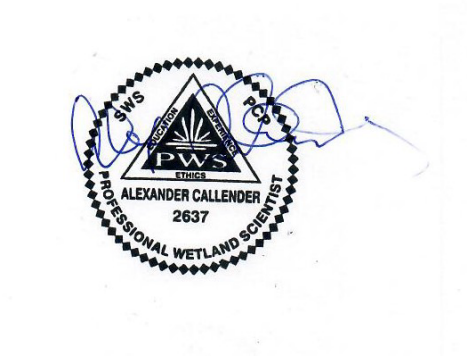
EXHIBIT 4

Deschutes Valley Trail
Wetland /Stream Delineation and Mitigation Plan
Tumwater, WA

Prepared for
City of Tumwater
September 2, 2026



Land Services Northwest
Alex Callender MS, PWS
120 State Ave NE PMB 190, Olympia, WA, 98501
360.481.4208

Executive Summary

Site Name: Deschutes Valley Trail

Parcel Numbers: Project is to occur on a portion of parcels 09470051000, 1283520200, and 01283543000.

Project Staff: Alex Callender MS, PWS and Betsy Knutson-Keller, Associate Ecologist

Field Survey Conducted: January 28, 2026, February 18, 2026, and February 23, 2026

Findings: Three jurisdictional wetlands, and two streams were found on- and offsite and were delineated.

Wetland A is a Category II wetland with an overall score of 22 and a habitat score of seven (HLH). Wetlands in the City of Tumwater with a habitat score of seven (HLH) carry a 150-foot buffer.

Wetland B is a Category III wetland with an overall score of 16 and a habitat score of seven(MMH). Category III wetlands with a habitat score of seven (MMH) in the City of Tumwater typically carry a 150-foot buffer.

Wetland C is a Category II wetland with an overall score of 21 and a habitat score of six (MMM). This wetland will also carry a 150-foot buffer.

Stream Z is located within Wetland A. This stream is a type 3 stream 5-20 feet wide and will carry a 200-foot buffer.

Stream Y is located within Wetland B. This is a type NS stream, and this stream discharges to a culvert. The stream is less than 2 feet wide and is a type 4 stream. It will carry a 50-foot buffer.

Project Description: The project proposes an approximately 0.87 mile pedestrian/bicycle trail utilizing parts of an existing golf cart path on a portion of the Tumwater Valley Municipal Golf Course, currently ending at the Deschutes River.

Impact Avoidance and Minimization: As mentioned the project will use an existing golf cart path which has been in place as a integral part of the golf course since before the passage of the current critical areas code. It is legal non-conforming, and the current path and golf course represent the baseline conditions. By using this existing path the project will not require as much new impervious surface. This is the least impactful manner to provide the path in the required alignment with future portions of the trail. No direct impacts to wetlands are expected; however, the trail will encompass an existing cart path that is located up to 0 feet from the wetlands in some areas. New portions of the trail will likely have wetland buffer impacts, however, the project will avoid direct impacts to the fullest extent and the planned expansions for the trail will occur away from wetlands and avoid any direct impacts to wetlands. Impacts are quantified in Table 3.

Mitigation: Mitigation is provided to meet the no-net-loss of wetland and stream functions and values. An The City will have two types of mitigation, enhancement and rehabilitation. Because the new impacts will occur within the inner 25% of the buffer, mitigation of the impacts will occur at Department of Ecology recommended ratios for direct impacts for the respective wetland categories. The mitigation plantings will be maintained and monitored for a period of 10 years. An functional assessment of wetland functions is provided which shows that the mitigation will result in an increase of functions after the mitigation has been completed.

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1.0 INTRODUCTION

This report is the result of a critical areas study of the proposed project area to occur on Parcel #09470051000, 1283520200, and 1283543000 in the City of Tumwater in Thurston County Washington. (**Figure 1**).

The purpose of this report is to determine mitigation requirements for expected impacts as detailed in the "WETLAND BUFFER IMPACTS DESCHUTES VALLEY TRAIL - SEGMENT C" which we have attached in Appendix B. We will:

1) identify and describe the wetlands or other critical areas onsite and within 315 feet offsite of the property, 2) identify impacts to wetlands or critical areas and their buffers, and 3) apply mitigation and conservation measures to offset any critical areas or buffer impact in accordance with Title 15 – Environment.

The City of Tumwater, and possibly other agencies that may evaluate impacts on critical areas from the proposed project, will be able to utilize information in this report.

