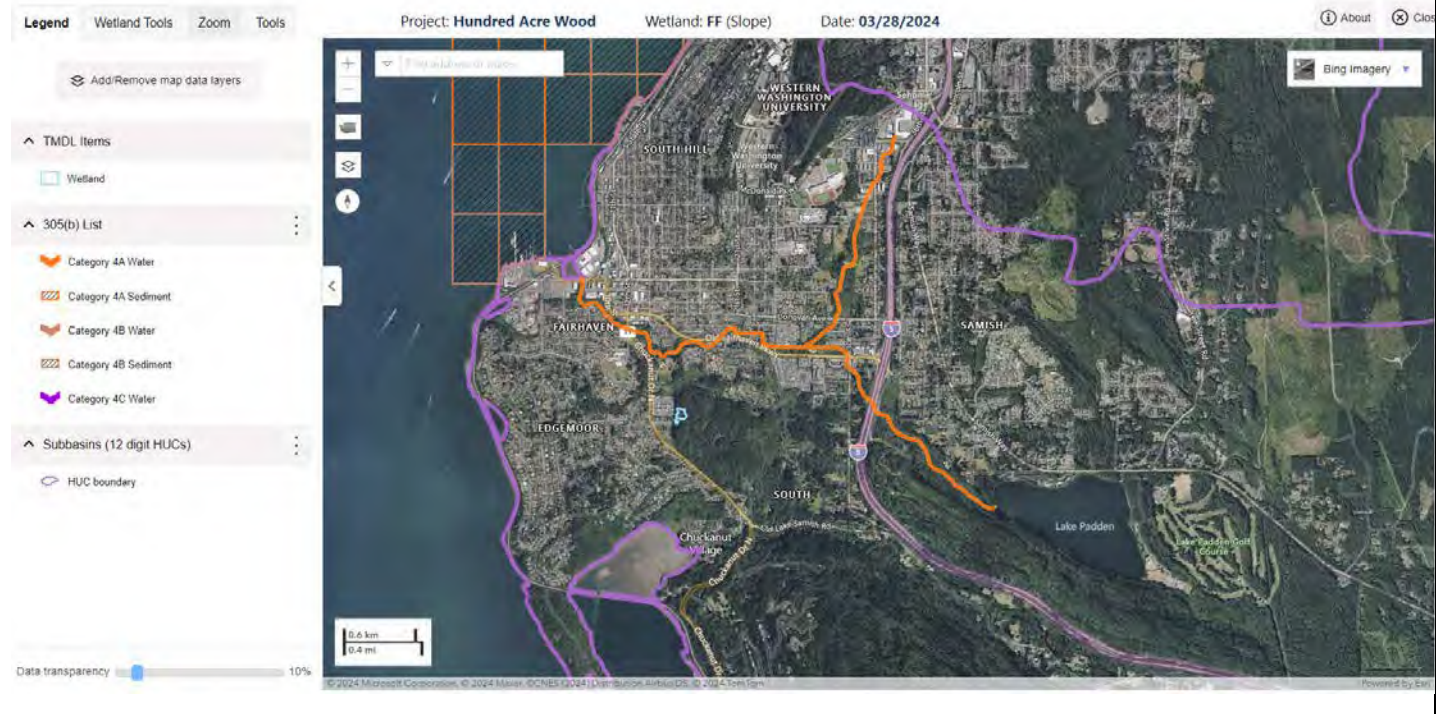


Figure FF-8. 150-foot Boundary and Land Use.



Wetland name or number: HH

RATING SUMMARY - Western Washington

Name of wetland (or ID#): HH Date of site visit: 02/15/2024

Rated By: Danielle Rapoza Trained by Ecology? Yes No Date of Training: 10/29/2018

HGM Class used for rating: Depressional

Wetland has multiple HGM classes? Yes No

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

Source of base aerial photo/map: WATOR

OVERALL WETLAND CATEGORY: [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

Score for each function based on three ratings

(order of ratings is not important)

9 = H,H,H

8 = H,H,M

7 = H,H,L

7 = H,M,M

6 = H,M,L

6 = M,M,M

5 = H,L,L

5 = M,M,L

4 = M,L,L

3 = L,L,L

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
Site Potential	H	M	M	
Landscape Potential	M	L	L	
Value	H	H	H	Total
Score Based on Ratings	8	6	6	20

2. Category based on SPECIAL CHARACTERISTICS of wetland

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

Wetland name or number: HH

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	HH-2
Hydroperiods	D 1.4, H 1.2	HH-3
Location of outlet (<i>can be added to map of hydroperiods</i>)	D 1.1, D 4.1	HH-1
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	D 2.2, D 5.2	HH-8
Map of the contributing basin	D 4.3, D 5.3	HH-4
1km Polygon: Area that extends 1km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	HH-5
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	HH-6
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	HH-7

Wetland name or number: HH

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 <u>What are the characteristics of surface water outflows from the wetland?</u>		
Wetland has no surface water outlet.	points = 3	
Wetland has an intermittently flowing, or highly constricted, outlet.	points = 2	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 1	
Wetland is a flat depression whose outlet is a permanently flowing ditch.	points = 1	Score: 3
D 1.2 <u>Is the soil 2 in. below the surface a true clay or organic soil?</u>		
Mapped as true clay or organic (muck or peat)	points = 4	
Soil texture identified as clay or organic in field	points = 4	
Soil texture identified as clay or organic by laboratory test	points = 4	
None of the above	points = 0	Score: 0
D 1.3 <u>What are the characteristics and distribution of persistent plants?</u>		
Wetland has persistent, ungrazed, plants > 95% of area	points = 5	
Wetland has persistent, ungrazed, plants > 50% of area	points = 3	
Wetland has persistent, ungrazed plants > 10% of area	points = 1	
Wetland has persistent, ungrazed plants < 10% of area	points = 0	Score: 5
D 1.4 <u>What are the characteristics of seasonal ponding or inundation in the wetland area?</u>		
Area seasonally ponded is > 50% total area of wetland	points = 4	
Area seasonally ponded is equal to or > 25% total area of wetland	points = 2	
Area seasonally ponded is < 25% total area of wetland	points = 0	Score: 4
Total for D 1:		12

Rating of Site Potential

[X] 12-16 = H [] 6-11 = M [] 0-5 = L

Record the rating on the first page

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

Wetland name or number: HH**D 2.5** What are the other sources of pollutants coming into the wetland?

Trails, pet waste

Total for D 2:**1****Rating of Landscape Potential**

[] 3-4 = H [X] 1-2 = 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 points = 1

No points = 0

Score: 0**D 3.2** Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?

Yes points = 1

No points = 0

Score: 1**D 3.3** Has the site been identified in a watershed or local plan as important for maintaining water quality?

Yes points = 2

No points = 0

Score: 2**Total for D 3:****3****Rating of Value**

[X] 2-4 = H [] 1 = M [] 0 = L

Record the rating on the first page

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions

 - Indicators that the site functions to reduce flooding and stream degradation**D 4.0** Does the site have the potential to reduce flooding and erosion?**D 4.1** What are the characteristics of surface water outflows from the wetland?

Wetland has no surface water outlet. points = 4

Wetland has an intermittently flowing, or highly constricted, outlet. points = 2

Wetland is a flat depression whose outlet is a permanently flowing ditch. points = 1

Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 0

Score: 4**D 4.2** What is the depth of storage during the wet periods?

Marks of ponding are 3ft or more above the surface or bottom of the outlet. points = 7

Marks of ponding are between 2ft to <3ft from the surface or bottom of the outlet. points = 5

Marks of ponding are at least 0.5ft to <2ft from the surface or the bottom of the outlet. points = 3

The wetland is a "headwater" wetland. points = 3

The wetland is flat but has small depressions on the surface that trap water. points = 1

Marks of ponding are less than 0.5ft (6in). points = 0

Score: 3

Wetland name or number: HH

D 4.3 <u>What is the contribution of the wetland to storage in the watershed?</u>		
The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
Entire wetland is in the Flats class	points = 5	Score: 3
Total for D 4:		10

Rating of Site Potential

[] 12-16 = H [X] 6-11 = M [] 0-5 = L

Record the rating on the first page

D 5.0 <u>Does the landscape have the potential to support hydrologic functions of the site?</u>		
D 5.1 <u>Does the wetland unit receive stormwater discharges?</u>		
Yes	points = 1	
No	points = 0	Score: 0
D 5.2 <u>Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff?</u>		
Yes	points = 1	
No	points = 0	Score: 0
D 5.3 <u>Is more than 25% of the contributing basin of the wetland covered with intensive human land uses?</u>		
Yes	points = 1	
No	points = 0	Score: 0
Total for D 5:		0

Rating of Landscape Potential

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

Record the rating on the first page

D 6.0 <u>Are the hydrologic functions provided by the site valuable to society?</u>		
D 6.1 <u>Is the wetland in a landscape that has flooding problems?</u>		
Flooding occurs in a sub-basin that is immediately down-gradient of the wetland.	points = 2	
Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
Flooding from groundwater is an issue in the basin.	points = 1	
The existing or potential outflow from the wetland is so constrained that water cannot reach areas that flood.	points = 0	
There are no problems with flooding downstream of the wetland.	points = 0	Score: 2
D 6.2 <u>Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?</u>		
Yes	points = 2	
No	points = 0	Score: 0
Total for D 6:		2

Rating of Value

[X] 2-4 = H [] 1 = M [] 0 = L

Record the rating on the first page

Wetland name or number: HH

HABITAT FUNCTIONS

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

H 1.0 Does the wetland have the potential to provide habitat for many species?

H 1.1 What is the structure of the plant community?

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

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

H 1.2 What are the hydroperiods that meet the size thresholds in the wetland?

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

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

H 1.3 What is the richness of the plant species in the wetland?

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

Wetland name or number: HH

H 1.4 <u>What is the interspersion of habitats?</u>	
High	points = 3
Moderate	points = 2
Low	points = 1
None	points = 0
Score: 3	
H 1.5 <u>What are the special habitat features in the wetland?</u>	
<input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (>4in diameter and 6ft long).	
<input checked="" type="checkbox"/> Standing snags (dbh >4in) within the wetland	
<input type="checkbox"/> Undercut banks are present for at least 6.6ft (2m) and/or overhanging plants extend at least 3.3ft (1m) over open water or a stream (or ditch) in, or contiguous with the wetland, for at least 33ft (10m)	
<input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet weathered where wood is exposed)	
<input checked="" type="checkbox"/> At least 0.25ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (structures for egg-laying by amphibians)	
<input checked="" type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (see H 1.1 for list of strata)	
6 habitats selected	points = 6
5 habitats selected	points = 5
4 habitats selected	points = 4
3 habitats selected	points = 3
2 habitats selected	points = 2
1 habitat selected	points = 1
No habitats selected	points = 0
Score: 4	
Total for H 1: 13	

Rating of Site Potential

[] 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 habitat functions of the site?

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

Wetland name or number: HH

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

Rating of Landscape Potential

[] 4-6 = H [] 1-3 = M [X] 0 = L

Record the rating on the first page

H 3.0 Is the habitat provided by the site valuable to society?

H 3.1 Does the site provide habitat for species valued in laws, regulations, or policies?		
<input type="checkbox"/> Aspen Stands		
<input type="checkbox"/> Biodiversity Areas and Corridors		
<input type="checkbox"/> Herbaceous Balds		
<input checked="" type="checkbox"/> Old-growth/Mature Forests		
<input type="checkbox"/> Oregon White Oak		
<input type="checkbox"/> Riparian		
<input type="checkbox"/> Westside Prarie		
<input type="checkbox"/> Fresh Deepwater		
<input type="checkbox"/> Instream		
<input type="checkbox"/> Nearshore (Coastal, Open Coast, Puget Sound)		
<input type="checkbox"/> Caves		
<input type="checkbox"/> Cliffs		
<input checked="" type="checkbox"/> Snags and Logs		
<input type="checkbox"/> Talus		
The following criteria automatically score 2 points:		
<input type="checkbox"/> The wetland provides habitat for Threatened or Endangered species		
<input type="checkbox"/> The wetland is mapped as a location for an individual WDFW priority species		
<input type="checkbox"/> The wetland is a Wetland of High Conservation Value		
<input checked="" type="checkbox"/> The wetland has been categorized as an important habitat site in a local plan		
The wetland has 3 or more WDFW priority habitats within 100m, or meets the criteria for societal value	points = 2	
The site has 1 or 2 WDFW priority habitats within 100m	points = 1	
The site does not meet any of the criteria for societal value	points = 0	Score: 2
Total for H 3:		2

Rating of Value

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

Record the rating on the first page

Wetland name or number: HH

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

SC 1.0 Estuarine Wetlands

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

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

Yes - Go to SC 1.2

No - Not an Estuarine Wetland

**Result: Not an
Estuarine Wetland**

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

Yes - Category I Estuarine Wetland

No - Go to SC 1.3

Result:

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

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

Yes - Category I Estuarine Wetland

No - Category II Estuarine Wetland

Result:

SC 2.0 Wetlands of High Conservation Value

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

Yes - Category I Wetland of High Conservation Value

No - Go to SC 2.2

Result: Go to SC 2.2

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

Yes - Category I Wetland of High Conservation Value

No - Not a Wetland of High Conservation Value

**Result: Not a Wetland
of High Conservation
Value**

Wetland name or number: HH

SC 3.0 Bogs

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

Yes - Go to SC 3.3

No - Go to SC 3.2

Result: Go to SC 3.2

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

Yes - Go to SC 3.3

No - Not a Bog Wetland

Result: Not a Bog Wetland

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

Yes - Category I Bog Wetland

No - Go to SC 3.4

Result:

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

Yes - Category I Bog Wetland

No - Not a Bog Wetland

Result:

SC 4.0 Forested Wetlands

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

Old-growth forests

Mature forests

Yes - Category I Forested Wetland

No - Not a Forested Wetland

Result: Not a Forested Wetland

Wetland name or number: HH

SC 5.0 Wetlands in Coastal Lagoons

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

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

Yes - Go to SC 5.2

No - Not a Coastal Lagoon Wetland

Result: Not a Coastal Lagoon Wetland

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

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

Yes - Category I Coastal Lagoon

No - Category II Coastal Lagoon

Result:

SC 6.0 Interdunal Wetlands

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

Yes - Go to SC 6.2

No - Not an Interdunal Wetland

Result: Not an Interdunal Wetland

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

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

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

No - Go to SC 6.4

Result:

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

Yes - Category I Interdunal Wetland

No - Category II Interdunal Wetland

Result:

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

Yes - Category III Interdunal Wetland

No - Category IV Interdunal Wetland

Result:

Wetland name or number: HH

Category of wetland based on Special Characteristics

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

**Final Category: Not
Applicable**

Figure HH-1. Location of Outlet.



Figure HH-2. Map of Cowardin Classes.

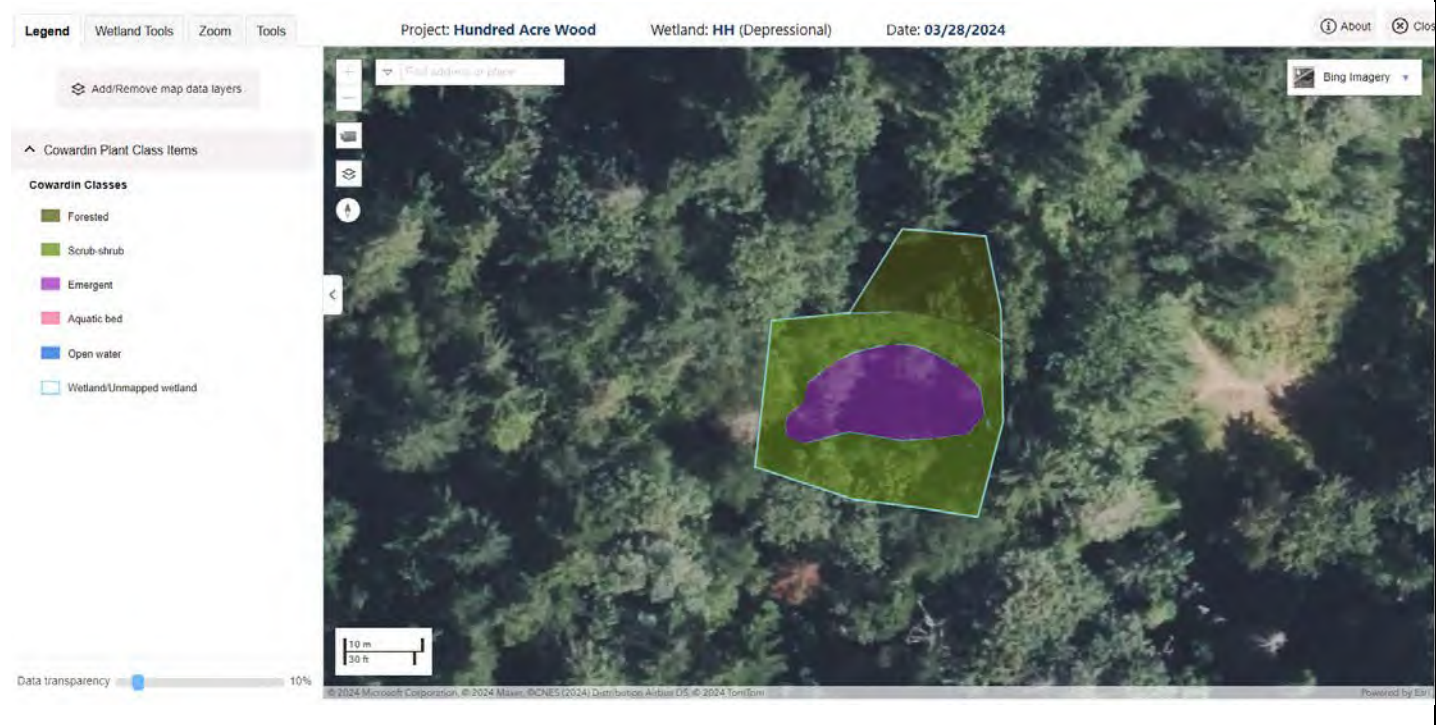


Figure HH-3. Map of Hydroperiods.



Figure HH-4. Contributing Basin.



Figure HH-5. Habitat Within 1-kilometer.



Figure HH-6. 303(d) Listed Waters in Basin.

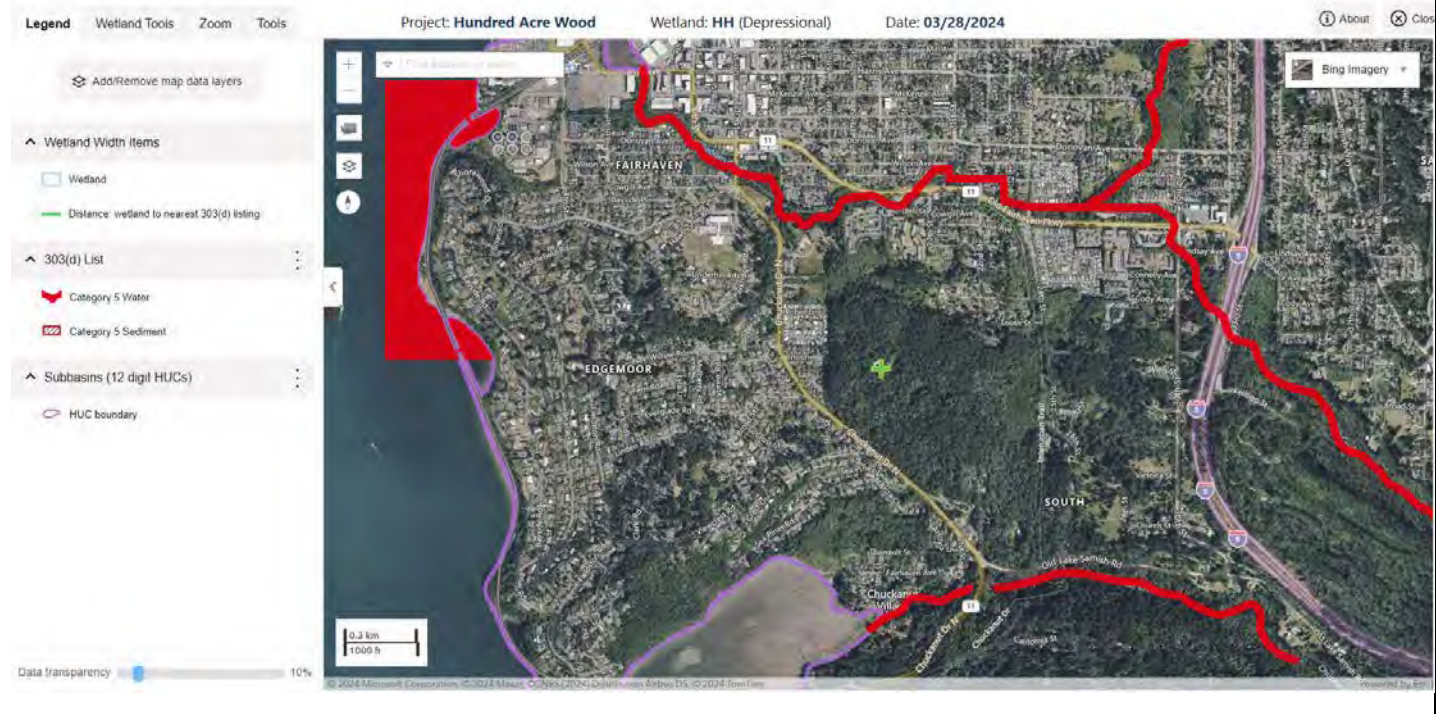


Figure HH-7. TMDLs in WRIA.