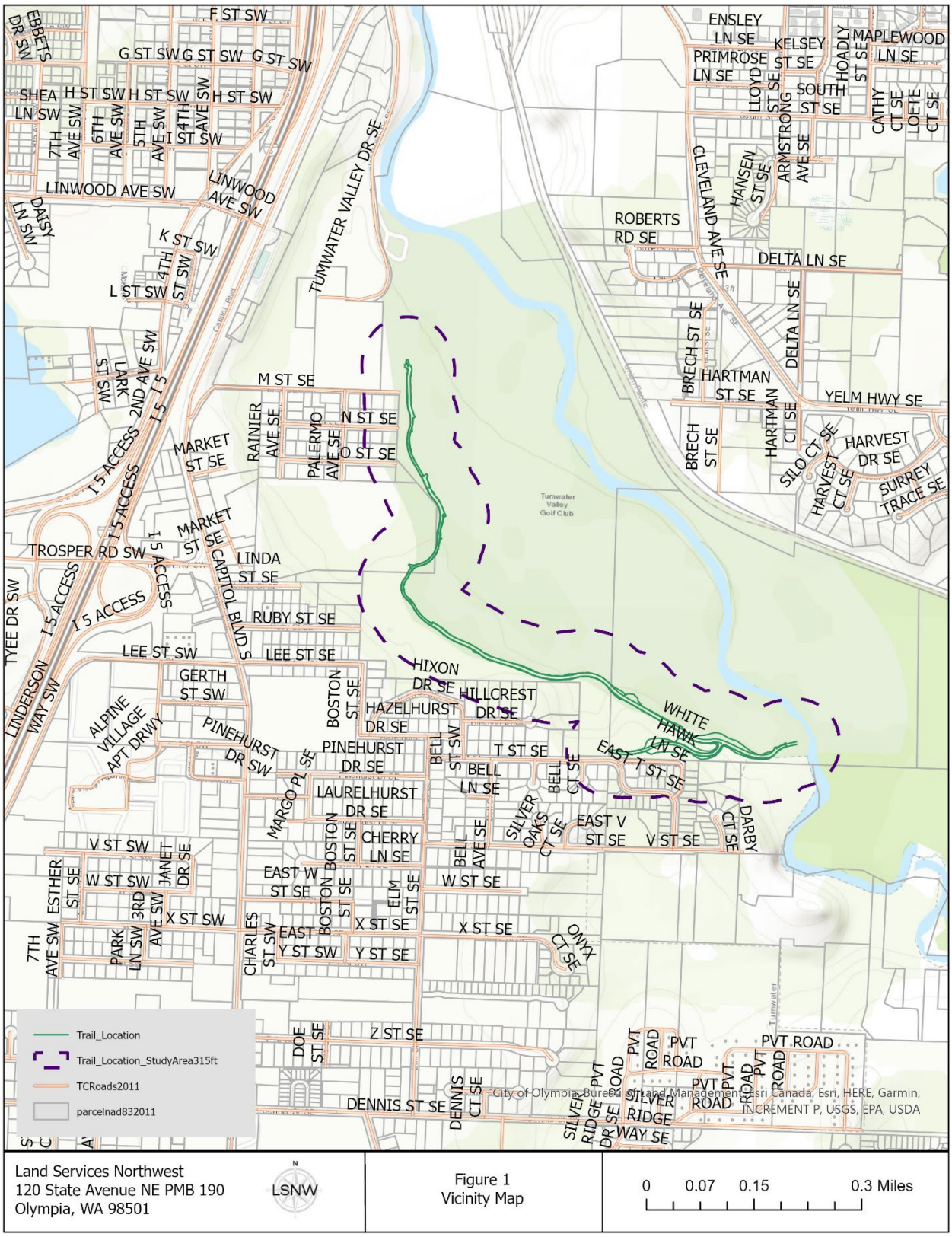


Figure 1 - Vicinity Map

2.0 GENERAL DESCRIPTION AND LAND USE

2.1 Historical and Current Land Use

Historically, the property has been a municipal golf course located directly east of Capitol Boulevard. (**Figure 2**). The golf course has an existing asphalt cart path for golfers that allows them to drive the electric carts without degrading the turf that is necessary for a proper golf surface. This path is especially necessary during the winter months when the winter rains would make the area very muddy without the path. Mostly the cart path follows the right side of each fairway next to the more natural area wetlands and forests that border the course to the west and south. Like many of the area golf courses,the wetlands along the course have culverts that provide outlets underneath the course to other wetlands to support the extensive water hazards on the course. These outlets prevent flooding and limit the extent of the wetlands to prevent flooding of the course and were installed during the inception of the golf course.

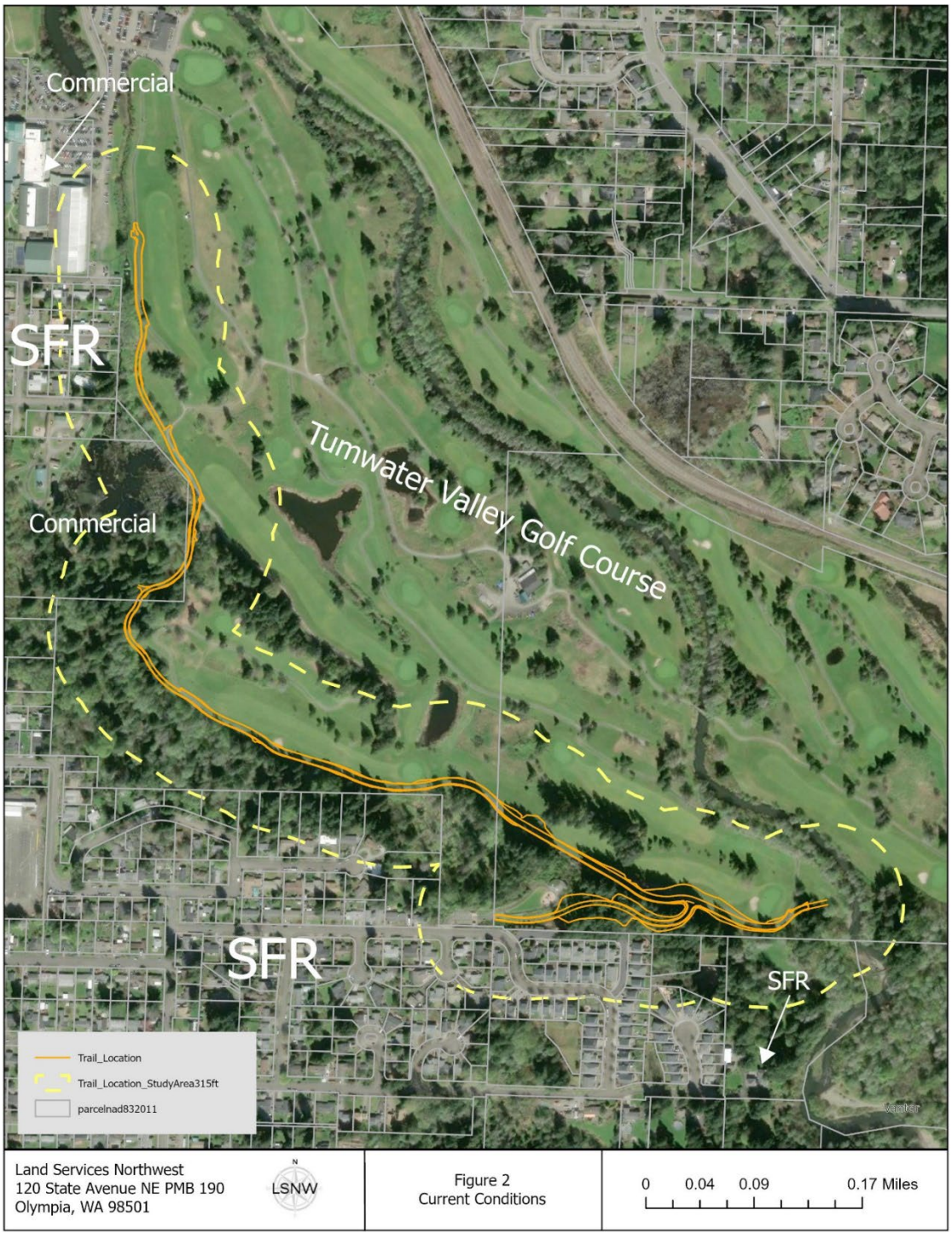


Figure 2 - Current Conditions

3.0 METHODOLOGY

3.1 Existing Information Review

Background information on possible wetlands was reviewed prior to field investigations and included the following:

National Wetlands Inventory (NWI) Map, USFWS Shapefile Data (**Appendix B**)

Thurston County Area Soil Survey, Soil Conservation Service (U.S. Department of Agriculture, 1973)
National Resource Conservation Service Shapefiles (NRCS Soils Data Mart, 2006) (**Appendix C**)

Thurston County Geodata Wetland Inventory (**Appendix D**)

USGS 7.5 Minute Quadrangle Topographic Maps (**Appendix E**)

Washington Department of Fish and Wildlife Priority Habitats and Species Database (**Appendix G**)

Washington Department of Fish and Wildlife Salmonscape (**Appendix H**)

NOAA NOW Precipitation Data (**Appendix I**)

Washington Department of Natural Resources Natural Heritage Database
United States Hydric Soils List (U.S. Department of Agriculture 1991)
Thurston County Code Chapter 24

3.2 Analysis of Existing Information

The following existing information was reviewed to gain a better understanding of onsite conditions and its position in the landscape.