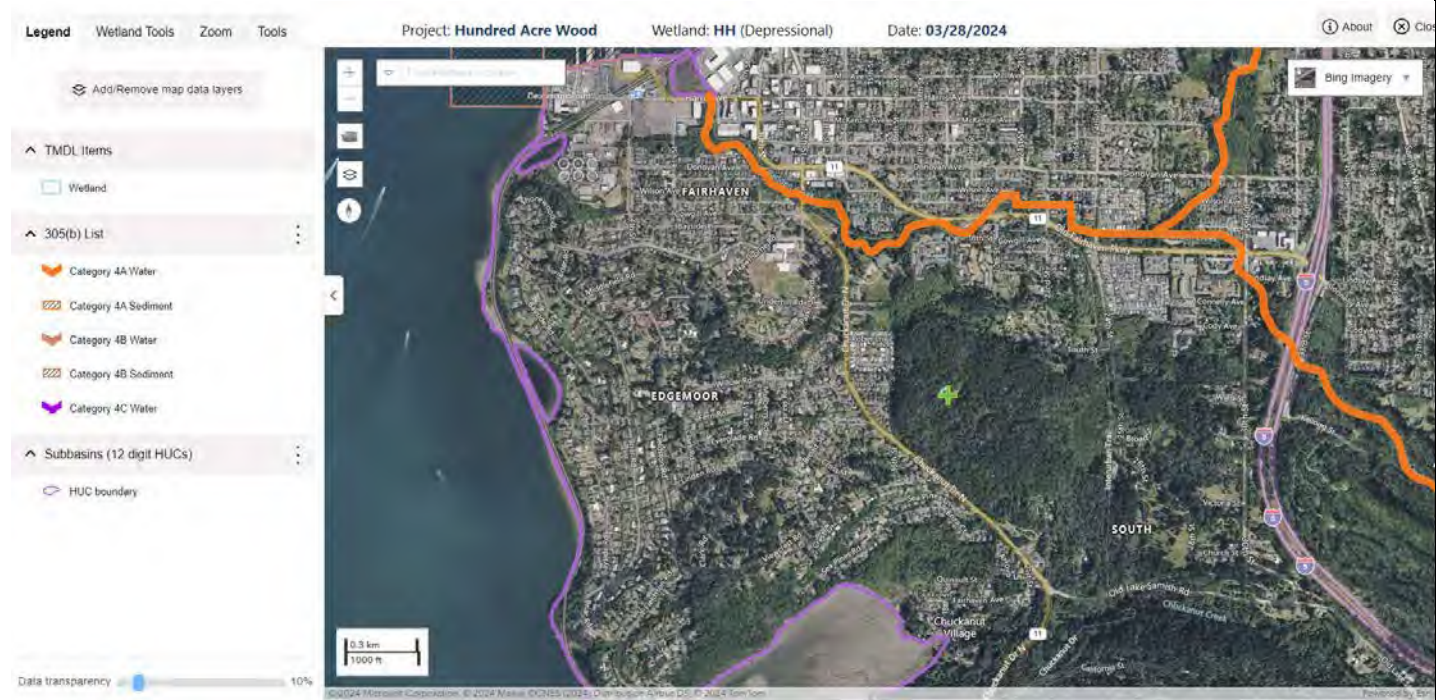


Figure HH-8. 150-foot Boundary and Land Use.



Wetland name or number: JJ1/JJ2

RATING SUMMARY - Western Washington

Name of wetland (or ID#): JJ1/JJ2 Date of site visit: 02/21/2024

Rated By: Danielle Rapoza Trained by Ecology? Yes [X] No [] Date of Training: 10/29/2018

HGM Class used for rating: Depressional

Wetland has multiple HGM classes? Yes [X] No []

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

Source of base aerial photo/map: WATOR

OVERALL WETLAND CATEGORY: [Category I/II] (based on functions [X] or special characteristics [X])

1. Category of wetland based on FUNCTIONS

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

Score for each function based on three ratings

(order of ratings is not important)

9 = H,H,H

8 = H,H,M

7 = H,H,L

7 = H,M,M

6 = H,M,L

6 = M,M,M

5 = H,L,L

5 = M,M,L

4 = M,L,L

3 = L,L,L

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
Site Potential	M	M	M	
Landscape Potential	M	M	M	
Value	H	H	H	Total
Score Based on Ratings	7	7	7	21

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	
Wetland of High Conservation Value	
Bog	
Forested applies to Unit JJ2 only	Category I
Coastal Lagoon	
Interdunal	
None of the above	

Wetland name or number: JJ1/JJ2

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	JJ-2
Hydroperiods	D 1.4, H 1.2	JJ-3
Location of outlet (<i>can be added to map of hydroperiods</i>)	D 1.1, D 4.1	JJ-1
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	D 2.2, D 5.2	JJ-8
Map of the contributing basin	D 4.3, D 5.3	JJ-4
1km Polygon: Area that extends 1km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	JJ-5
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	JJ-6
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	JJ-7

Wetland name or number: JJ1/JJ2

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 <u>What are the characteristics of surface water outflows from the wetland?</u>		
Wetland has no surface water outlet.	points = 3	
Wetland has an intermittently flowing, or highly constricted, outlet.	points = 2	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 1	
Wetland is a flat depression whose outlet is a permanently flowing ditch.	points = 1	Score: 1
D 1.2 <u>Is the soil 2 in. below the surface a true clay or organic soil?</u>		
Mapped as true clay or organic (muck or peat)	points = 4	
Soil texture identified as clay or organic in field	points = 4	
Soil texture identified as clay or organic by laboratory test	points = 4	
None of the above	points = 0	Score: 0
D 1.3 <u>What are the characteristics and distribution of persistent plants?</u>		
Wetland has persistent, ungrazed, plants > 95% of area	points = 5	
Wetland has persistent, ungrazed, plants > 50% of area	points = 3	
Wetland has persistent, ungrazed plants > 10% of area	points = 1	
Wetland has persistent, ungrazed plants < 10% of area	points = 0	Score: 5
D 1.4 <u>What are the characteristics of seasonal ponding or inundation in the wetland area?</u>		
Area seasonally ponded is > 50% total area of wetland	points = 4	
Area seasonally ponded is equal to or > 25% total area of wetland	points = 2	
Area seasonally ponded is < 25% total area of wetland	points = 0	Score: 0
Total for D 1:		6

Rating of Site Potential

[] 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 <u>Does the wetland unit receive stormwater discharges?</u>		
Yes	points = 1	
No	points = 0	Score: 1
D 2.2 <u>Is >10% of the area within 150ft of the wetland in land uses that generate pollutants in surface runoff?</u>		
Yes	points = 1	
No	points = 0	Score: 0
D 2.3 <u>Are there septic systems within 250ft of the wetland?</u>		
Yes	points = 1	
No	points = 0	Score: 0
D 2.4 <u>Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3?</u>		
Yes	points = 1	
No	points = 0	Score: 1

Wetland name or number: JJ1/JJ2**D 2.5** What are the other sources of pollutants coming into the wetland?

Trails, pet waste

Total for D 2:**2****Rating of Landscape Potential**

[] 3-4 = H [X] 1-2 = 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 points = 1

No points = 0

Score: 1**D 3.2** Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?

Yes points = 1

No points = 0

Score: 1**D 3.3** Has the site been identified in a watershed or local plan as important for maintaining water quality?

Yes points = 2

No points = 0

Score: 0**Total for D 3:****2****Rating of Value**

[X] 2-4 = H [] 1 = M [] 0 = L

Record the rating on the first page

DEPRESSIONAL AND FLATS WETLANDS

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

D 4.0 Does the site have the potential to reduce flooding and erosion?**D 4.1** What are the characteristics of surface water outflows from the wetland?

Wetland has no surface water outlet. points = 4

Wetland has an intermittently flowing, or highly constricted, outlet. points = 2

Wetland is a flat depression whose outlet is a permanently flowing ditch. points = 1

Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 0

Score: 0**D 4.2** What is the depth of storage during the wet periods?

Marks of ponding are 3ft or more above the surface or bottom of the outlet. points = 7

Marks of ponding are between 2ft to <3ft from the surface or bottom of the outlet. points = 5

Marks of ponding are at least 0.5ft to <2ft from the surface or the bottom of the outlet. points = 3

The wetland is a "headwater" wetland. points = 3

The wetland is flat but has small depressions on the surface that trap water. points = 1

Marks of ponding are less than 0.5ft (6in). points = 0

Score: 3

Wetland name or number: JJ1/JJ2

D 4.3 <u>What is the contribution of the wetland to storage in the watershed?</u>		
The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
Entire wetland is in the Flats class	points = 5	Score: 3
Total for D 4:		6

Rating of Site Potential

[] 12-16 = H [X] 6-11 = M [] 0-5 = L

Record the rating on the first page

D 5.0 <u>Does the landscape have the potential to support hydrologic functions of the site?</u>		
D 5.1 <u>Does the wetland unit receive stormwater discharges?</u>		
Yes	points = 1	
No	points = 0	Score: 1
D 5.2 <u>Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff?</u>		
Yes	points = 1	
No	points = 0	Score: 0
D 5.3 <u>Is more than 25% of the contributing basin of the wetland covered with intensive human land uses?</u>		
Yes	points = 1	
No	points = 0	Score: 1
Total for D 5:		2

Rating of Landscape Potential

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

Record the rating on the first page

D 6.0 <u>Are the hydrologic functions provided by the site valuable to society?</u>		
D 6.1 <u>Is the wetland in a landscape that has flooding problems?</u>		
Flooding occurs in a sub-basin that is immediately down-gradient of the wetland.	points = 2	
Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
Flooding from groundwater is an issue in the basin.	points = 1	
The existing or potential outflow from the wetland is so constrained that water cannot reach areas that flood.	points = 0	
There are no problems with flooding downstream of the wetland.	points = 0	Score: 2
D 6.2 <u>Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?</u>		
Yes	points = 2	
No	points = 0	Score: 0
Total for D 6:		2

Rating of Value

[X] 2-4 = H [] 1 = M [] 0 = L

Record the rating on the first page

Wetland name or number: JJ1/JJ2

HABITAT FUNCTIONS

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

H 1.0 Does the wetland have the potential to provide habitat for many species?

H 1.1 What is the structure of the plant community?

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

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

H 1.2 What are the hydroperiods that meet the size thresholds in the wetland?

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

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

H 1.3 What is the richness of the plant species in the wetland?

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

Wetland name or number: JJ1/JJ2

H 1.4 <u>What is the interspersion of habitats?</u>	
High	points = 3
Moderate	points = 2
Low	points = 1
None	points = 0
Score: 3	
H 1.5 <u>What are the special habitat features in the wetland?</u>	
<input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (>4in diameter and 6ft long).	
<input checked="" type="checkbox"/> Standing snags (dbh >4in) within the wetland	
<input checked="" type="checkbox"/> Undercut banks are present for at least 6.6ft (2m) and/or overhanging plants extend at least 3.3ft (1m) over open water or a stream (or ditch) in, or contiguous with the wetland, for at least 33ft (10m)	
<input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet weathered where wood is exposed)	
<input checked="" type="checkbox"/> At least 0.25ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (structures for egg-laying by amphibians)	
<input checked="" type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (see H 1.1 for list of strata)	
6 habitats selected	points = 6
5 habitats selected	points = 5
4 habitats selected	points = 4
3 habitats selected	points = 3
2 habitats selected	points = 2
1 habitat selected	points = 1
No habitats selected	points = 0
Score: 5	
Total for H 1: 14	

Rating of Site Potential

[] 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 habitat functions of the site?

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

Wetland name or number: JJ1/JJ2

H 2.3 What is the land use intensity in the 1km polygon?		
50% of the Polygon is high intensity land use	points = -2	
<50% of the Polygon is high intensity land use	points = 0	Score: 0
Total for H 2:		3

Rating of Landscape Potential

[] 4-6 = H [X] 1-3 = M [] 0 = L

Record the rating on the first page

H 3.0 Is the habitat provided by the site valuable to society?

H 3.1 Does the site provide habitat for species valued in laws, regulations, or policies?		
<input type="checkbox"/> Aspen Stands		
<input type="checkbox"/> Biodiversity Areas and Corridors		
<input type="checkbox"/> Herbaceous Balds		
<input checked="" type="checkbox"/> Old-growth/Mature Forests		
<input type="checkbox"/> Oregon White Oak		
<input checked="" type="checkbox"/> Riparian		
<input type="checkbox"/> Westside Prarie		
<input type="checkbox"/> Fresh Deepwater		
<input checked="" type="checkbox"/> Instream		
<input type="checkbox"/> Nearshore (Coastal, Open Coast, Puget Sound)		
<input type="checkbox"/> Caves		
<input type="checkbox"/> Cliffs		
<input checked="" type="checkbox"/> Snags and Logs		
<input type="checkbox"/> Talus		
The following criteria automatically score 2 points:		
<input checked="" type="checkbox"/> The wetland provides habitat for Threatened or Endangered species		
<input type="checkbox"/> The wetland is mapped as a location for an individual WDFW priority species		
<input type="checkbox"/> The wetland is a Wetland of High Conservation Value		
<input type="checkbox"/> The wetland has been categorized as an important habitat site in a local plan		
The wetland has 3 or more WDFW priority habitats within 100m, or meets the criteria for societal value	points = 2	
The site has 1 or 2 WDFW priority habitats within 100m	points = 1	
The site does not meet any of the criteria for societal value	points = 0	Score: 2
Total for H 3:		2

Rating of Value

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

Record the rating on the first page

Wetland name or number: JJ1/JJ2

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

SC 1.0 Estuarine Wetlands

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

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

Yes - Go to SC 1.2

No - Not an Estuarine Wetland

**Result: Not an
Estuarine Wetland**

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

Yes - Category I Estuarine Wetland

No - Go to SC 1.3

Result:

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

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

Yes - Category I Estuarine Wetland

No - Category II Estuarine Wetland

Result:

SC 2.0 Wetlands of High Conservation Value

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

Yes - Category I Wetland of High Conservation Value

No - Go to SC 2.2

Result: Go to SC 2.2

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

Yes - Category I Wetland of High Conservation Value

No - Not a Wetland of High Conservation Value

**Result: Not a Wetland
of High Conservation
Value**

Wetland name or number: JJ1/JJ2

SC 3.0 Bogs

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

Yes - Go to SC 3.3

No - Go to SC 3.2

Result:

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

Yes - Go to SC 3.3

No - Not a Bog Wetland

Result:

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

Yes - Category I Bog Wetland

No - Go to SC 3.4

Result:

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

Yes - Category I Bog Wetland

No - Not a Bog Wetland

Result:

SC 4.0 Forested Wetlands

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

Old-growth forests

Mature forests

Yes - Category I Forested Wetland

No - Not a Forested Wetland

**Result: Category I
Forested Wetland**

Wetland name or number: JJ1/JJ2

SC 5.0 Wetlands in Coastal Lagoons

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

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

Yes - Go to SC 5.2

No - Not a Coastal Lagoon Wetland

Result: Not a Coastal Lagoon Wetland

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

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

Yes - Category I Coastal Lagoon

No - Category II Coastal Lagoon

Result:

SC 6.0 Interdunal Wetlands

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

Yes - Go to SC 6.2

No - Not an Interdunal Wetland

Result: Not an Interdunal Wetland

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

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

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

No - Go to SC 6.4

Result:

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

Yes - Category I Interdunal Wetland

No - Category II Interdunal Wetland

Result:

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

Yes - Category III Interdunal Wetland

No - Category IV Interdunal Wetland

Result:

Wetland name or number: JJ1/JJ2

Category of wetland based on Special Characteristics

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

Final Category:
Category I

Figure JJ-1. Location of Outlet.



Figure JJ-2. Map of Cowardin Classes.



Figure JJ-3. Map of Hydroperiods.

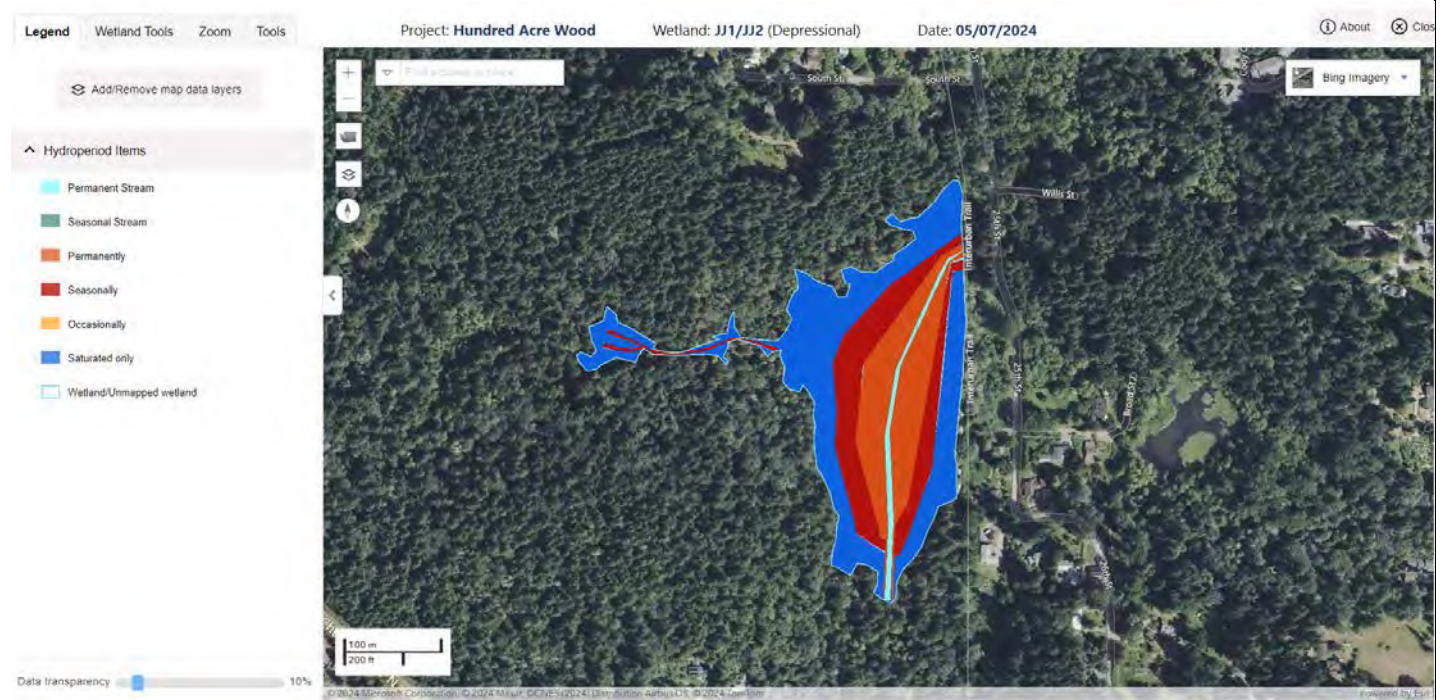


Figure JJ-4. Contributing Basin.