National Wetland Inventory (NWI) Map

The National Wetland Inventory (NWI) map (**Appendix B**), developed by the U.S. Fish and Wildlife Service (USFWS), shows the following in the vicinity of the project area:

- PUBHx (palustrine, unconsolidated bottom, permanently flooded, excavated)
- PUBH (palustrine, unconsolidated bottom, permanently flooded)
- PSSC (palustrine, scrub-shrub. seasonally flooded)
- R4SBC (riverine, intermittent, streambed, seasonally flooded)
- PFOC (palustrine, forested, seasonally flooded)

NRCS Soils Map

The Natural Resources Conservation Service (NRCS) has mapped the site (Appendix C) as containing:

- Norma silt loam (Hydric)
- Indianola loamy sand, 0 to 3 percent slopes, 3 to 15 percent slopes and 15 to 30 percent slopes
- Cagey loamy sand
- Everett very gravelly sandy loam, 3 to 15 percent slopes
- Puyallup silt loam

- Xerorthents, 0 to 5 percent slopes

Norma silt loam
Map Unit Setting
- National map unit symbol: 2ndcc
- Landscape: Till plains
- Elevation: 0 to 1,000 feet
- Mean annual precipitation: 35 to 60 inches
- Mean annual air temperature: 48 to 52 degrees F
- Frost-free period: 150 to 200 days
- Farmland classification: Prime farmland if drained

Map Unit Composition
- Norma, silt loam, and similar soils: 90 percent
- Minor components: 10 percent
  Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Norma, Silt Loam
Setting
- Landscape: Till plains
- Landform: Depressions, Drainageways
- Parent material: Alluvium

Typical profile
- H1 - 0 to 8 inches: silt loam
- H2 - 8 to 30 inches: sandy loam
- H3 - 30 to 60 inches: sandy loam

Properties and qualities
- Slope: 0 to 3 percent
- Depth to restrictive feature: More than 80 inches
- Drainage class: 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 0 to 12 inches
- Frequency of flooding: None
- Frequency of ponding: Frequent
- Available water supply, 0 to 60 inches: Moderate (about 8.9 inches)

Interpretive groups
- Land capability classification (irrigated): None specified
- Land capability classification (nonirrigated): 5w
- Hydrologic Soil Group: B/D
- Ecological site: F002XA007WA - Puget Lowlands Wet Hemlock Forest
- Forage suitability group: Wet Soils (G002XS101WA)
- Other vegetative classification: Wet Soils (G002XS101WA)
- **Hydric soil rating: Yes**

Indianola loamy sand
Map Unit Setting
- National map unit symbol: 2t62k

- Landscape: Glacial drift and outwash plains
- Elevation: 0 to 980 feet
- Mean annual precipitation: 30 to 81 inches
- Mean annual air temperature: 48 to 50 degrees F
- Frost-free period: 170 to 210 days
- Farmland classification: Prime farmland if irrigated

Map Unit Composition

- Indianola and similar soils: 85 percent
- Minor components: 15 percent

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

Description of Indianola

Setting

- Landscape: Glacial drift and outwash plains
- Landform: Kames, Terraces, Eskers
- Landform position (three-dimensional): Tread
- Down-slope shape: Linear
- Across-slope shape: Linear
- Parent material: Sandy glacial outwash

Typical profile

- Oi - 0 to 1 inches: slightly decomposed plant material
- A - 1 to 6 inches: loamy sand
- Bw1 - 6 to 17 inches: loamy sand
- Bw2 - 17 to 27 inches: sand
- BC - 27 to 37 inches: sand
- C - 37 to 60 inches: sand

Properties and qualities

Slope: 0 to 5 percent

- Depth to restrictive feature: More than 80 inches
- Drainage class: Somewhat excessively drained
- Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 99.90 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: Low (about 3.9 inches)