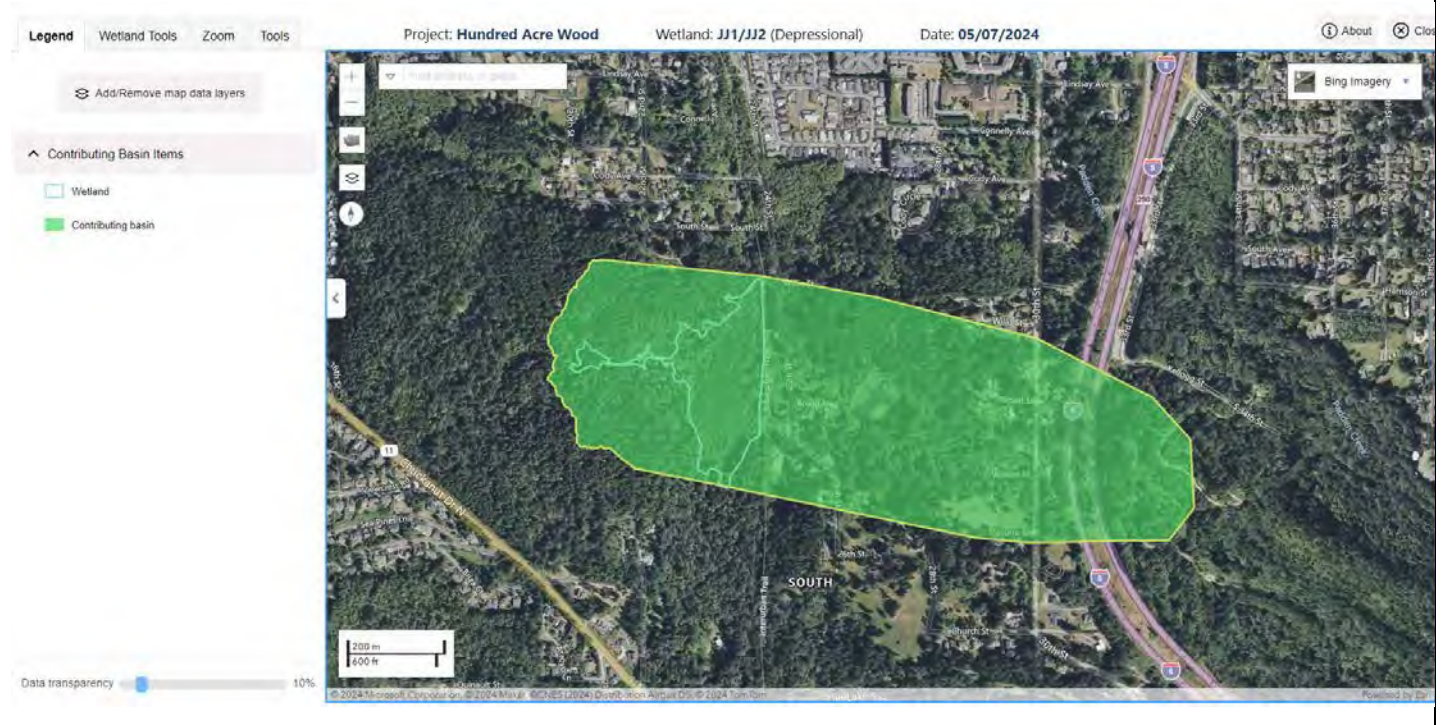


Figure JJ-5. Habitat Within 1-kilometer.



Figure JJ-6. 303(d) Listed Waters in Basin.

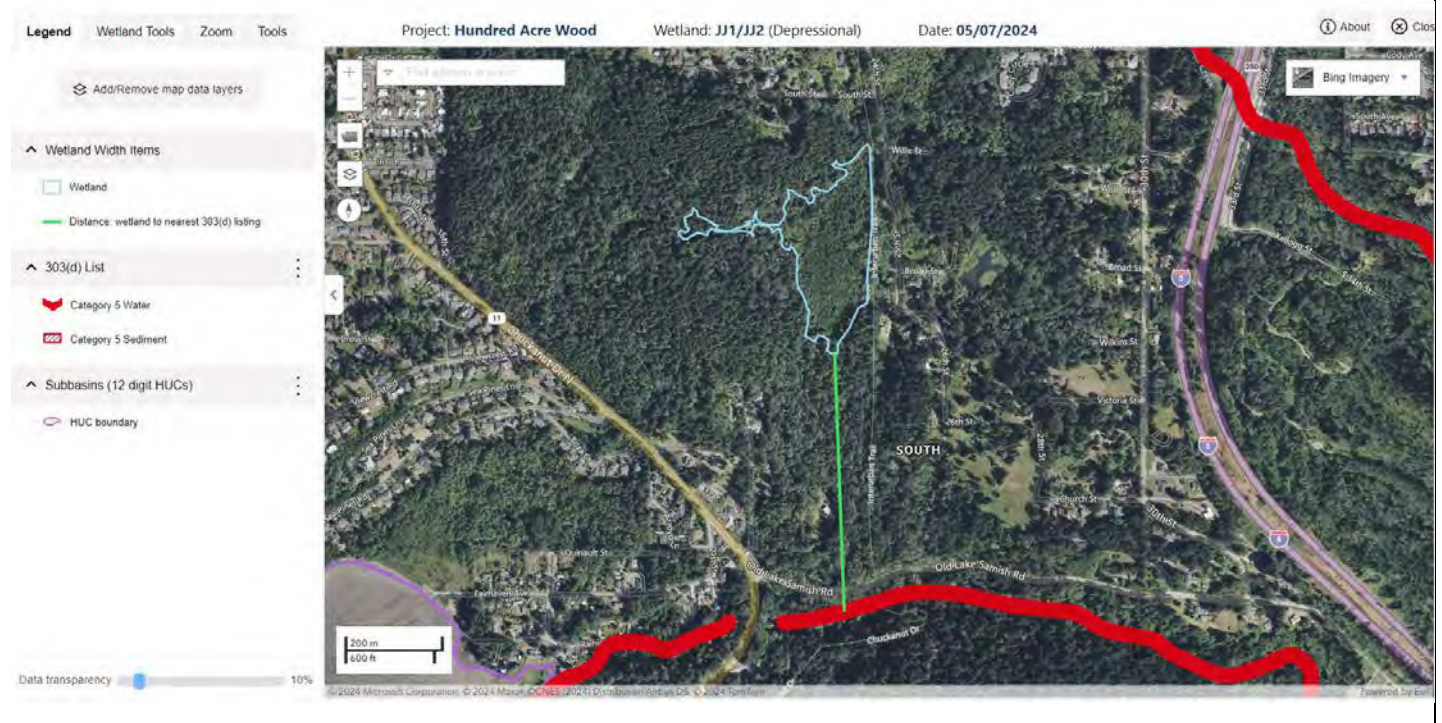


Figure JJ-7. TMDLs in WRIA.

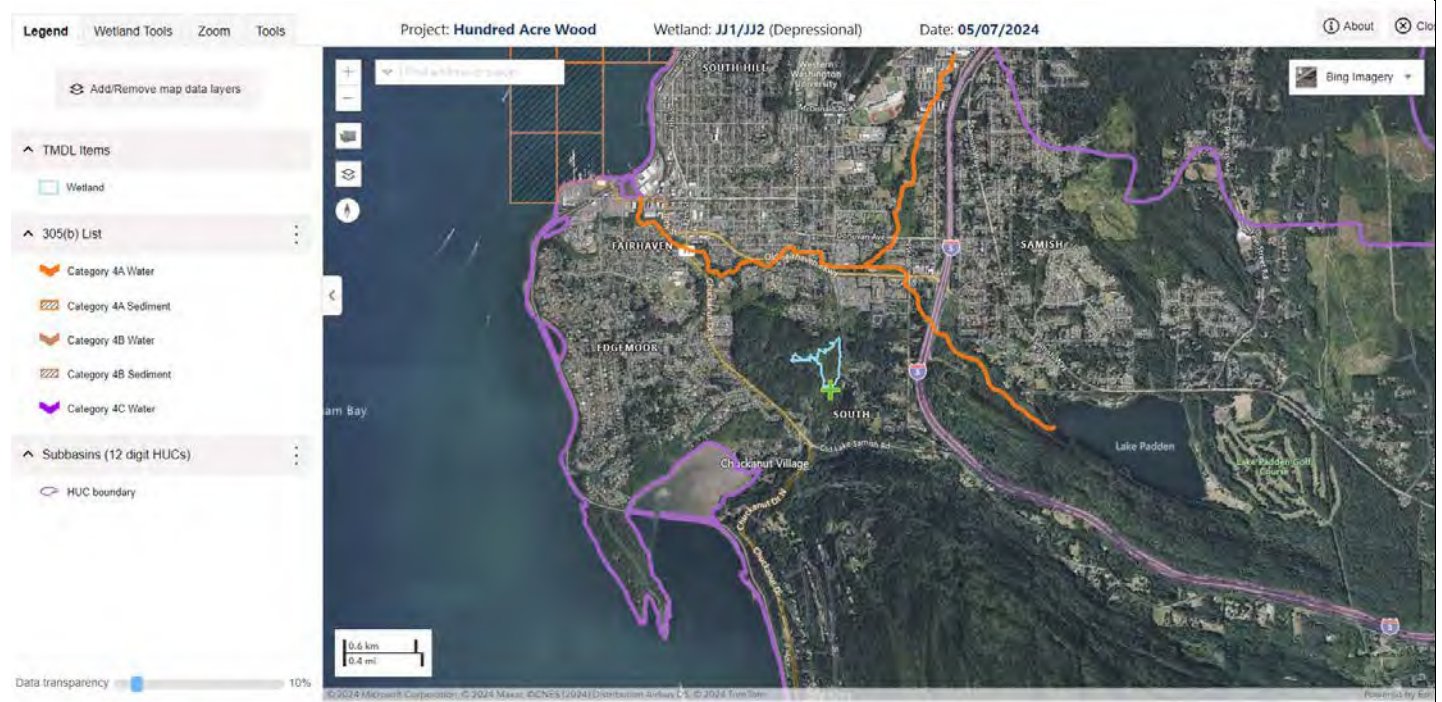
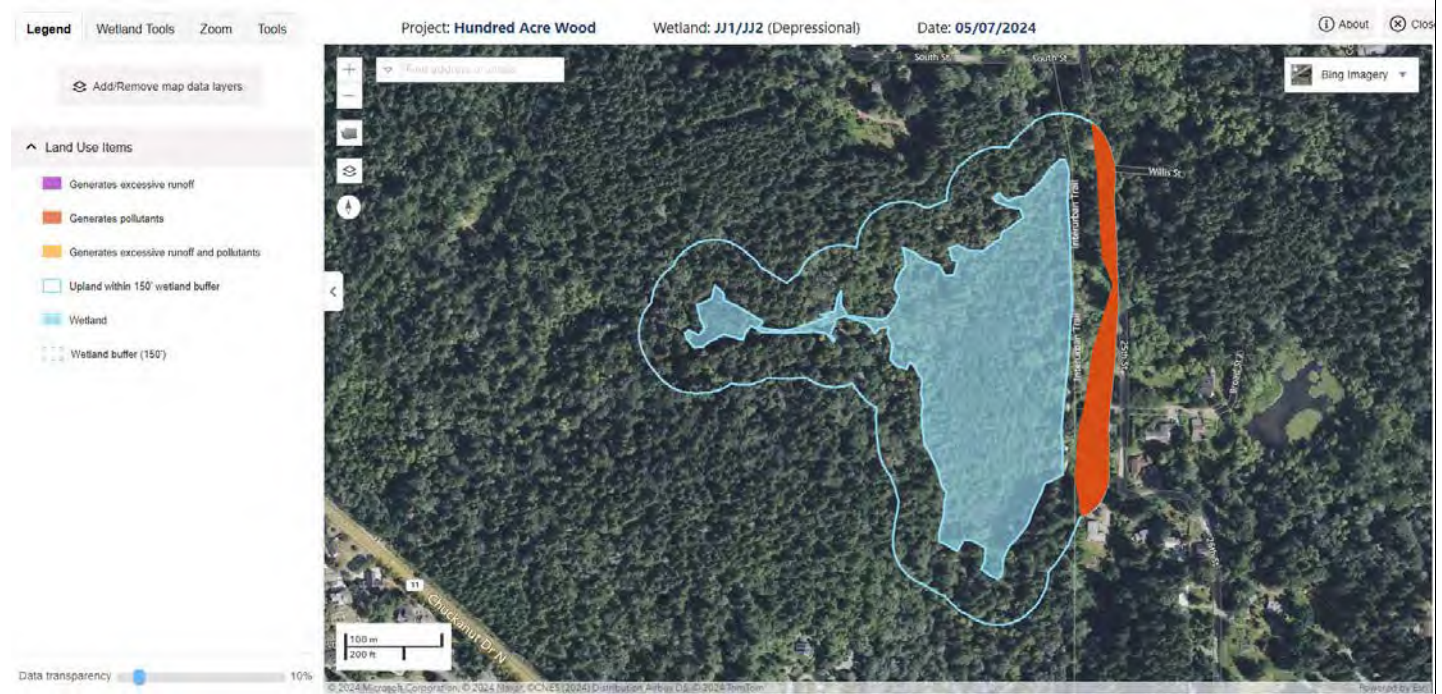


Figure JJ-8. 150-foot Boundary and Land Use.



Wetland name or number: JJ3

RATING SUMMARY - Western Washington

Name of wetland (or ID#): JJ3 Date of site visit: 02/29/2024

Rated By: Danielle Rapoza Trained by Ecology? Yes [X] No [] Date of Training: 10/31/2018

HGM Class used for rating: Slope

Wetland has multiple HGM classes? Yes [] No [X]

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

Source of base aerial photo/map: WATOR

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

1. Category of wetland based on FUNCTIONS

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

Score for each function based on three ratings

(order of ratings is not important)

9 = H,H,H

8 = H,H,M

7 = H,H,L

7 = H,M,M

6 = H,M,L

6 = M,M,M

5 = H,L,L

5 = M,M,L

4 = M,L,L

3 = L,L,L

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
Site Potential	L	L	L	
Landscape Potential	M	L	M	
Value	H	H	M	Total
Score Based on Ratings	6	5	5	16

2. Category based on SPECIAL CHARACTERISTICS of wetland

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

Wetland name or number: JJ3

Maps and figures required to answer questions correctly for Western Washington

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	JJ3-2
Hydroperiods	H 1.2	JJ3-3
Plant cover of dense trees, shrubs, and herbaceous plants	S 1.3	JJ3-1
Plant cover of dense, rigid trees, shrubs, and herbaceous plants (<i>can be added to figure above</i>)	S 4.1	JJ3-1
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	S 2.1, S 5.1	JJ3-7
1km Polygon: Area that extends 1km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	JJ3-4
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	JJ3-5
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	JJ3-6

Wetland name or number: JJ3

SLOPE WETLANDS

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

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

S 1.1 What are the characteristics of the average slope of the wetland?

Slope is 1% or less	points = 3	
Slope is >1%-2%	points = 2	
Slope is >2%-5%	points = 1	
Slope is greater than 5%	points = 0	Score: 1

S 1.2 What is the soil 2in below the surface or duff layer?

Mapped as true clay or organic (muck or peat)	points = 3	
Soil texture identified as clay or organic in field	points = 3	
Soil texture identified as clay or organic by laboratory test	points = 3	
None of the above	points = 0	Score: 0

S 1.3 Characteristics of the plants in the wetland that trap sediments and pollutants

Dense, uncut, herbaceous plants cover >90% of the wetland area	points = 6	
Dense, uncut, herbaceous plants cover >50% of the wetland area	points = 3	
Dense, woody, plants cover >50% of the wetland area	points = 2	
Dense, uncut, herbaceous plants cover >25% of the wetland area	points = 1	
Does not meet any of the criteria above for plants	points = 0	Score: 0

Total for S 1: 1

Rating of Site Potential

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

Record the rating on the first page

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

S 2.1 Is >10% of the area within 150ft on the uphill side of the wetland in land uses that generate pollutants?

Yes	points = 1	
No	points = 0	Score: 0

S 2.2 Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1?

Yes	points = 1	
No	points = 0	Score: 1

S 2.3 What are the other sources of pollutants coming into the wetland?

Trails, pet waste

Total for S 2: 1

Rating of Landscape Potential

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

Record the rating on the first page

Wetland name or number: JJ3

S 3.0 Is the water quality improvement provided by the site valuable to society?		
S 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	points = 1	
No	points = 0	Score: 1
S 3.2 Is the wetland in a basin or sub-basin where water quality is an issue?		
Yes	points = 1	
No	points = 0	Score: 1
S 3.3 Has the site been identified in a watershed or local plan as important for maintaining water quality?		
Yes	points = 2	
No	points = 0	Score: 0
Total for S 3:		2

Rating of Value

2-4 = H 1 = M 0 = L

Record the rating on the first page

SLOPE WETLANDS

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

S 4.0 Does the site have the potential to reduce flooding and erosion?		
S 4.1 What are the characteristics of the plants that reduce the velocity of surface flows during storms?		
Dense, uncut, rigid plants cover >90% of the wetland area	points = 1	
All other conditions	points = 0	Score: 0
Total for S 4:		0

Rating of Site Potential

1 = M 0 = L

Record the rating on the first page

S 5.0 Does the landscape have the potential to support the hydrologic functions of the site?		
S 5.1 Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff?		
Yes	points = 1	
No	points = 0	Score: 0
Total for S 5:		0

Rating of Landscape Potential

1 = M 0 = L

Record the rating on the first page

Wetland name or number: JJ3

S 6.0 Are the hydrologic functions provided by the site valuable to society?		
S 6.1 <u>Is the wetland in a landscape that has flooding problems?</u>		
Flooding occurs in a sub-basin that is immediately down-gradient of wetland.	points = 2	
Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
There are no problems with flooding downstream of the wetland	points = 0	Score: 2
S 6.2 <u>Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?</u>		
Yes	points = 2	
No	points = 0	Score: 0
Total for S 6:		2

Rating of Value

2-4 = H 1 = M 0 = L

Record the rating on the first page

Wetland name or number: JJ3

HABITAT FUNCTIONS

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

H 1.0 Does the wetland have the potential to provide habitat for many species?

H 1.1 What is the structure of the plant community?

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

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

H 1.2 What are the hydroperiods that meet the size thresholds in the wetland?

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

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

H 1.3 What is the richness of the plant species in the wetland?

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

Wetland name or number: JJ3

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

Rating of Site Potential

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

Record the rating on the first page

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

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

Wetland name or number: JJ3

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

Rating of Landscape Potential

[] 4-6 = H [X] 1-3 = M [] 0 = L

Record the rating on the first page

H 3.0 Is the habitat provided by the site valuable to society?

H 3.1 Does the site provide habitat for species valued in laws, regulations, or policies?		
<input type="checkbox"/> Aspen Stands		
<input type="checkbox"/> Biodiversity Areas and Corridors		
<input type="checkbox"/> Herbaceous Balds		
<input checked="" type="checkbox"/> Old-growth/Mature Forests		
<input type="checkbox"/> Oregon White Oak		
<input type="checkbox"/> Riparian		
<input type="checkbox"/> Westside Prarie		
<input type="checkbox"/> Fresh Deepwater		
<input type="checkbox"/> Instream		
<input type="checkbox"/> Nearshore (Coastal, Open Coast, Puget Sound)		
<input type="checkbox"/> Caves		
<input type="checkbox"/> Cliffs		
<input checked="" type="checkbox"/> Snags and Logs		
<input type="checkbox"/> Talus		
The following criteria automatically score 2 points:		
<input type="checkbox"/> The wetland provides habitat for Threatened or Endangered species		
<input type="checkbox"/> The wetland is mapped as a location for an individual WDFW priority species		
<input type="checkbox"/> The wetland is a Wetland of High Conservation Value		
<input type="checkbox"/> The wetland has been categorized as an important habitat site in a local plan		
The wetland has 3 or more WDFW priority habitats within 100m, or meets the criteria for societal value	points = 2	
The site has 1 or 2 WDFW priority habitats within 100m	points = 1	
The site does not meet any of the criteria for societal value	points = 0	Score: 1
Total for H 3:		1

Rating of Value

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

Record the rating on the first page

Wetland name or number: JJ3

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

SC 1.0 Estuarine Wetlands

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

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

Yes - Go to SC 1.2

No - Not an Estuarine Wetland

**Result: Not an
Estuarine Wetland**

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

Yes - Category I Estuarine Wetland

No - Go to SC 1.3

Result:

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

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

Yes - Category I Estuarine Wetland

No - Category II Estuarine Wetland

Result:

SC 2.0 Wetlands of High Conservation Value

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

Yes - Category I Wetland of High Conservation Value

No - Go to SC 2.2

Result: Go to SC 2.2

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

Yes - Category I Wetland of High Conservation Value

No - Not a Wetland of High Conservation Value

**Result: Not a Wetland
of High Conservation
Value**

Wetland name or number: JJ3

SC 3.0 Bogs

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

Yes - Go to SC 3.3

No - Go to SC 3.2

Result: Go to SC 3.2

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

Yes - Go to SC 3.3

No - Not a Bog Wetland

**Result: Not a Bog
Wetland**

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

Yes - Category I Bog Wetland

No - Go to SC 3.4

Result:

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

Yes - Category I Bog Wetland

No - Not a Bog Wetland

Result:

SC 4.0 Forested Wetlands

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

Old-growth forests

Mature forests

Yes - Category I Forested Wetland

No - Not a Forested Wetland

**Result: Not a Forested
Wetland**

Wetland name or number: JJ3

SC 5.0 Wetlands in Coastal Lagoons

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

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

Yes - Go to SC 5.2

No - Not a Coastal Lagoon Wetland

Result: Not a Coastal Lagoon Wetland

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

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

Yes - Category I Coastal Lagoon

No - Category II Coastal Lagoon

Result:

SC 6.0 Interdunal Wetlands

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

Yes - Go to SC 6.2

No - Not an Interdunal Wetland

Result: Not an Interdunal Wetland

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

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

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

No - Go to SC 6.4

Result:

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

Yes - Category I Interdunal Wetland

No - Category II Interdunal Wetland

Result:

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

Yes - Category III Interdunal Wetland

No - Category IV Interdunal Wetland

Result:

Wetland name or number: JJ3

Category of wetland based on Special Characteristics

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

**Final Category: Not
Applicable**

Figure JJ3-1. Plant Cover.