Interpretive groups

- Land capability classification (irrigated): 4s
- Land capability classification (nonirrigated): 4s
- Hydrologic Soil Group: A
- Ecological site: F002XA004WA - Puget Lowlands Forest
- Forage suitability group: Droughty Soils (G002XF403WA), Droughty Soils (G002XN402WA), Droughty Soils (G002XS401WA), Droughty Soils (G002XV402WA)
- Other vegetative classification: Droughty Soils (G002XF403WA), Droughty Soils (G002XN402WA), Droughty Soils (G002XS401WA), Droughty Soils (G002XV402WA)
- **Hydric soil rating: No**
-

Cagey loamy sand

Map Unit Setting

- National map unit symbol: 2nd8d
- Elevation: 330 to 980 feet
- Mean annual precipitation: 40 to 60 inches
- Mean annual air temperature: 50 degrees F
- Frost-free period: 165 to 195 days
- Farmland classification: Prime farmland if irrigated

Map Unit Composition

- Cagey and similar soils: 85 percent
- Minor components: 5 percent

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

Description of Cagey

Setting

- Landform: Terraces
- Parent material: Sandy glacial drift
- Typical profile
- H1 - 0 to 6 inches: loamy sand
- H2 - 6 to 28 inches: loamy sand
- H3 - 28 to 60 inches: fine sand

Properties and qualities

- Slope: 0 to 4 percent
- Depth to restrictive feature: More than 80 inches
- Drainage class: Moderately well drained
- Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 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: Low (about 4.0 inches)

Interpretive groups

- Land capability classification (irrigated): None specified
- Land capability classification (nonirrigated): 3w
- Hydrologic Soil Group: A
- Ecological site: F002XA005WA - Puget Lowlands Moist Forest
- Forage suitability group: Seasonally Wet Soils (G002XS201WA)
- Other vegetative classification: Seasonally Wet Soils (G002XS201WA)
- **Hydric soil rating: No**

Everett very gravelly sandy loam, 8 to 15 percent slopes

Map Unit Setting

- National map unit symbol: 2t62b
- Landscape: Glacial drift and outwash plains
- Elevation: 30 to 900 feet
- Mean annual precipitation: 35 to 91 inches
- Mean annual air temperature: 48 to 52 degrees F

- Frost-free period: 180 to 240 days
- Farmland classification: Farmland of statewide importance

Map Unit Composition

- Everett and similar soils: 80 percent
- Minor components: 20 percent

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

Description of Everett

Setting

- Landscape: Glacial drift and outwash plains
- Landform: Moraines, Eskers, Kames
- Landform position (two-dimensional): Shoulder, footslope
- Landform position (three-dimensional): Base slope, crest
- Down-slope shape: Convex
- Across-slope shape: Convex
- Parent material: Sandy and gravelly glacial outwash

Typical profile

- Oi - 0 to 1 inches: slightly decomposed plant material
- A - 1 to 3 inches: very gravelly sandy loam
- Bw - 3 to 24 inches: very gravelly sandy loam
- C1 - 24 to 35 inches: very gravelly loamy sand
- C2 - 35 to 60 inches: extremely cobbly coarse sand

Properties and qualities

- Slope: 8 to 15 percent
- Depth to restrictive feature: More than 80 inches
- Drainage class: Somewhat excessively drained
- Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 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: Low (about 3.2 inches)

Interpretive groups

- Land capability classification (irrigated): None specified
- Land capability classification (nonirrigated): 4s
- Hydrologic Soil Group: A
- Ecological site: F002XA004WA - Puget Lowlands Forest
- Forage suitability group: Droughty Soils (G002XS401WA), Droughty Soils (G002XN402WA), Droughty Soils (G002XF403WA)
- Other vegetative classification: Droughty Soils (G002XS401WA), Droughty Soils (G002XN402WA), Droughty Soils (G002XF403WA)
- **Hydric soil rating: No**

Puyallup silt loam

Map Unit Setting

- National map unit symbol: 2nd9z
- Elevation: 70 to 1,970 feet
- Mean annual precipitation: 35 to 60 inches

- Mean annual air temperature: 50 degrees F
- Frost-free period: 170 to 200 days
- Farmland classification: All areas are prime farmland

Map Unit Composition

- Puyallup and similar soils: 85 percent
- Minor components: 10 percent

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

Description of Puyallup

Setting

- Landform: Low terraces, Flood plains
- Parent material: Alluvium

Typical profile

- H1 - 0 to 10 inches: silt loam
- H2 - 10 to 19 inches: fine sandy loam
- H3 - 19 to 60 inches: sand

Properties and qualities

- Slope: 0 to 3 percent
- Depth to restrictive feature: 14 to 20 inches to strongly contrasting textural stratification
- 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: Occasional
- Frequency of ponding: None
- Available water supply, 0 to 60 inches: Low (about 3.2 inches)