Figure JJ3-2. Map of Cowardin Classes.



Figure JJ3-3. Map of Hydroperiods.



Figure JJ3-4. Habitat Within 1-kilometer.



Figure JJ3-6. 303(d) Listed Waters in Basin.

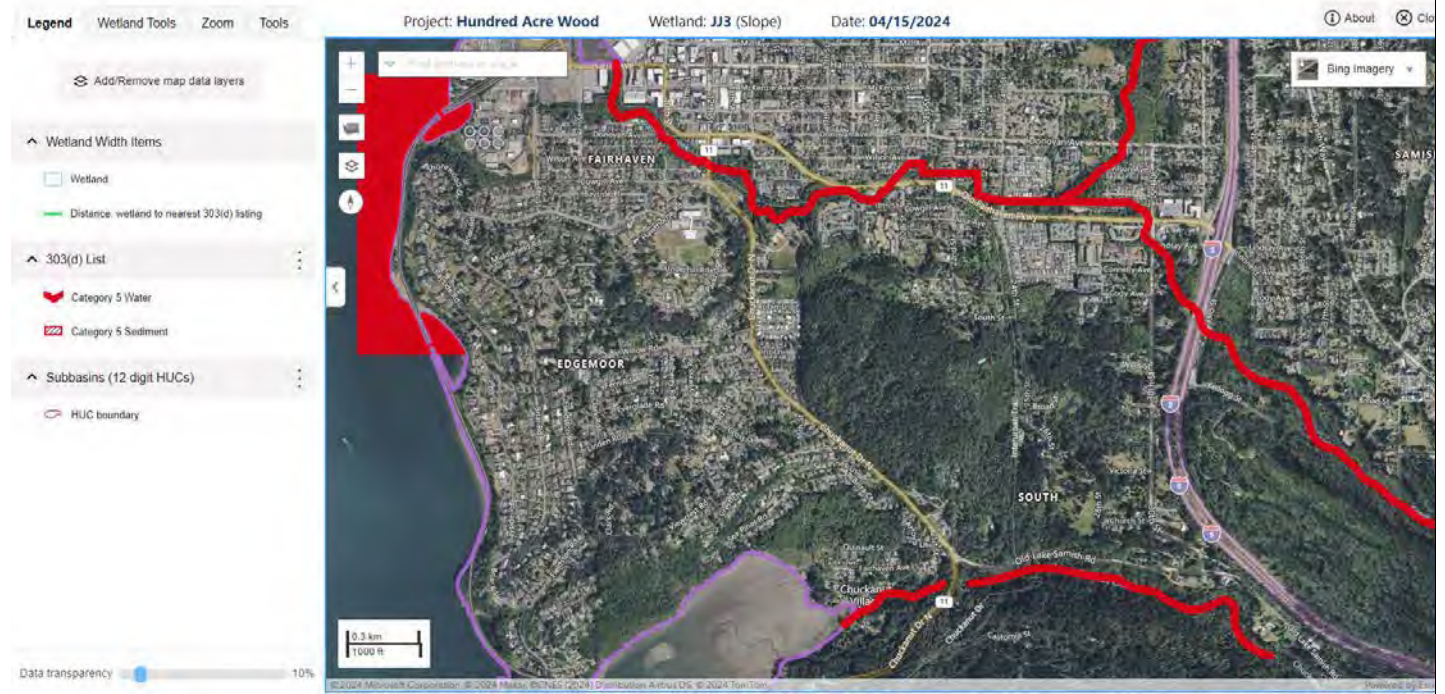


Figure JJ3-7. TMDLs in WRIA.

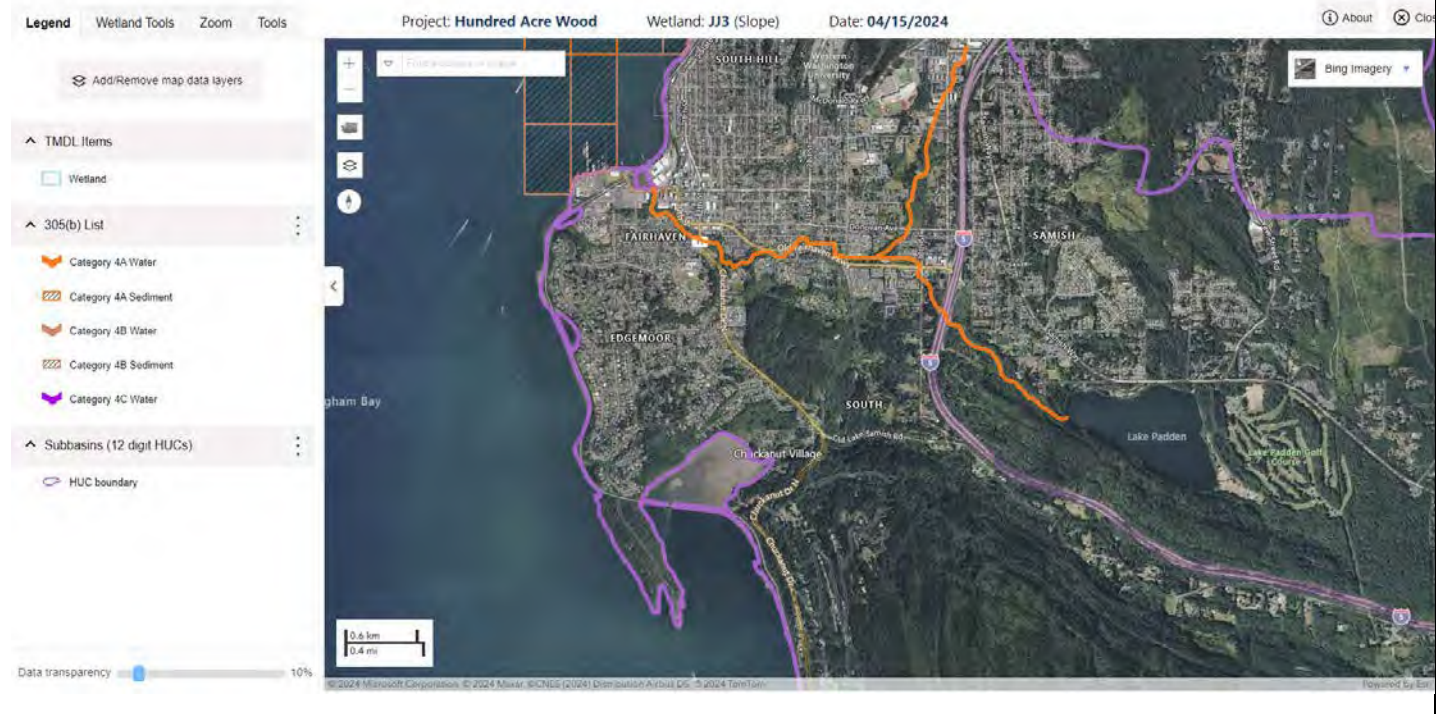


Figure JJ3-8. 150-foot Boundary and Land Use.



Wetland name or number: JJ4

RATING SUMMARY - Western Washington

Name of wetland (or ID#): JJ4 Date of site visit: 03/15/2024

Rated By: Danielle Rapoza Trained by Ecology? Yes No Date of Training: 10/31/2018

HGM Class used for rating: Slope

Wetland has multiple HGM classes? Yes No

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

Source of base aerial photo/map: WATOR

OVERALL WETLAND CATEGORY: [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

Score for each function based on three ratings

(order of ratings is not important)

9 = H,H,H

8 = H,H,M

7 = H,H,L

7 = H,M,M

6 = H,M,L

6 = M,M,M

5 = H,L,L

5 = M,M,L

4 = M,L,L

3 = L,L,L

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
Site Potential	L	L	L	
Landscape Potential	M	L	H	
Value	H	H	H	Total
Score Based on Ratings	6	5	7	18

2. Category based on SPECIAL CHARACTERISTICS of wetland

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

Wetland name or number: JJ4

Maps and figures required to answer questions correctly for Western Washington

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	JJ4-1
Hydroperiods	H 1.2	JJ4-2
Plant cover of dense trees, shrubs, and herbaceous plants	S 1.3	JJ4-3
Plant cover of dense, rigid trees, shrubs, and herbaceous plants (<i>can be added to figure above</i>)	S 4.1	JJ4-3
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	S 2.1, S 5.1	JJ4-7
1km Polygon: Area that extends 1km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	JJ4-4
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	JJ4-5
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	JJ4-6

Wetland name or number: JJ4

SLOPE WETLANDS

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

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

S 1.1 What are the characteristics of the average slope of the wetland?

Slope is 1% or less	points = 3	
Slope is >1%-2%	points = 2	
Slope is >2%-5%	points = 1	
Slope is greater than 5%	points = 0	Score: 1

S 1.2 What is the soil 2in below the surface or duff layer?

Mapped as true clay or organic (muck or peat)	points = 3	
Soil texture identified as clay or organic in field	points = 3	
Soil texture identified as clay or organic by laboratory test	points = 3	
None of the above	points = 0	Score: 0

S 1.3 Characteristics of the plants in the wetland that trap sediments and pollutants

Dense, uncut, herbaceous plants cover >90% of the wetland area	points = 6	
Dense, uncut, herbaceous plants cover >50% of the wetland area	points = 3	
Dense, woody, plants cover >50% of the wetland area	points = 2	
Dense, uncut, herbaceous plants cover >25% of the wetland area	points = 1	
Does not meet any of the criteria above for plants	points = 0	Score: 0

Total for S 1: 1

Rating of Site Potential

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

Record the rating on the first page

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

S 2.1 Is >10% of the area within 150ft on the uphill side of the wetland in land uses that generate pollutants?

Yes	points = 1	
No	points = 0	Score: 0

S 2.2 Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1?

Yes	points = 1	
No	points = 0	Score: 1

S 2.3 What are the other sources of pollutants coming into the wetland?

Trails, pet waste

Total for S 2: 1

Rating of Landscape Potential

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

Record the rating on the first page

Wetland name or number: JJ4

S 3.0 Is the water quality improvement provided by the site valuable to society?		
S 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	points = 1	
No	points = 0	Score: 1
S 3.2 Is the wetland in a basin or sub-basin where water quality is an issue?		
Yes	points = 1	
No	points = 0	Score: 1
S 3.3 Has the site been identified in a watershed or local plan as important for maintaining water quality?		
Yes	points = 2	
No	points = 0	Score: 0
Total for S 3:		2

Rating of Value

2-4 = H 1 = M 0 = L

Record the rating on the first page

SLOPE WETLANDS

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

S 4.0 Does the site have the potential to reduce flooding and erosion?		
S 4.1 What are the characteristics of the plants that reduce the velocity of surface flows during storms?		
Dense, uncut, rigid plants cover >90% of the wetland area	points = 1	
All other conditions	points = 0	Score: 0
Total for S 4:		0

Rating of Site Potential

1 = M 0 = L

Record the rating on the first page

S 5.0 Does the landscape have the potential to support the hydrologic functions of the site?		
S 5.1 Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff?		
Yes	points = 1	
No	points = 0	Score: 0
Total for S 5:		0

Rating of Landscape Potential

1 = M 0 = L

Record the rating on the first page

Wetland name or number: JJ4

S 6.0 Are the hydrologic functions provided by the site valuable to society?		
S 6.1 <u>Is the wetland in a landscape that has flooding problems?</u>		
Flooding occurs in a sub-basin that is immediately down-gradient of wetland.	points = 2	
Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
There are no problems with flooding downstream of the wetland	points = 0	Score: 2
S 6.2 <u>Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?</u>		
Yes	points = 2	
No	points = 0	Score: 0
Total for S 6:		2

Rating of Value

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

Record the rating on the first page

Wetland name or number: JJ4

HABITAT FUNCTIONS

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

H 1.0 Does the wetland have the potential to provide habitat for many species?

H 1.1 What is the structure of the plant community?

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

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

H 1.2 What are the hydroperiods that meet the size thresholds in the wetland?

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

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

H 1.3 What is the richness of the plant species in the wetland?

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

Wetland name or number: JJ4

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

Rating of Site Potential

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

Record the rating on the first page

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

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

Wetland name or number: JJ4

H 2.3 What is the land use intensity in the 1km polygon?		
50% of the Polygon is high intensity land use	points = -2	
<50% of the Polygon is high intensity land use	points = 0	Score: 0
Total for H 2:		4

Rating of Landscape Potential

[X] 4-6 = H [] 1-3 = M [] 0 = L

Record the rating on the first page

H 3.0 Is the habitat provided by the site valuable to society?

H 3.1 Does the site provide habitat for species valued in laws, regulations, or policies?		
<input type="checkbox"/> Aspen Stands		
<input type="checkbox"/> Biodiversity Areas and Corridors		
<input type="checkbox"/> Herbaceous Balds		
<input checked="" type="checkbox"/> Old-growth/Mature Forests		
<input type="checkbox"/> Oregon White Oak		
<input checked="" type="checkbox"/> Riparian		
<input type="checkbox"/> Westside Prarie		
<input type="checkbox"/> Fresh Deepwater		
<input checked="" type="checkbox"/> Instream		
<input type="checkbox"/> Nearshore (Coastal, Open Coast, Puget Sound)		
<input type="checkbox"/> Caves		
<input type="checkbox"/> Cliffs		
<input checked="" type="checkbox"/> Snags and Logs		
<input type="checkbox"/> Talus		
The following criteria automatically score 2 points:		
<input type="checkbox"/> The wetland provides habitat for Threatened or Endangered species		
<input type="checkbox"/> The wetland is mapped as a location for an individual WDFW priority species		
<input type="checkbox"/> The wetland is a Wetland of High Conservation Value		
<input type="checkbox"/> The wetland has been categorized as an important habitat site in a local plan		
The wetland has 3 or more WDFW priority habitats within 100m, or meets the criteria for societal value	points = 2	
The site has 1 or 2 WDFW priority habitats within 100m	points = 1	
The site does not meet any of the criteria for societal value	points = 0	Score: 2
Total for H 3:		2

Rating of Value

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

Record the rating on the first page

Wetland name or number: JJ4

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

SC 1.0 Estuarine Wetlands

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

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

Yes - Go to SC 1.2

No - Not an Estuarine Wetland

**Result: Not an
Estuarine Wetland**

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

Yes - Category I Estuarine Wetland

No - Go to SC 1.3

Result:

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

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

Yes - Category I Estuarine Wetland

No - Category II Estuarine Wetland

Result:

SC 2.0 Wetlands of High Conservation Value

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

Yes - Category I Wetland of High Conservation Value

No - Go to SC 2.2

Result: Go to SC 2.2

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

Yes - Category I Wetland of High Conservation Value

No - Not a Wetland of High Conservation Value

**Result: Not a Wetland
of High Conservation
Value**

Wetland name or number: JJ4

SC 3.0 Bogs

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

Yes - Go to SC 3.3

No - Go to SC 3.2

Result: Go to SC 3.2

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

Yes - Go to SC 3.3

No - Not a Bog Wetland

Result: Not a Bog Wetland

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

Yes - Category I Bog Wetland

No - Go to SC 3.4

Result:

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

Yes - Category I Bog Wetland

No - Not a Bog Wetland

Result:

SC 4.0 Forested Wetlands

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

Old-growth forests

Mature forests

Yes - Category I Forested Wetland

No - Not a Forested Wetland

Result: Not a Forested Wetland

Wetland name or number: JJ4

SC 5.0 Wetlands in Coastal Lagoons

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

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

Yes - Go to SC 5.2

No - Not a Coastal Lagoon Wetland

Result: Not a Coastal Lagoon Wetland

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

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

Yes - Category I Coastal Lagoon

No - Category II Coastal Lagoon

Result:

SC 6.0 Interdunal Wetlands

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

Yes - Go to SC 6.2

No - Not an Interdunal Wetland

Result: Not an Interdunal Wetland

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

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

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

No - Go to SC 6.4

Result:

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

Yes - Category I Interdunal Wetland

No - Category II Interdunal Wetland

Result:

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

Yes - Category III Interdunal Wetland

No - Category IV Interdunal Wetland

Result:

Wetland name or number: JJ4

Category of wetland based on Special Characteristics

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

**Final Category: Not
Applicable**

Figure JJ4-1. Plant Cover.



Figure JJ4-2. Map of Cowardin Classes.



Figure JJ4-3. Map of Hydroperiods.



Figure JJ4-4. Habitat Within 1-kilometer.



Figure JJ4-6. 303(d) Listed Waters in Basin.

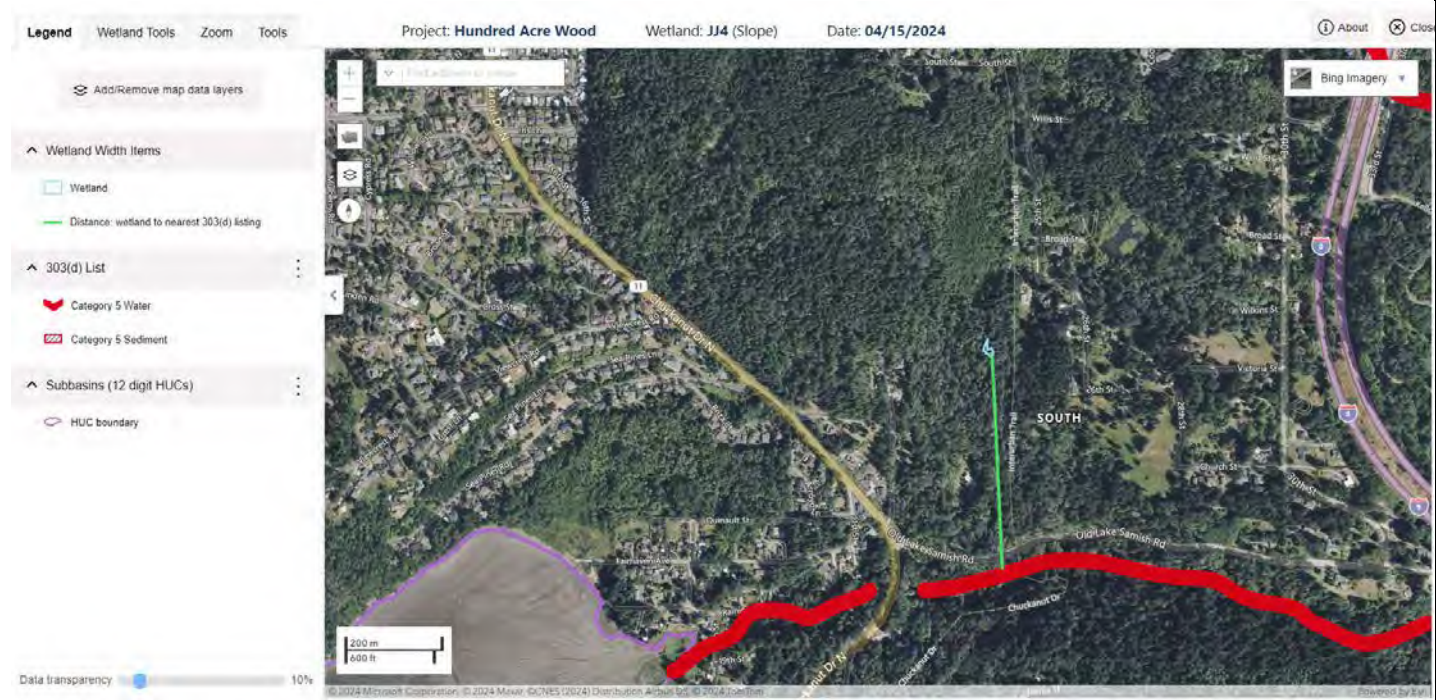


Figure JJ4-7. TMDLs in WRIA.