Interpretive groups

- Land capability classification (irrigated): 3w
- Land capability classification (nonirrigated): 3w
- Hydrologic Soil Group: B
- Ecological site: F002XA008WA - Puget Lowlands Riparian Forest
- Forage suitability group: Droughty Soils (G002XS401WA)
- Other vegetative classification: Droughty Soils (G002XS401WA)
- **Hydric soil rating: No**

Xerorthents, 0 to 5 percent slopes

Map Unit Setting

- National map unit symbol: 2nd87
- Landscape: Uplands
- Elevation: 0 to 2,620 feet
- Mean annual precipitation: 30 to 60 inches
- Mean annual air temperature: 39 to 50 degrees F
- Frost-free period: 150 to 200 days
- Farmland classification: Not prime farmland

Map Unit Composition

- Xerorthents and similar soils: 100 percent

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

Description of Xerorthents

Setting
Landscape: Uplands

- Landform: Tidal flats
- Parent material: Sandy and loamy cut and fill material

Typical profile

- H1 - 0 to 60 inches: variable
- Properties and qualities
- Slope: 0 to 5 percent
- Depth to restrictive feature: More than 80 inches
- Drainage class: Somewhat excessively drained
- Depth to water table: About 24 inches
- Frequency of flooding: None
- Frequency of ponding: None

Interpretive groups

- Land capability classification (irrigated): None specified
- Land capability classification (nonirrigated): 7s
- **Hydric soil rating: No**

Thurston County Geodata Wetland Inventory

The Thurston County Geodata website has a mapping tool that depicts various critical areas such as streams and wetlands (**Appendix D**). This site shows the following in the vicinity of the project area:

- Deschutes River
- PFO (palustrine, forested)
- PEM (palustrine, emergent)
- POW (palustrine, open water)

USGS 7.5 Minute Topo Map

The USGS has topographical maps that depict natural and artificial features on the landscape including wetlands (**Appendix E**). This map shows the Deschutes River and wetlands in the vicinity of the project area.

WADNR Forest Practices Stream Type Map

The Washington State Department of Natural Resources has a map that shows wetlands, streams, lakes, and their stream type for the purpose of Forest Practices according to WAC 222-16-31 **(Appendix F).**

This map shows the Deschutes River and numerous wetlands in the vicinity of the project area.

WDFW Priority Habitats and Species Inventory (PHS) and Salmonscape

The Department of Fish and Wildlife maintains an inventory of priority habitats and species information (**Appendix G**). This database shows:

Occurence Name	Federal Status	State Status	Sensitive Location
Fall Chinook	N/A	N/A	No
Coho	N/A	N/A	No
Cutthroat	Not Warranted	N/A	No
Fall Chum	N/A	N/A	No
Winter Steelhead	N/A	N/A	No
Coho	Candidate	N/A	No
Steelhead	Threatened	N/A	No
Snag-rich Areas	N/A	N/A	No
Freshwater Emergent Wetland	N/A	N/A	No
Freshwater Forested/Shrub Wetland	N/A	N/A	No
Big brown bat			Yes
Little Brown Bat			Yes
myotis spp			Yes
Yuma myotis			Yes
Townsend's Big-eared Bat		Candidate	Yes

SalmonScape shows documented artificial rearing of coho, documented artificial spawning of fall Chinook, documented transported presence of fall chum, gradient accessible for winter chum and documented artificial spawning of winter steelhead.

NOAA NOW Precipitation Data

NOAA maintains a database that graphs the current precipitation against the wettest, driest, and normal accumulations of record. This data shows that the precipitation between October 1, 2025, and February 23, 2026, has been slightly above normal beginning in early November with record rains in mid-November.

3.3 Field Investigation

Determination Guidelines

Land Services Northwest based its wetland identification and delineation upon the 1987 Army Corps of Engineers Wetland Delineation Manual (Environmental Laboratory, 1987) and the regional specificity found in Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0) (USACE, 2010). Generally, as outlined in the manuals, wetlands are distinguished from other landforms by three criteria: 1) hydrophytic vegetation, 2) hydric soils, and 3) wetland hydrology.

Plant species were identified according to the taxonomy in *Flora of the Pacific Northwest* (Hitchcock and Cronquist, 1973), and the wetland status of plant species was assigned according to*: The National Wetland Plant List: 2016* (Lichvar, 2016). Wetland classes were determined by the U.S. Fish and Wildlife Service's system of wetland classification (FGDC, 2013). The wetland determination was based mainly on soils, vegetation, and hydrology characteristics indicative of wetland conditions.