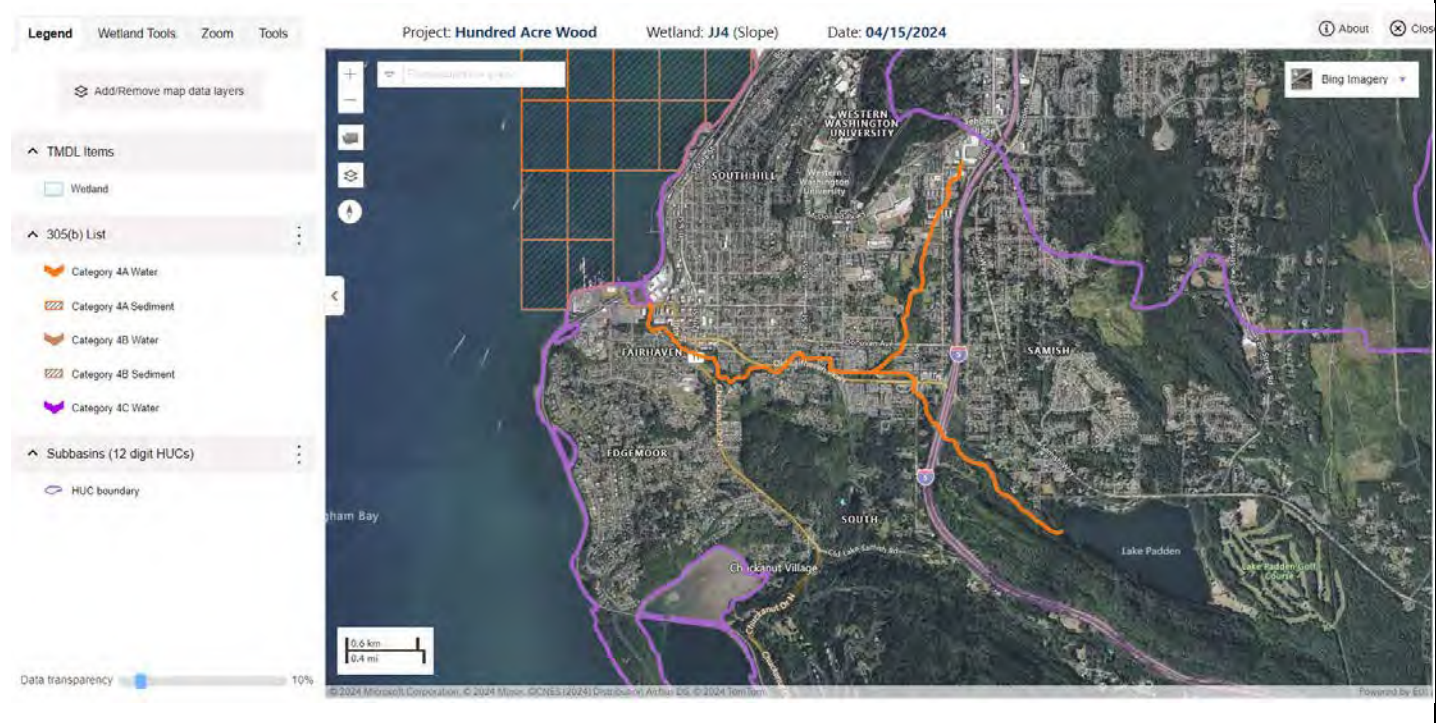


Figure JJ4-7. 150-foot Boundary and Land Use.



Wetland name or number: JJ5

RATING SUMMARY - Western Washington

Name of wetland (or ID#): JJ5 Date of site visit: 03/06/2024

Rated By: Danielle Rapoza Trained by Ecology? Yes No Date of Training: 10/31/2018

HGM Class used for rating: Depressional

Wetland has multiple HGM classes? Yes No

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

Source of base aerial photo/map: WATOR

OVERALL WETLAND CATEGORY: **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

Score for each function based on three ratings

(order of ratings is not important)

9 = H,H,H

8 = H,H,M

7 = H,H,L

7 = H,M,M

6 = H,M,L

6 = M,M,M

5 = H,L,L

5 = M,M,L

4 = M,L,L

3 = L,L,L

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
Site Potential	M	M	M	
Landscape Potential	M	L	H	
Value	H	H	H	Total
Score Based on Ratings	7	6	8	21

2. Category based on SPECIAL CHARACTERISTICS of wetland

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

Wetland name or number: JJ5

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	JJ5-2
Hydroperiods	D 1.4, H 1.2	JJ5-3
Location of outlet (<i>can be added to map of hydroperiods</i>)	D 1.1, D 4.1	JJ5-1
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	D 2.2, D 5.2	JJ5-8
Map of the contributing basin	D 4.3, D 5.3	JJ5-4
1km Polygon: Area that extends 1km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	JJ5-5
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	JJ5-6
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	JJ5-7

Wetland name or number: JJ5

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** What are the characteristics of surface water outflows from the wetland?

Wetland has no surface water outlet.	points = 3	
Wetland has an intermittently flowing, or highly constricted, outlet.	points = 2	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 1	
Wetland is a flat depression whose outlet is a permanently flowing ditch.	points = 1	Score: 2

D 1.2 Is the soil 2 in. below the surface a true clay or organic soil?

Mapped as true clay or organic (muck or peat)	points = 4	
Soil texture identified as clay or organic in field	points = 4	
Soil texture identified as clay or organic by laboratory test	points = 4	
None of the above	points = 0	Score: 0

D 1.3 What are the characteristics and distribution of persistent plants?

Wetland has persistent, ungrazed, plants > 95% of area	points = 5	
Wetland has persistent, ungrazed, plants > 50% of area	points = 3	
Wetland has persistent, ungrazed plants > 10% of area	points = 1	
Wetland has persistent, ungrazed plants < 10% of area	points = 0	Score: 5

D 1.4 What are the characteristics of seasonal ponding or inundation in the wetland area?

Area seasonally ponded is > 50% total area of wetland	points = 4	
Area seasonally ponded is equal to or > 25% total area of wetland	points = 2	
Area seasonally ponded is < 25% total area of wetland	points = 0	Score: 2

Total for D 1: 9**Rating of Site Potential**

[] 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	points = 1	
No	points = 0	Score: 0

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

Yes	points = 1	
No	points = 0	Score: 0

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

Yes	points = 1	
No	points = 0	Score: 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	points = 1	
No	points = 0	Score: 1

Wetland name or number: JJ5**D 2.5** What are the other sources of pollutants coming into the wetland?

Trails, pet waste

Total for D 2:**1****Rating of Landscape Potential**

[] 3-4 = H [X] 1-2 = 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 points = 1

No points = 0

Score: 1**D 3.2** Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?

Yes points = 1

No points = 0

Score: 1**D 3.3** Has the site been identified in a watershed or local plan as important for maintaining water quality?

Yes points = 2

No points = 0

Score: 0**Total for D 3:****2****Rating of Value**

[X] 2-4 = H [] 1 = M [] 0 = L

Record the rating on the first page

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation**D 4.0** Does the site have the potential to reduce flooding and erosion?**D 4.1** What are the characteristics of surface water outflows from the wetland?

Wetland has no surface water outlet. points = 4

Wetland has an intermittently flowing, or highly constricted, outlet. points = 2

Wetland is a flat depression whose outlet is a permanently flowing ditch. points = 1

Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 0

Score: 2**D 4.2** What is the depth of storage during the wet periods?

Marks of ponding are 3ft or more above the surface or bottom of the outlet. points = 7

Marks of ponding are between 2ft to <3ft from the surface or bottom of the outlet. points = 5

Marks of ponding are at least 0.5ft to <2ft from the surface or the bottom of the outlet. points = 3

The wetland is a "headwater" wetland. points = 3

The wetland is flat but has small depressions on the surface that trap water. points = 1

Marks of ponding are less than 0.5ft (6in). points = 0

Score: 3

Wetland name or number: JJ5

D 4.3 <u>What is the contribution of the wetland to storage in the watershed?</u>		
The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
Entire wetland is in the Flats class	points = 5	Score: 5
Total for D 4:		10

Rating of Site Potential

[] 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 <u>Does the wetland unit receive stormwater discharges?</u>		
Yes	points = 1	
No	points = 0	Score: 0
D 5.2 <u>Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff?</u>		
Yes	points = 1	
No	points = 0	Score: 0
D 5.3 <u>Is more than 25% of the contributing basin of the wetland covered with intensive human land uses?</u>		
Yes	points = 1	
No	points = 0	Score: 0
Total for D 5:		0

Rating of Landscape Potential

[] 3 = H [] 1-2 = M [X] 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 <u>Is the wetland in a landscape that has flooding problems?</u>		
Flooding occurs in a sub-basin that is immediately down-gradient of the wetland.	points = 2	
Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
Flooding from groundwater is an issue in the basin.	points = 1	
The existing or potential outflow from the wetland is so constrained that water cannot reach areas that flood.	points = 0	
There are no problems with flooding downstream of the wetland.	points = 0	Score: 2
D 6.2 <u>Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?</u>		
Yes	points = 2	
No	points = 0	Score: 0
Total for D 6:		2

Rating of Value

[X] 2-4 = H [] 1 = M [] 0 = L

Record the rating on the first page

Wetland name or number: JJ5

HABITAT FUNCTIONS

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

H 1.0 Does the wetland have the potential to provide habitat for many species?

H 1.1 What is the structure of the plant community?

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

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

H 1.2 What are the hydroperiods that meet the size thresholds in the wetland?

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

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

H 1.3 What is the richness of the plant species in the wetland?

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

Wetland name or number: JJ5

H 1.4 <u>What is the interspersion of habitats?</u>	
High	points = 3
Moderate	points = 2
Low	points = 1
None	points = 0
Score: 3	
H 1.5 <u>What are the special habitat features in the wetland?</u>	
<input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (>4in diameter and 6ft long).	
<input checked="" type="checkbox"/> Standing snags (dbh >4in) within the wetland	
<input checked="" type="checkbox"/> Undercut banks are present for at least 6.6ft (2m) and/or overhanging plants extend at least 3.3ft (1m) over open water or a stream (or ditch) in, or contiguous with the wetland, for at least 33ft (10m)	
<input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet weathered where wood is exposed)	
<input checked="" type="checkbox"/> At least 0.25ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (structures for egg-laying by amphibians)	
<input checked="" type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (see H 1.1 for list of strata)	
6 habitats selected	points = 6
5 habitats selected	points = 5
4 habitats selected	points = 4
3 habitats selected	points = 3
2 habitats selected	points = 2
1 habitat selected	points = 1
No habitats selected	points = 0
Score: 5	
Total for H 1: 14	

Rating of Site Potential

[] 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 habitat functions of the site?

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

Wetland name or number: JJ5

H 2.3 What is the land use intensity in the 1km polygon?		
50% of the Polygon is high intensity land use	points = -2	
<50% of the Polygon is high intensity land use	points = 0	Score: 0
Total for H 2:		4

Rating of Landscape Potential

4-6 = H 1-3 = M 0 = L

Record the rating on the first page

H 3.0 Is the habitat provided by the site valuable to society?

H 3.1 Does the site provide habitat for species valued in laws, regulations, or policies?		
<input type="checkbox"/> Aspen Stands		
<input type="checkbox"/> Biodiversity Areas and Corridors		
<input type="checkbox"/> Herbaceous Balds		
<input checked="" type="checkbox"/> Old-growth/Mature Forests		
<input type="checkbox"/> Oregon White Oak		
<input checked="" type="checkbox"/> Riparian		
<input type="checkbox"/> Westside Prarie		
<input type="checkbox"/> Fresh Deepwater		
<input checked="" type="checkbox"/> Instream		
<input type="checkbox"/> Nearshore (Coastal, Open Coast, Puget Sound)		
<input type="checkbox"/> Caves		
<input type="checkbox"/> Cliffs		
<input type="checkbox"/> Snags and Logs		
<input type="checkbox"/> Talus		
The following criteria automatically score 2 points:		
<input type="checkbox"/> The wetland provides habitat for Threatened or Endangered species		
<input type="checkbox"/> The wetland is mapped as a location for an individual WDFW priority species		
<input type="checkbox"/> The wetland is a Wetland of High Conservation Value		
<input type="checkbox"/> The wetland has been categorized as an important habitat site in a local plan		
The wetland has 3 or more WDFW priority habitats within 100m, or meets the criteria for societal value	points = 2	
The site has 1 or 2 WDFW priority habitats within 100m	points = 1	
The site does not meet any of the criteria for societal value	points = 0	Score: 2
Total for H 3:		2

Rating of Value

2 = H 1 = M 0 = L

Record the rating on the first page

Wetland name or number: JJ5

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

SC 1.0 Estuarine Wetlands

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

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

Yes - Go to SC 1.2

No - Not an Estuarine Wetland

**Result: Not an
Estuarine Wetland**

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

Yes - Category I Estuarine Wetland

No - Go to SC 1.3

Result:

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

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

Yes - Category I Estuarine Wetland

No - Category II Estuarine Wetland

Result:

SC 2.0 Wetlands of High Conservation Value

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

Yes - Category I Wetland of High Conservation Value

No - Go to SC 2.2

Result: Go to SC 2.2

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

Yes - Category I Wetland of High Conservation Value

No - Not a Wetland of High Conservation Value

Result:

Wetland name or number: JJ5

SC 3.0 Bogs

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

Yes - Go to SC 3.3

No - Go to SC 3.2

Result: Go to SC 3.2

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

Yes - Go to SC 3.3

No - Not a Bog Wetland

Result: Not a Bog Wetland

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

Yes - Category I Bog Wetland

No - Go to SC 3.4

Result:

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

Yes - Category I Bog Wetland

No - Not a Bog Wetland

Result:

SC 4.0 Forested Wetlands

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

Old-growth forests

Mature forests

Yes - Category I Forested Wetland

No - Not a Forested Wetland

Result: Not a Forested Wetland

Wetland name or number: JJ5

SC 5.0 Wetlands in Coastal Lagoons

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

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

Yes - Go to SC 5.2

No - Not a Coastal Lagoon Wetland

Result: Not a Coastal Lagoon Wetland

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

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

Yes - Category I Coastal Lagoon

No - Category II Coastal Lagoon

Result:

SC 6.0 Interdunal Wetlands

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

Yes - Go to SC 6.2

No - Not an Interdunal Wetland

Result: Not an Interdunal Wetland

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

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

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

No - Go to SC 6.4

Result:

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

Yes - Category I Interdunal Wetland

No - Category II Interdunal Wetland

Result:

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

Yes - Category III Interdunal Wetland

No - Category IV Interdunal Wetland

Result:

Wetland name or number: JJ5

Category of wetland based on Special Characteristics

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

**Final Category: Not
Applicable**

Figure JJ5-1. Location of Outlet.

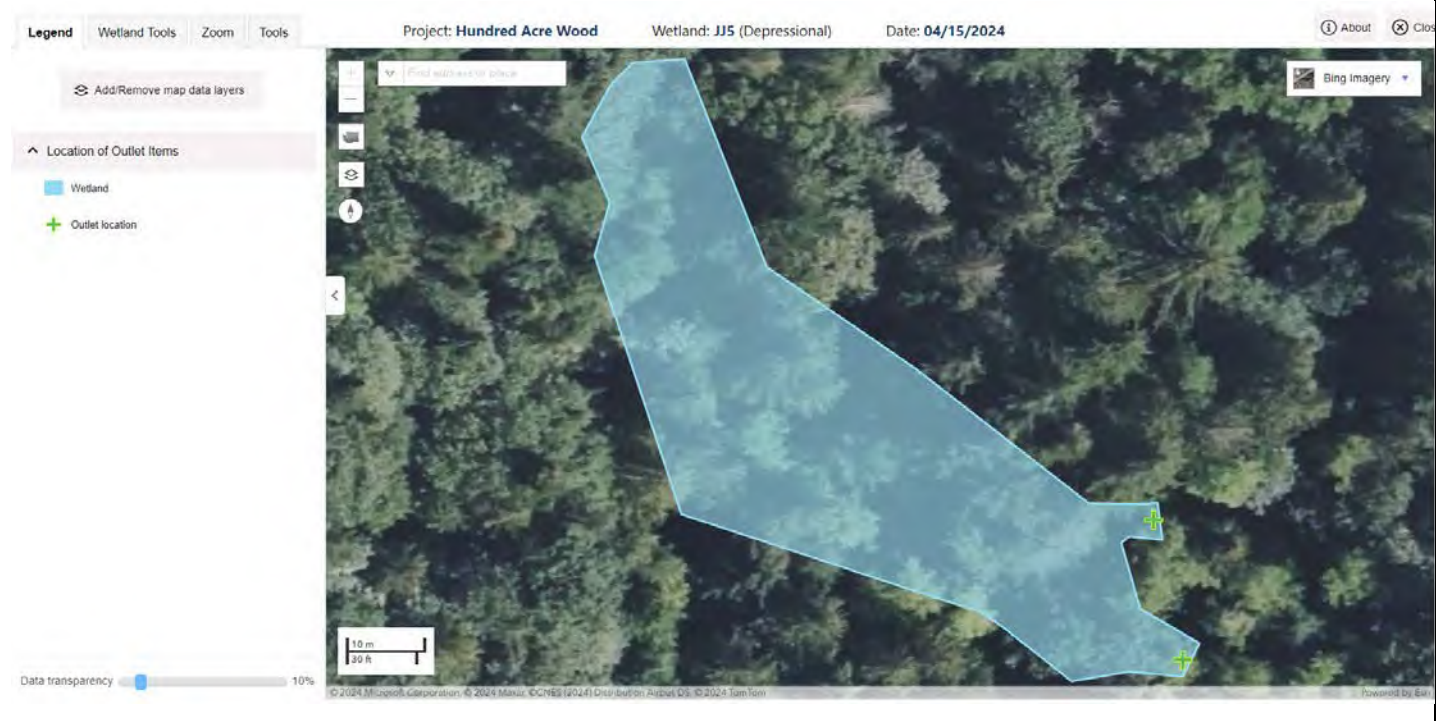


Figure JJ5-2. Map of Cowardin Classes.



Figure JJ5-3. Map of Hydroperiods.



Figure JJ5-4. Contributing Basin.



Figure JJ5-5. Habitat Within 1-kilometer.



Figure JJ5-6. 303(d) Listed Waters in Basin.

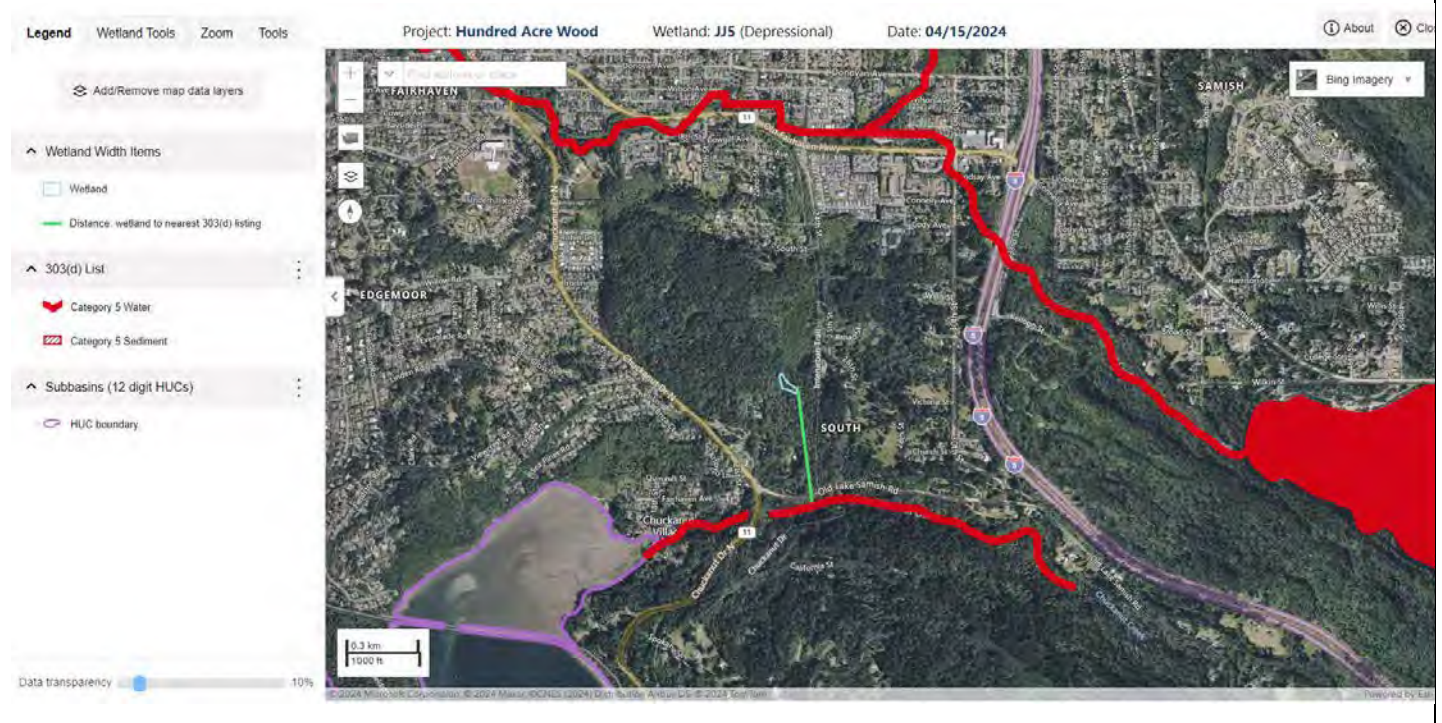


Figure JJ5-7. TMDLs in WRIA.