The COE describe a wetland rating system for plants. Each plant species is assigned a probability of occurrence within wetlands, which is referred to as its wetland status. The wetland plant indicator system is as follows:

Table 1 - Indicator Status Ratings

Indicator Status	Abbr.	Definitions - Short Version (ERDC/CRREL TN-12-1)
Obligate	OBL	Almost always occur in wetlands.
Facultative Wetland	FACW	Usually occur in wetlands, but may occur in non-wetlands.
Facultative	FAC	Occur in wetlands and nonwetlands.
Facultative Upland	FACU	Usually occur in non-wetlands, but may occur in wetlands.
Upland	UPL	Almost never occur in wetlands.
		(USACE, 2016)

In general, under the federal methodology, more than 50% of the predominant plant species within a test plot must be rated FAC or wetter (i.e., FACW, OBL) to satisfy the wetland criteria for hydrophytic vegetation. Dominant species are those when ranked comprise 50% of the total or those that have a percentage cover greater or equal to 20% within the test plot. Only dominant plant species were considered in the data analysis.

The Corps Manual and Supplement describe soil, vegetation, and hydrological indicators of wetlands. A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper par (National Technical Committee for Hydric Soils, 1994). Anaerobic conditions cause redoximorphic features to develop, which can be evidenced through the observation of mottling or gleying in the soil. Soils are hydric if they match the indicators in the supplement or meet the technical definition.

A soils evaluation was performed to determine if the area contained hydric soils. Additional test plots were sampled to gage possible wetland indicators and characteristics. Soils are normally excavated to 18 inches or more below the surface within a test pit to evaluate soil characteristics and hydrological conditions in both wetland and upland areas. Soil chroma (color) is evaluated using the *Munsell Color Chart* (Munsell Color, 1988).

If wetland hydrology, including pooling, ponding, and soil saturation, is not clearly evident, hydrological conditions may be observed through surface or soil indicators. Indicators of hydrological conditions include drainage patterns, drift lines, sediment deposition, watermarks, historic records, visual observation of saturated soils, and visual observation of inundation.

3.4 Wetland Study

A wetland reconnaissance was performed on February 18, 2026, to identify wetlands present on the subject property. Observations were made of the general plant communities, wildlife habitats, and the locations of potential streams and wetland areas. Present and past land-use practices were also noted, as were significant geological and hydrological features.

Once likely wetland areas were located, the Routine Onsite Determination Method was used to identify the presence of wetland parameters and to delineate the outer edge of the wetlands using the procedures outlined in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987). The Routine Onsite Determination Method was used in areas that maintained normal circumstances, were not significantly disturbed, and were not potential problem areas. A formal wetland delineation was performed on February 18 and February 23, 2026, to document offsite wetlands and to identify and map offsite wetlands within 315 feet of the subject property as we are able.

Test pits were dug on February 18, 2026, and February 23, 2026, (**Figure 3**) to develop a better understanding of soil profiles onsite. Soils were excavated to 18 inches or more below the surface within a test pit to evaluate soil characteristics and hydrological conditions throughout the site. Soil chroma (color) is evaluated using the *Munsell Color Chart* (Munsell Color, 1988). The result was entered in wetland data sheets **(Appendix I).**