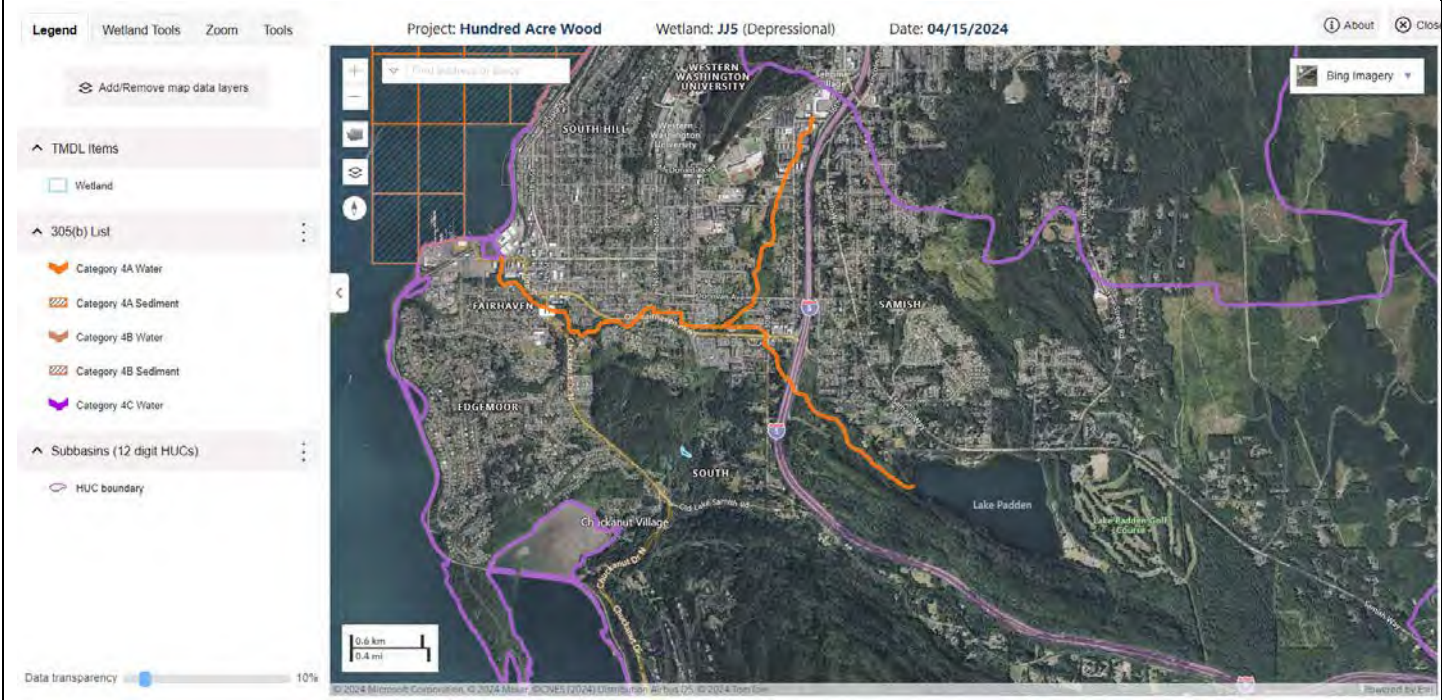
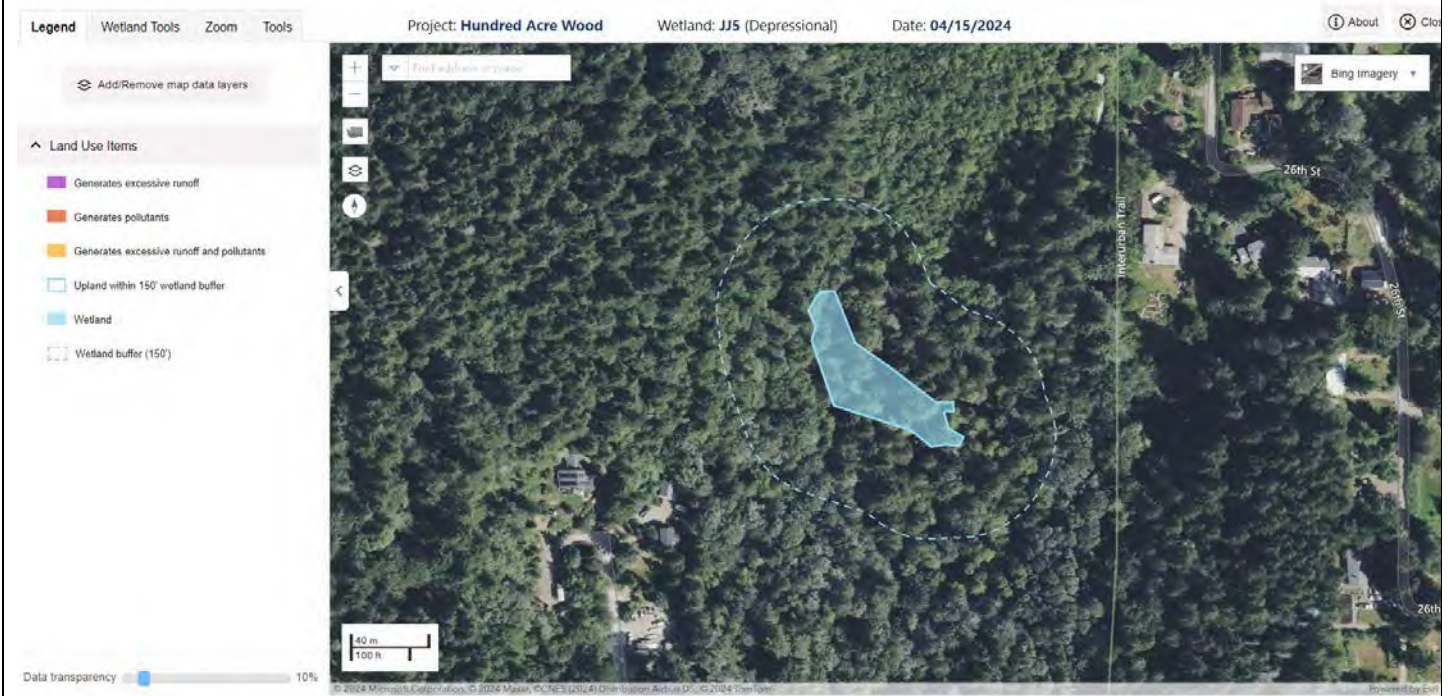


Figure JJ5-8. 150-foot Boundary and Land Use.



Wetland name or number: KK

RATING SUMMARY - Western Washington

Name of wetland (or ID#): KK Date of site visit: 02/21/2024

Rated By: Danielle Rapoza Trained by Ecology? Yes [X] No [] Date of Training: 10/29/2018

HGM Class used for rating: Depressional

Wetland has multiple HGM classes? Yes [] No [X]

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

Source of base aerial photo/map: WATOR

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

1. Category of wetland based on FUNCTIONS

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

Score for each function based on three ratings

(order of ratings is not important)

9 = H,H,H

8 = H,H,M

7 = H,H,L

7 = H,M,M

6 = H,M,L

6 = M,M,M

5 = H,L,L

5 = M,M,L

4 = M,L,L

3 = L,L,L

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
Site Potential	M	M	M	
Landscape Potential	M	L	M	
Value	H	H	M	Total
Score Based on Ratings	7	6	6	19

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	
Wetland of High Conservation Value	
Bog	
Forested	Category I
Coastal Lagoon	
Interdunal	
None of the above	

Wetland name or number: KK

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	KK-2
Hydroperiods	D 1.4, H 1.2	KK-3
Location of outlet (<i>can be added to map of hydroperiods</i>)	D 1.1, D 4.1	KK-1
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	D 2.2, D 5.2	KK-8
Map of the contributing basin	D 4.3, D 5.3	KK-4
1km Polygon: Area that extends 1km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	KK-5
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	KK-6
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	KK-7

Wetland name or number: KK

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 <u>What are the characteristics of surface water outflows from the wetland?</u>		
Wetland has no surface water outlet.	points = 3	
Wetland has an intermittently flowing, or highly constricted, outlet.	points = 2	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 1	
Wetland is a flat depression whose outlet is a permanently flowing ditch.	points = 1	Score: 2
D 1.2 <u>Is the soil 2 in. below the surface a true clay or organic soil?</u>		
Mapped as true clay or organic (muck or peat)	points = 4	
Soil texture identified as clay or organic in field	points = 4	
Soil texture identified as clay or organic by laboratory test	points = 4	
None of the above	points = 0	Score: 0
D 1.3 <u>What are the characteristics and distribution of persistent plants?</u>		
Wetland has persistent, ungrazed, plants > 95% of area	points = 5	
Wetland has persistent, ungrazed, plants > 50% of area	points = 3	
Wetland has persistent, ungrazed plants > 10% of area	points = 1	
Wetland has persistent, ungrazed plants < 10% of area	points = 0	Score: 5
D 1.4 <u>What are the characteristics of seasonal ponding or inundation in the wetland area?</u>		
Area seasonally ponded is > 50% total area of wetland	points = 4	
Area seasonally ponded is equal to or > 25% total area of wetland	points = 2	
Area seasonally ponded is < 25% total area of wetland	points = 0	Score: 2
Total for D 1:		9

Rating of Site Potential

[] 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 <u>Does the wetland unit receive stormwater discharges?</u>		
Yes	points = 1	
No	points = 0	Score: 0
D 2.2 <u>Is >10% of the area within 150ft of the wetland in land uses that generate pollutants in surface runoff?</u>		
Yes	points = 1	
No	points = 0	Score: 0
D 2.3 <u>Are there septic systems within 250ft of the wetland?</u>		
Yes	points = 1	
No	points = 0	Score: 0
D 2.4 <u>Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3?</u>		
Yes	points = 1	
No	points = 0	Score: 1

Wetland name or number: KK**D 2.5** What are the other sources of pollutants coming into the wetland?

Trails, pet waste

Total for D 2:**1****Rating of Landscape Potential**

[] 3-4 = H [X] 1-2 = 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 points = 1

No points = 0

Score: 0**D 3.2** Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?

Yes points = 1

No points = 0

Score: 1**D 3.3** Has the site been identified in a watershed or local plan as important for maintaining water quality?

Yes points = 2

No points = 0

Score: 2**Total for D 3:****3****Rating of Value**

[X] 2-4 = H [] 1 = M [] 0 = L

Record the rating on the first page

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation**D 4.0** Does the site have the potential to reduce flooding and erosion?**D 4.1** What are the characteristics of surface water outflows from the wetland?

Wetland has no surface water outlet. points = 4

Wetland has an intermittently flowing, or highly constricted, outlet. points = 2

Wetland is a flat depression whose outlet is a permanently flowing ditch. points = 1

Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 0

Score: 2**D 4.2** What is the depth of storage during the wet periods?

Marks of ponding are 3ft or more above the surface or bottom of the outlet. points = 7

Marks of ponding are between 2ft to <3ft from the surface or bottom of the outlet. points = 5

Marks of ponding are at least 0.5ft to <2ft from the surface or the bottom of the outlet. points = 3

The wetland is a "headwater" wetland. points = 3

The wetland is flat but has small depressions on the surface that trap water. points = 1

Marks of ponding are less than 0.5ft (6in). points = 0

Score: 3

Wetland name or number: KK

D 4.3 <u>What is the contribution of the wetland to storage in the watershed?</u>		
The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
Entire wetland is in the Flats class	points = 5	Score: 5
Total for D 4:		10

Rating of Site Potential

[] 12-16 = H [X] 6-11 = M [] 0-5 = L

Record the rating on the first page

D 5.0 <u>Does the landscape have the potential to support hydrologic functions of the site?</u>		
D 5.1 <u>Does the wetland unit receive stormwater discharges?</u>		
Yes	points = 1	
No	points = 0	Score: 0
D 5.2 <u>Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff?</u>		
Yes	points = 1	
No	points = 0	Score: 0
D 5.3 <u>Is more than 25% of the contributing basin of the wetland covered with intensive human land uses?</u>		
Yes	points = 1	
No	points = 0	Score: 0
Total for D 5:		0

Rating of Landscape Potential

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

Record the rating on the first page

D 6.0 <u>Are the hydrologic functions provided by the site valuable to society?</u>		
D 6.1 <u>Is the wetland in a landscape that has flooding problems?</u>		
Flooding occurs in a sub-basin that is immediately down-gradient of the wetland.	points = 2	
Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
Flooding from groundwater is an issue in the basin.	points = 1	
The existing or potential outflow from the wetland is so constrained that water cannot reach areas that flood.	points = 0	
There are no problems with flooding downstream of the wetland.	points = 0	Score: 2
D 6.2 <u>Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?</u>		
Yes	points = 2	
No	points = 0	Score: 0
Total for D 6:		2

Rating of Value

[X] 2-4 = H [] 1 = M [] 0 = L

Record the rating on the first page

Wetland name or number: KK

HABITAT FUNCTIONS

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

H 1.0 Does the wetland have the potential to provide habitat for many species?

H 1.1 What is the structure of the plant community?

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

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

H 1.2 What are the hydroperiods that meet the size thresholds in the wetland?

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

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

H 1.3 What is the richness of the plant species in the wetland?

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

Wetland name or number: KK

H 1.4 <u>What is the interspersions of habitats?</u>	
High	points = 3
Moderate	points = 2
Low	points = 1
None	points = 0
Score: 2	
H 1.5 <u>What are the special habitat features in the wetland?</u>	
<input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (>4in diameter and 6ft long).	
<input checked="" type="checkbox"/> Standing snags (dbh >4in) within the wetland	
<input type="checkbox"/> Undercut banks are present for at least 6.6ft (2m) and/or overhanging plants extend at least 3.3ft (1m) over open water or a stream (or ditch) in, or contiguous with the wetland, for at least 33ft (10m)	
<input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet weathered where wood is exposed)	
<input checked="" type="checkbox"/> At least 0.25ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (structures for egg-laying by amphibians)	
<input checked="" type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (see H 1.1 for list of strata)	
6 habitats selected	points = 6
5 habitats selected	points = 5
4 habitats selected	points = 4
3 habitats selected	points = 3
2 habitats selected	points = 2
1 habitat selected	points = 1
No habitats selected	points = 0
Score: 4	
Total for H 1: 8	

Rating of Site Potential

[] 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 habitat functions of the site?

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

Wetland name or number: KK

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

Rating of Landscape Potential

[] 4-6 = H [X] 1-3 = M [] 0 = L

Record the rating on the first page

H 3.0 Is the habitat provided by the site valuable to society?

H 3.1 Does the site provide habitat for species valued in laws, regulations, or policies?		
<input type="checkbox"/> Aspen Stands		
<input type="checkbox"/> Biodiversity Areas and Corridors		
<input type="checkbox"/> Herbaceous Balds		
<input checked="" type="checkbox"/> Old-growth/Mature Forests		
<input type="checkbox"/> Oregon White Oak		
<input type="checkbox"/> Riparian		
<input type="checkbox"/> Westside Prarie		
<input type="checkbox"/> Fresh Deepwater		
<input type="checkbox"/> Instream		
<input type="checkbox"/> Nearshore (Coastal, Open Coast, Puget Sound)		
<input type="checkbox"/> Caves		
<input type="checkbox"/> Cliffs		
<input checked="" type="checkbox"/> Snags and Logs		
<input type="checkbox"/> Talus		
The following criteria automatically score 2 points:		
<input type="checkbox"/> The wetland provides habitat for Threatened or Endangered species		
<input type="checkbox"/> The wetland is mapped as a location for an individual WDFW priority species		
<input type="checkbox"/> The wetland is a Wetland of High Conservation Value		
<input type="checkbox"/> The wetland has been categorized as an important habitat site in a local plan		
The wetland has 3 or more WDFW priority habitats within 100m, or meets the criteria for societal value	points = 2	
The site has 1 or 2 WDFW priority habitats within 100m	points = 1	
The site does not meet any of the criteria for societal value	points = 0	Score: 1
Total for H 3:		1

Rating of Value

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

Record the rating on the first page

Wetland name or number: KK

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

SC 1.0 Estuarine Wetlands

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

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

Yes - Go to SC 1.2

No - Not an Estuarine Wetland

**Result: Not an
Estuarine Wetland**

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

Yes - Category I Estuarine Wetland

No - Go to SC 1.3

Result:

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

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

Yes - Category I Estuarine Wetland

No - Category II Estuarine Wetland

Result:

SC 2.0 Wetlands of High Conservation Value

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

Yes - Category I Wetland of High Conservation Value

No - Go to SC 2.2

Result: Go to SC 2.2

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

Yes - Category I Wetland of High Conservation Value

No - Not a Wetland of High Conservation Value

**Result: Not a Wetland
of High Conservation
Value**

Wetland name or number: KK

SC 3.0 Bogs

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

Yes - Go to SC 3.3

No - Go to SC 3.2

Result: Go to SC 3.2

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

Yes - Go to SC 3.3

No - Not a Bog Wetland

Result: Not a Bog Wetland

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

Yes - Category I Bog Wetland

No - Go to SC 3.4

Result:

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

Yes - Category I Bog Wetland

No - Not a Bog Wetland

Result:

SC 4.0 Forested Wetlands

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

Old-growth forests

Mature forests

Yes - Category I Forested Wetland

No - Not a Forested Wetland

Result: Category I Forested Wetland

Wetland name or number: KK

SC 5.0 Wetlands in Coastal Lagoons

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

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

Yes - Go to SC 5.2

No - Not a Coastal Lagoon Wetland

Result: Not a Coastal Lagoon Wetland

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

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

Yes - Category I Coastal Lagoon

No - Category II Coastal Lagoon

Result:

SC 6.0 Interdunal Wetlands

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

Yes - Go to SC 6.2

No - Not an Interdunal Wetland

Result: Not an Interdunal Wetland

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

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

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

No - Go to SC 6.4

Result:

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

Yes - Category I Interdunal Wetland

No - Category II Interdunal Wetland

Result:

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

Yes - Category III Interdunal Wetland

No - Category IV Interdunal Wetland

Result:

Wetland name or number: KK

Category of wetland based on Special Characteristics

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

Final Category:
Category I

Figure KK-1. Location of Outlet.



Figure KK-2. Map of Cowardin Classes.

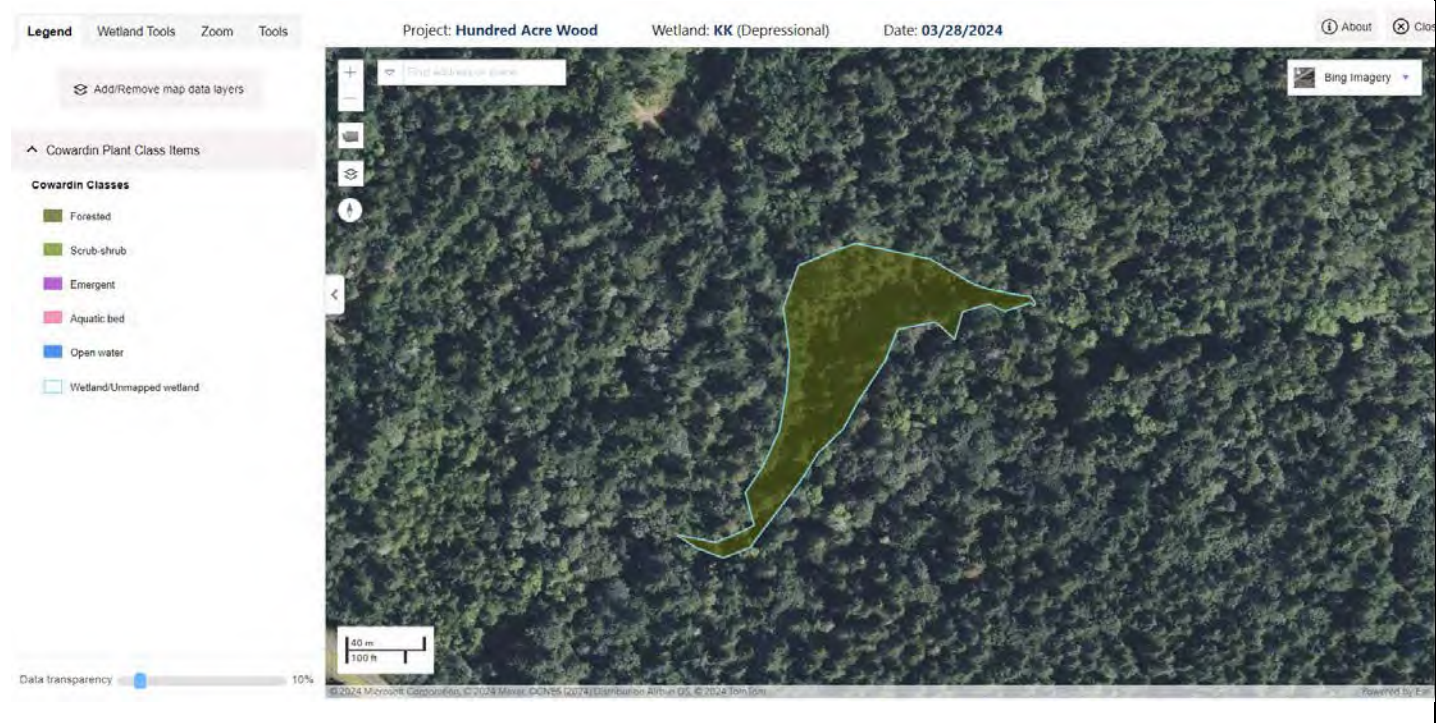


Figure KK-3. Map of Hydroperiods.

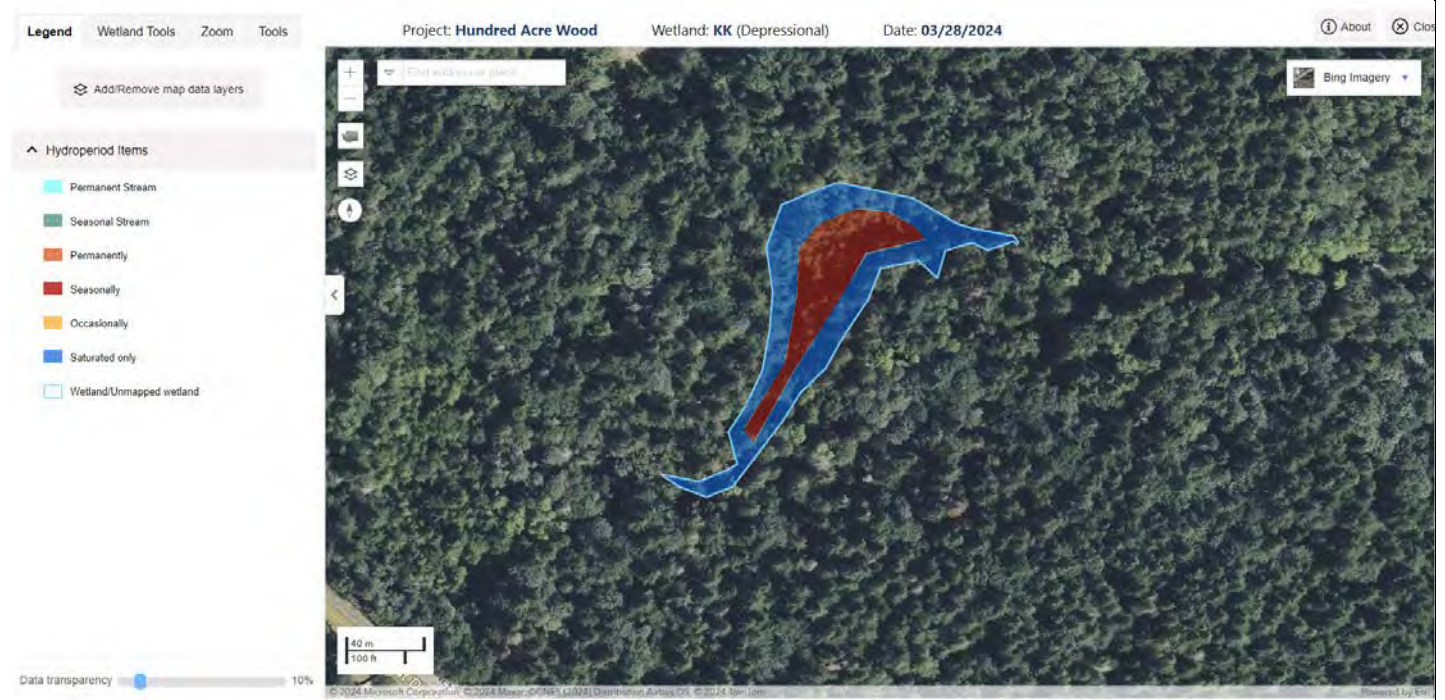


Figure KK-4. Contributing Basin.

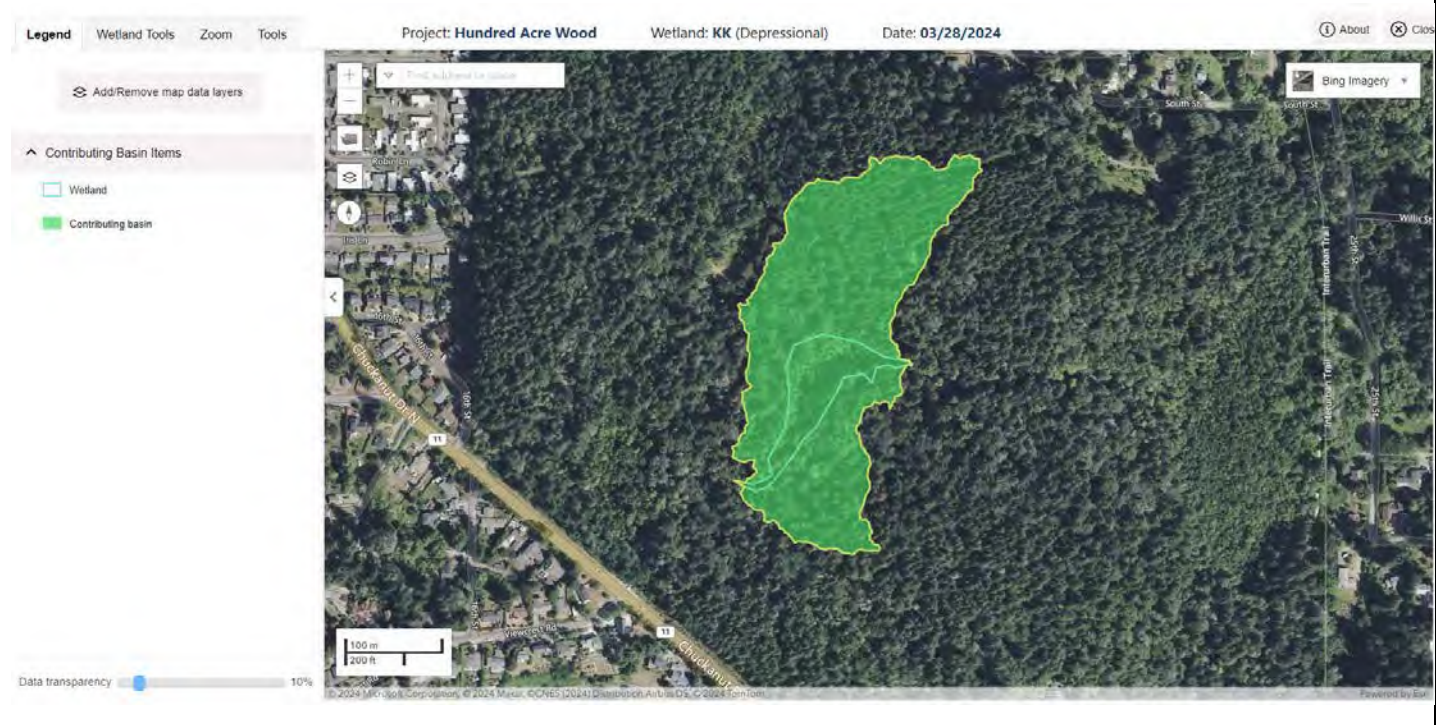


Figure KK-5. Habitat Within 1-kilometer.



Figure KK-6. 303(d) Listed Waters in Basin.

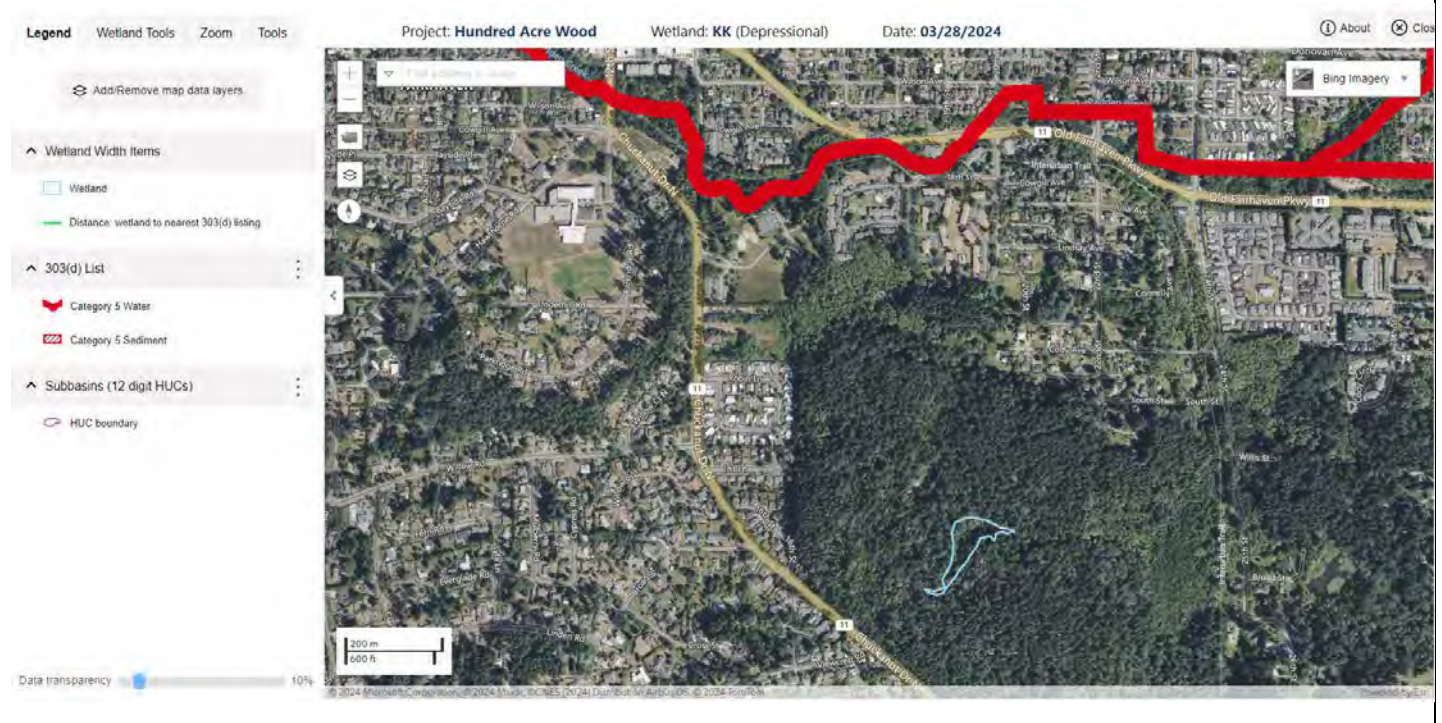


Figure KK-7. TMDLs in WRIA.

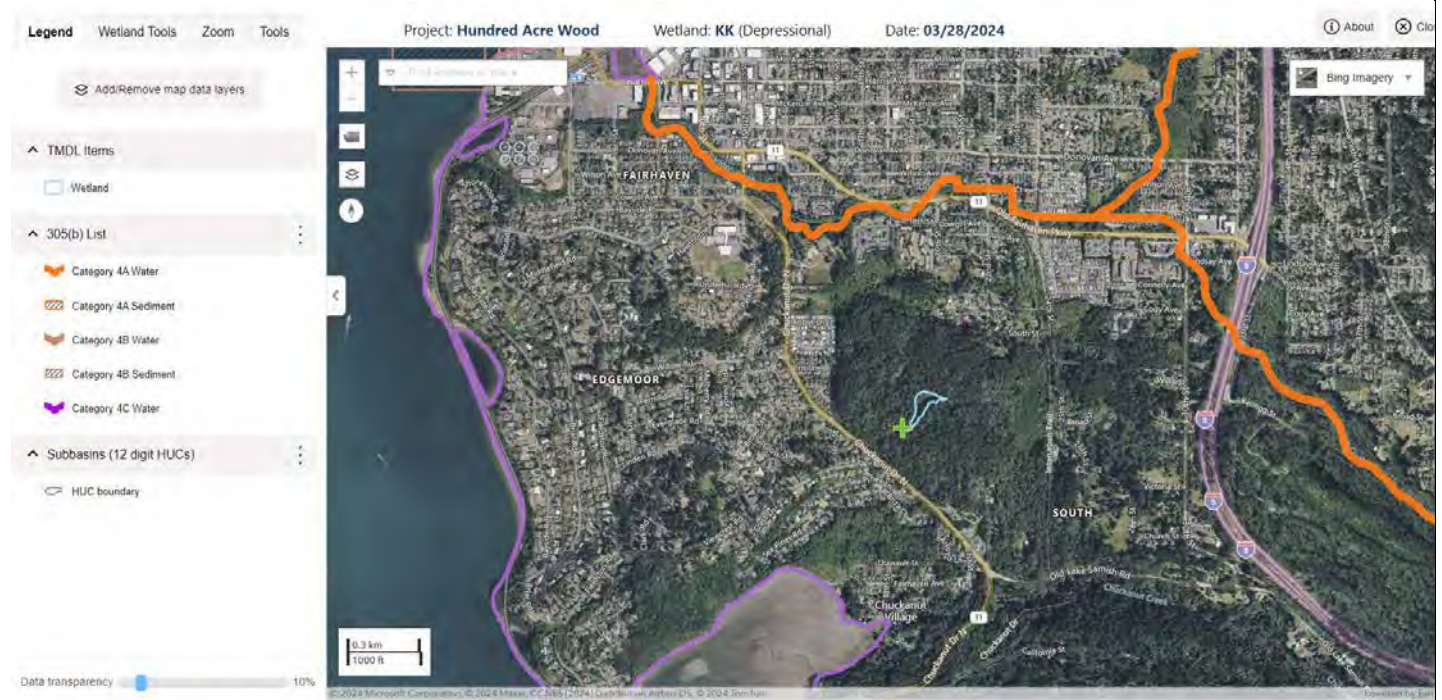
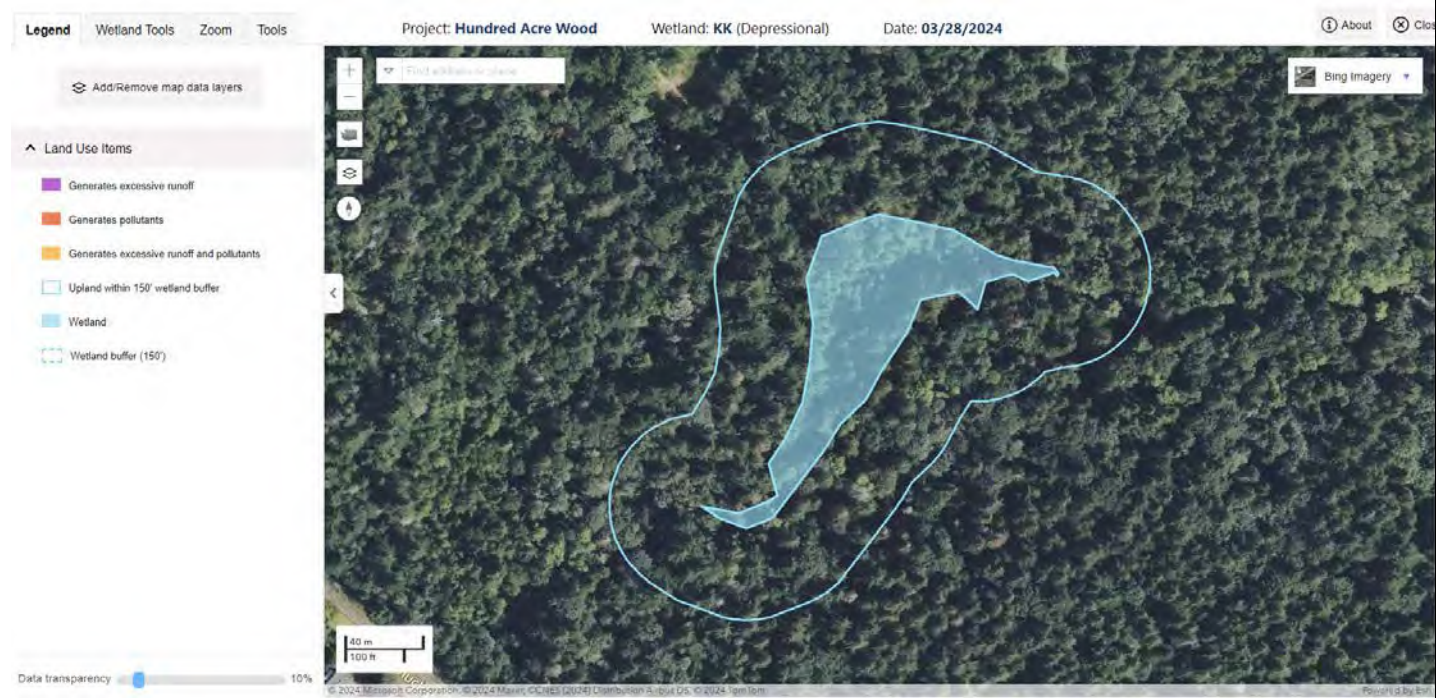


Figure KK-8. 150-foot Boundary and Land Use.



Wetland name or number: LL

RATING SUMMARY - Western Washington

Name of wetland (or ID#): LL Date of site visit: 02/21/2024

Rated By: Danielle Rapoza Trained by Ecology? Yes No Date of Training: 10/29/2018

HGM Class used for rating: Depressional

Wetland has multiple HGM classes? Yes No

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

Source of base aerial photo/map: WATOR

OVERALL WETLAND CATEGORY: [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

Score for each function based on three ratings

(order of ratings is not important)

9 = H,H,H

8 = H,H,M

7 = H,H,L

7 = H,M,M

6 = H,M,L

6 = M,M,M

5 = H,L,L

5 = M,M,L

4 = M,L,L

3 = L,L,L

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
Site Potential	M	L	L	
Landscape Potential	M	L	M	
Value	H	H	M	Total
Score Based on Ratings	7	5	5	17

2. Category based on SPECIAL CHARACTERISTICS of wetland

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

Wetland name or number: LL

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	LL-2
Hydroperiods	D 1.4, H 1.2	LL-3
Location of outlet (<i>can be added to map of hydroperiods</i>)	D 1.1, D 4.1	LL-1
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	D 2.2, D 5.2	LL-8
Map of the contributing basin	D 4.3, D 5.3	LL-4
1km Polygon: Area that extends 1km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	LL-5
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	LL-6
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	LL-7

Wetland name or number: LL

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 <u>What are the characteristics of surface water outflows from the wetland?</u>		
Wetland has no surface water outlet.	points = 3	
Wetland has an intermittently flowing, or highly constricted, outlet.	points = 2	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 1	
Wetland is a flat depression whose outlet is a permanently flowing ditch.	points = 1	Score: 2
D 1.2 <u>Is the soil 2 in. below the surface a true clay or organic soil?</u>		
Mapped as true clay or organic (muck or peat)	points = 4	
Soil texture identified as clay or organic in field	points = 4	
Soil texture identified as clay or organic by laboratory test	points = 4	
None of the above	points = 0	Score: 0
D 1.3 <u>What are the characteristics and distribution of persistent plants?</u>		
Wetland has persistent, ungrazed, plants > 95% of area	points = 5	
Wetland has persistent, ungrazed, plants > 50% of area	points = 3	
Wetland has persistent, ungrazed plants > 10% of area	points = 1	
Wetland has persistent, ungrazed plants < 10% of area	points = 0	Score: 5
D 1.4 <u>What are the characteristics of seasonal ponding or inundation in the wetland area?</u>		
Area seasonally ponded is > 50% total area of wetland	points = 4	
Area seasonally ponded is equal to or > 25% total area of wetland	points = 2	
Area seasonally ponded is < 25% total area of wetland	points = 0	Score: 4
Total for D 1:		11

Rating of Site Potential

[] 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 <u>Does the wetland unit receive stormwater discharges?</u>		
Yes	points = 1	
No	points = 0	Score: 0
D 2.2 <u>Is >10% of the area within 150ft of the wetland in land uses that generate pollutants in surface runoff?</u>		
Yes	points = 1	
No	points = 0	Score: 0
D 2.3 <u>Are there septic systems within 250ft of the wetland?</u>		
Yes	points = 1	
No	points = 0	Score: 0
D 2.4 <u>Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3?</u>		
Yes	points = 1	
No	points = 0	Score: 1

Wetland name or number: LL

D 2.5 What are the other sources of pollutants coming into the wetland?	
Trails, pet waste	
Total for D 2:	1

Rating of Landscape Potential 3-4 = H 1-2 = 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	points = 1
No	points = 0 Score: 0
D 3.2 Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?	
Yes	points = 1
No	points = 0 Score: 1
D 3.3 Has the site been identified in a watershed or local plan as important for maintaining water quality?	
Yes	points = 2
No	points = 0 Score: 2
Total for D 3:	3

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

DEPRESSIONAL AND FLATS WETLANDS

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

D 4.0 Does the site have the potential to reduce flooding and erosion?	
D 4.1 What are the characteristics of surface water outflows from the wetland?	
Wetland has no surface water outlet.	points = 4
Wetland has an intermittently flowing, or highly constricted, outlet.	points = 2
Wetland is a flat depression whose outlet is a permanently flowing ditch.	points = 1
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0 Score: 2
D 4.2 What is the depth of storage during the wet periods?	
Marks of ponding are 3ft or more above the surface or bottom of the outlet.	points = 7
Marks of ponding are between 2ft to <3ft from the surface or bottom of the outlet.	points = 5
Marks of ponding are at least 0.5ft to <2ft from the surface or the bottom of the outlet.	points = 3
The wetland is a "headwater" wetland.	points = 3
The wetland is flat but has small depressions on the surface that trap water.	points = 1
Marks of ponding are less than 0.5ft (6in).	points = 0 Score: 0

Wetland name or number: LL

D 4.3 <u>What is the contribution of the wetland to storage in the watershed?</u>		
The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
Entire wetland is in the Flats class	points = 5	Score: 3
Total for D 4:		5

Rating of Site Potential

[] 12-16 = H [] 6-11 = M [X] 0-5 = L

Record the rating on the first page

D 5.0 <u>Does the landscape have the potential to support hydrologic functions of the site?</u>		
D 5.1 <u>Does the wetland unit receive stormwater discharges?</u>		
Yes	points = 1	
No	points = 0	Score: 0
D 5.2 <u>Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff?</u>		
Yes	points = 1	
No	points = 0	Score: 0
D 5.3 <u>Is more than 25% of the contributing basin of the wetland covered with intensive human land uses?</u>		
Yes	points = 1	
No	points = 0	Score: 0
Total for D 5:		0

Rating of Landscape Potential

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

Record the rating on the first page

D 6.0 <u>Are the hydrologic functions provided by the site valuable to society?</u>		
D 6.1 <u>Is the wetland in a landscape that has flooding problems?</u>		
Flooding occurs in a sub-basin that is immediately down-gradient of the wetland.	points = 2	
Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
Flooding from groundwater is an issue in the basin.	points = 1	
The existing or potential outflow from the wetland is so constrained that water cannot reach areas that flood.	points = 0	
There are no problems with flooding downstream of the wetland.	points = 0	Score: 2
D 6.2 <u>Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?</u>		
Yes	points = 2	
No	points = 0	Score: 0
Total for D 6:		2

Rating of Value

[X] 2-4 = H [] 1 = M [] 0 = L

Record the rating on the first page

Wetland name or number: LL

HABITAT FUNCTIONS

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

H 1.0 Does the wetland have the potential to provide habitat for many species?

H 1.1 What is the structure of the plant community?

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

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

H 1.2 What are the hydroperiods that meet the size thresholds in the wetland?

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

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

H 1.3 What is the richness of the plant species in the wetland?

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

Wetland name or number: LL

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

Rating of Site Potential

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

Record the rating on the first page

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

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

Wetland name or number: LL

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

Rating of Landscape Potential

[] 4-6 = H [X] 1-3 = M [] 0 = L

Record the rating on the first page

H 3.0 Is the habitat provided by the site valuable to society?

H 3.1 Does the site provide habitat for species valued in laws, regulations, or policies?		
<input type="checkbox"/>	Aspen Stands	
<input type="checkbox"/>	Biodiversity Areas and Corridors	
<input type="checkbox"/>	Herbaceous Balds	
<input checked="" type="checkbox"/>	Old-growth/Mature Forests	
<input type="checkbox"/>	Oregon White Oak	
<input type="checkbox"/>	Riparian	
<input type="checkbox"/>	Westside Prarie	
<input type="checkbox"/>	Fresh Deepwater	
<input type="checkbox"/>	Instream	
<input type="checkbox"/>	Nearshore (Coastal, Open Coast, Puget Sound)	
<input type="checkbox"/>	Caves	
<input type="checkbox"/>	Cliffs	
<input checked="" type="checkbox"/>	Snags and Logs	
<input type="checkbox"/>	Talus	
The following criteria automatically score 2 points:		
<input type="checkbox"/>	The wetland provides habitat for Threatened or Endangered species	
<input type="checkbox"/>	The wetland is mapped as a location for an individual WDFW priority species	
<input type="checkbox"/>	The wetland is a Wetland of High Conservation Value	
<input type="checkbox"/>	The wetland has been categorized as an important habitat site in a local plan	
The wetland has 3 or more WDFW priority habitats within 100m, or meets the criteria for societal value		points = 2
The site has 1 or 2 WDFW priority habitats within 100m		points = 1
The site does not meet any of the criteria for societal value		points = 0
Total for H 3:		1

Rating of Value

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

Record the rating on the first page

Wetland name or number: LL

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

SC 1.0 Estuarine Wetlands

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

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

Yes - Go to SC 1.2

No - Not an Estuarine Wetland

**Result: Not an
Estuarine Wetland**

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

Yes - Category I Estuarine Wetland

No - Go to SC 1.3

Result:

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

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

Yes - Category I Estuarine Wetland

No - Category II Estuarine Wetland

Result:

SC 2.0 Wetlands of High Conservation Value

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

Yes - Category I Wetland of High Conservation Value

No - Go to SC 2.2

Result: Go to SC 2.2

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

Yes - Category I Wetland of High Conservation Value

No - Not a Wetland of High Conservation Value

**Result: Not a Wetland
of High Conservation
Value**

Wetland name or number: LL

SC 3.0 Bogs

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

Yes - Go to SC 3.3

No - Go to SC 3.2

Result: Go to SC 3.2

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

Yes - Go to SC 3.3

No - Not a Bog Wetland

Result: Not a Bog Wetland

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

Yes - Category I Bog Wetland

No - Go to SC 3.4

Result:

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

Yes - Category I Bog Wetland

No - Not a Bog Wetland

Result:

SC 4.0 Forested Wetlands

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

Old-growth forests

Mature forests

Yes - Category I Forested Wetland

No - Not a Forested Wetland

Result: Not a Forested Wetland

Wetland name or number: LL

SC 5.0 Wetlands in Coastal Lagoons

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

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

Yes - Go to SC 5.2

No - Not a Coastal Lagoon Wetland

Result: Not a Coastal Lagoon Wetland

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

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

Yes - Category I Coastal Lagoon

No - Category II Coastal Lagoon

Result:

SC 6.0 Interdunal Wetlands

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

Yes - Go to SC 6.2

No - Not an Interdunal Wetland

Result: Not an Interdunal Wetland

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

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

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

No - Go to SC 6.4

Result:

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

Yes - Category I Interdunal Wetland

No - Category II Interdunal Wetland

Result:

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

Yes - Category III Interdunal Wetland

No - Category IV Interdunal Wetland

Result:

Wetland name or number: LL

Category of wetland based on Special Characteristics

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

**Final Category: Not
Applicable**

Figure LL-1. Location of Outlet.



Figure LL-2. Map of Cowardin Classes.



Figure LL-3. Map of Hydroperiods.

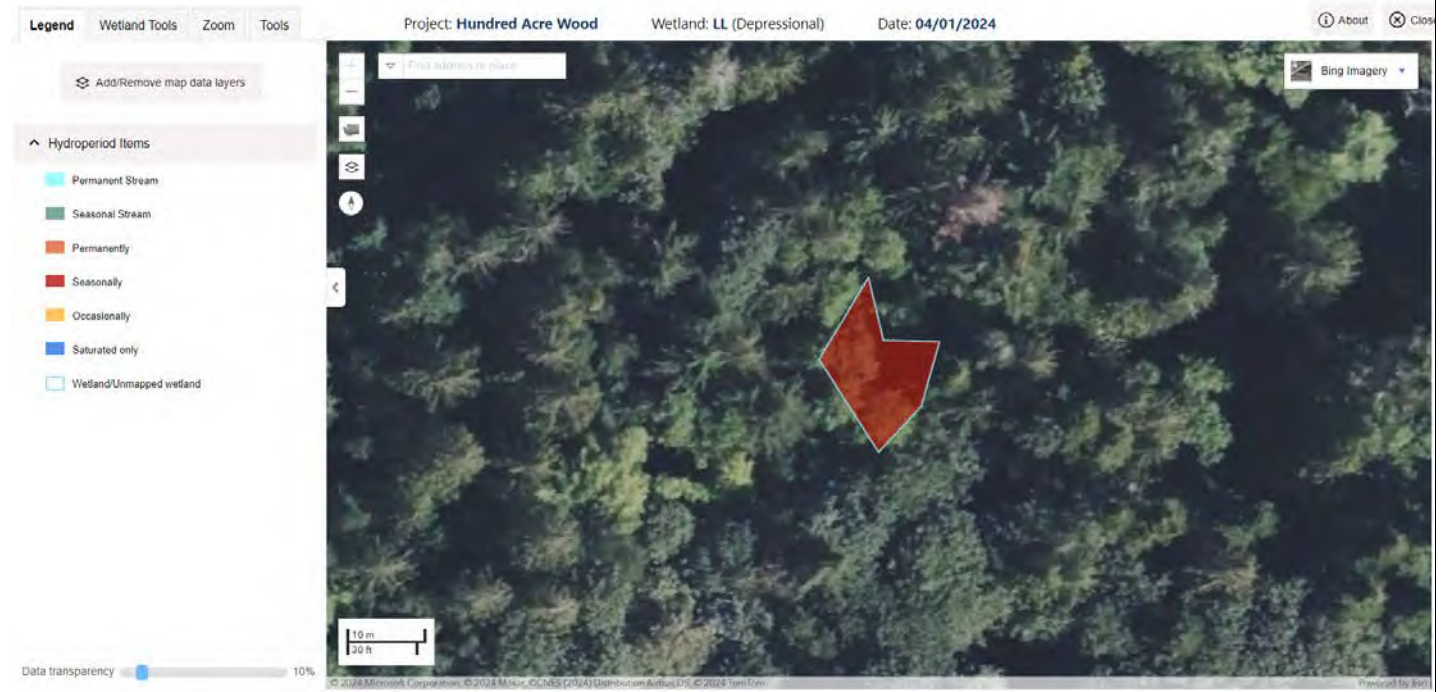


Figure LL-4. Contributing Basin.



Figure LL-5. Habitat Within 1-kilometer.

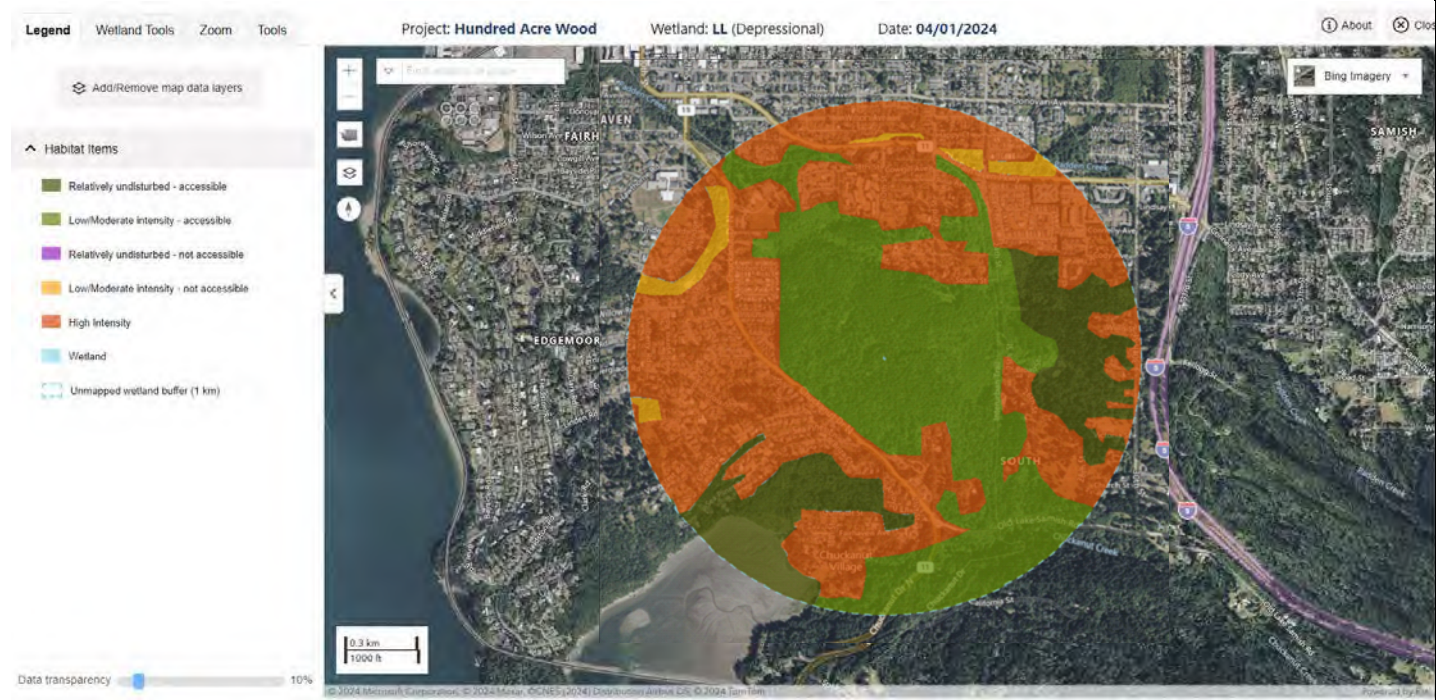


Figure LL -6. 303(d) Listed Waters in Basin.

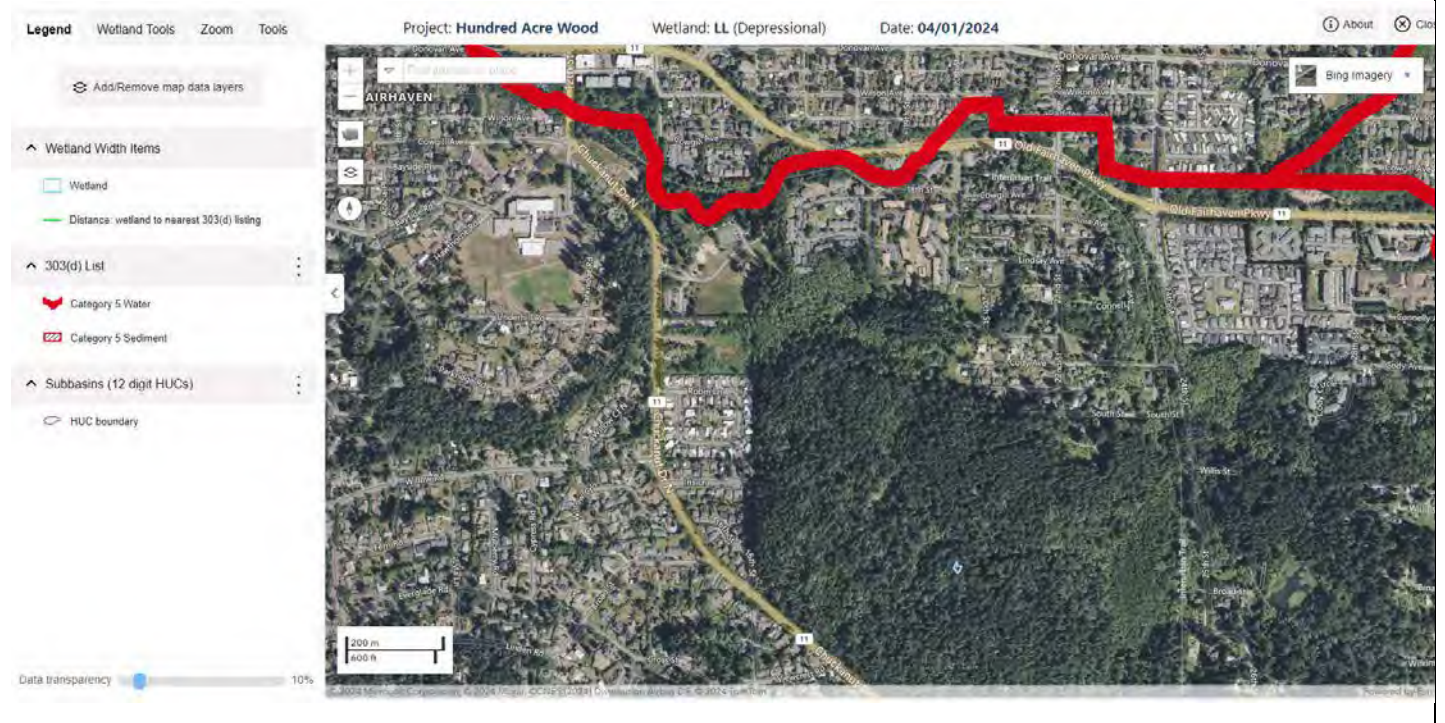


Figure K LL-7. TMDLs in WRIA.

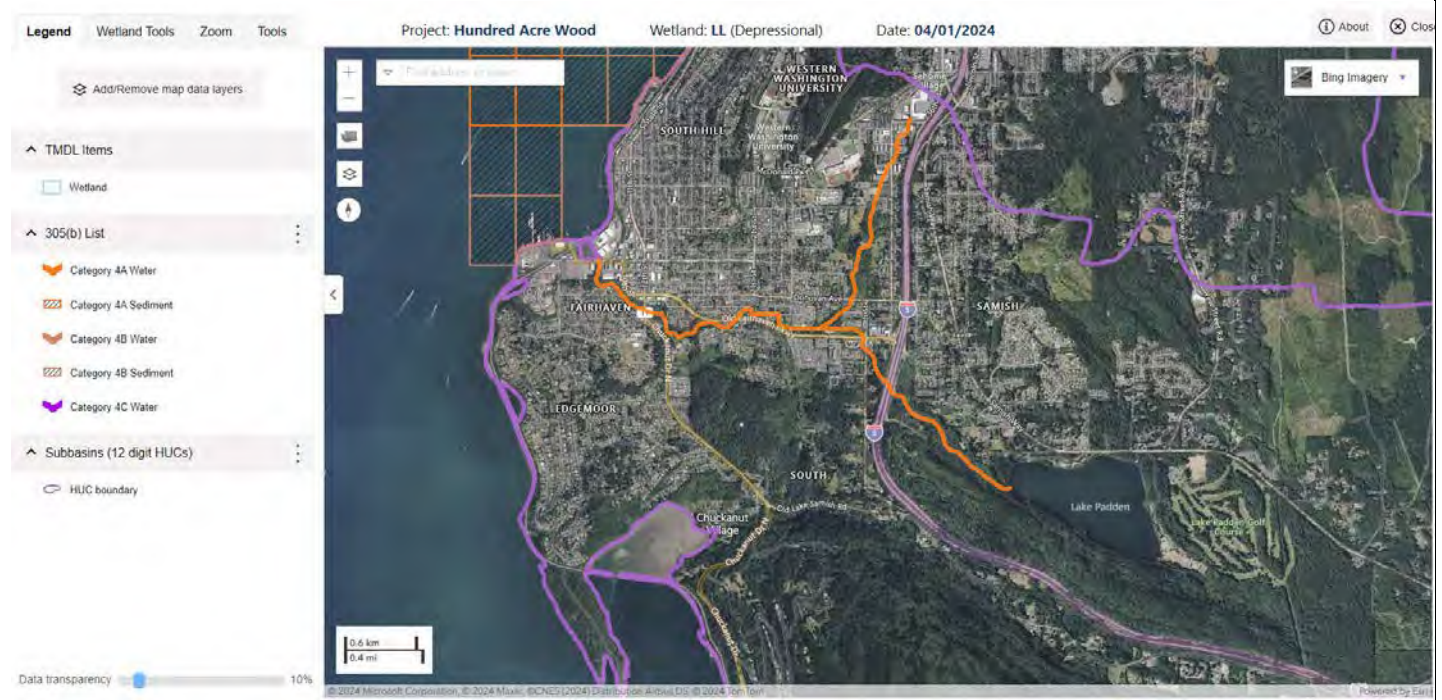


Figure LL-8. 150-foot Boundary and Land Use.



Appendix E

Photographic Log

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Critical Areas Report and Mitigation Plan: Hundred Acre Wood Trail Improvements–Phase 1: Photographic Log

Photo Number	Photo Description
1	Wetland AA
2	Wetland AA (near trail edge)
3	Wetland AX
4	Wetland AZ
5	Wetland AY
6	Wetland FF
7	Wetland FF
8	Wetland HH
9	Wetland KK
10	Wetland KK (east crossing)
11	Wetland LL
12	Wetland JJ1/JJ2 (Unit JJ1)
13	Wetland JJ1/JJ2 (Unit JJ1)
14	Wetland JJ1/JJ2 (Unit JJ1- trail crossing)
15	Wetland JJ1/JJ2 (Unit JJ1 - ditch)
16	Wetland JJ1/JJ2 (Unit JJ1 – trail crossing)
17	Wetland JJ1/JJ2 (Unit JJ1 - trail crossing)
18	Wetland JJ1/JJ2 (Unit JJ1 – flow over trail)
19	Wetland JJ1/JJ2 (Unit JJ2)
20	Wetland JJ1/JJ2 (Unit JJ2)
21	Wetland JJ1/JJ2 (Unit JJ2 – trail crossing)
22	Wetland JJ1/JJ2 (Unit JJ2)
23	Wetland JJ3
24	Wetland JJ4
25	Wetland JJ5
26	Hoag’s Creek (trail crossing)
27	Hoag’s Creek (trail crossing)

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