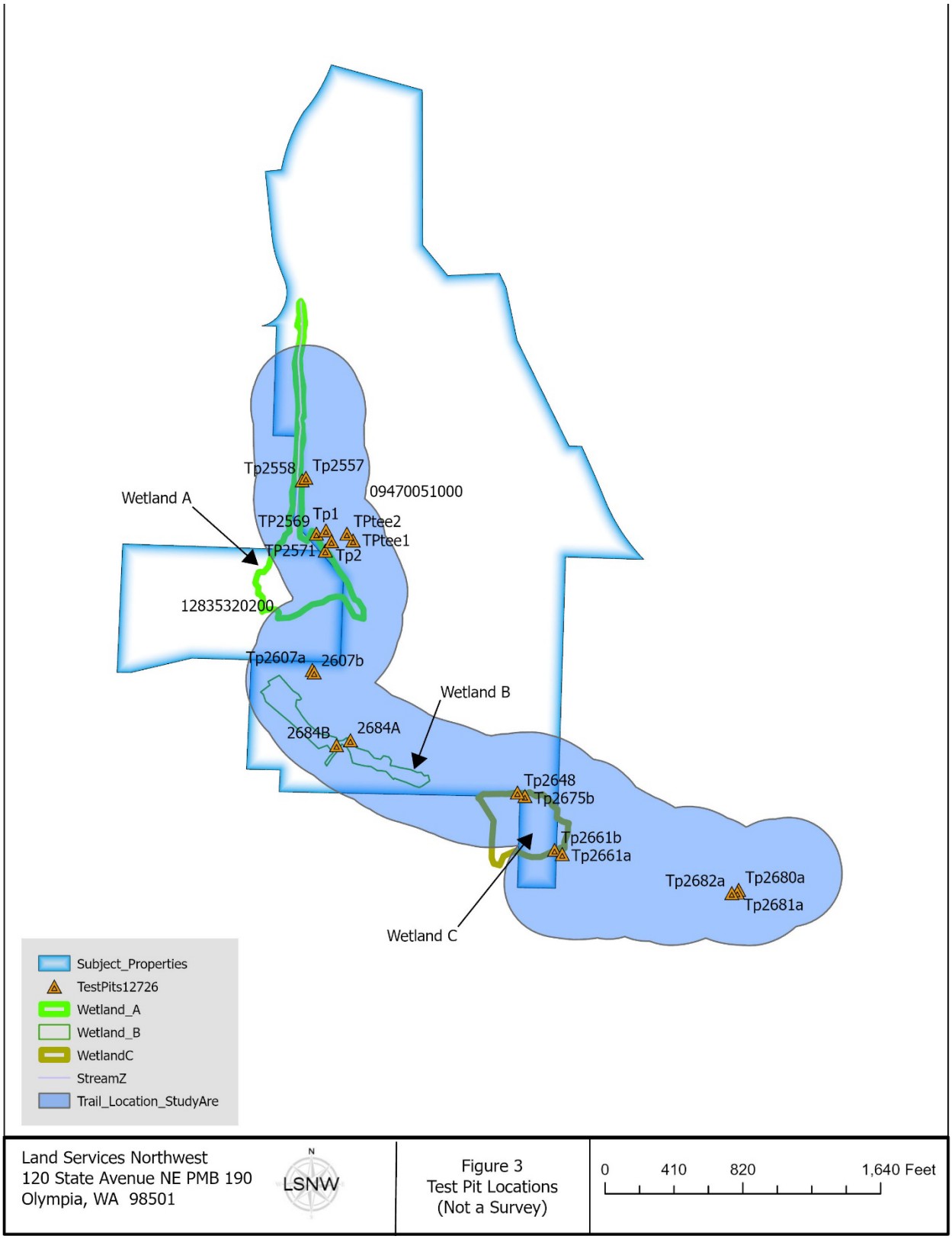


Figure 3 - Test Pit Locations

4.0 RESULTS

4.1 Existing Conditions

The existing Tumwater Valley Golf Course cart path is being improved and modified to serve the purpose of the new Deschutes Valley Trail. It was built as part of the golf course amenities within the existing buffer of the nearby critical areas during a period before the current critical areas code, so what is existing is mostly legal non-conforming with regard to buffers.

Existing nearby activities such as the golf course and the ongoing maintenance and general upkeep of the course are baseline conditions. No additional activities are being considered for the golf course that would create impacts beyond the ongoing baseline condition of the area, which includes the maintenance of the playing surface for golf. The cart path itself is not a pollution generating surface, and the existing impervious surface that comprises the golf cart path would be considered part of the baseline conditions as well.

4.2 Wetlands

Wetlands in the study area occur along a break in the slope on a landscape scale.

Wetland A

As mentioned, Wetland A is a large, depressional wetland discharging via a ditched stream to culvert which we crosses the parking lot and continues as a ditched stream until it discharges to the Deschutes River.

- *Plants*
  Red alder (*Alnus rubra*; FAC), reed canary grass (*Phalaris arundinacea*; FACW), Pacific ninebark (*Physocarpus capitatus*; FACW), Himalayan blackberry (*Rubus armeniacus*; FAC), and slough sedge (*Carex obnupta*; OBL) are the primary plants found in the wetland.

- *Soils*
  Soils were sampled, and a dark brown, 10YR 3/2 silt loam underlain with 10YR4/2 with 10YR4/6 redox was found.

- *Hydrology*
  It was end of the rainy season, so hydrology was directly observed at 12 inches.

Wetland B

Wetland B is a large, forested slope wetland that forms a stream in the midst of the swale. It discharges to a culvert that carries the water to another water feature on the other side of the fairway. It appears that there may be stormwater discharge from the city above, overwhelming the system and flooding this wetland, as there appeared to be scouring of the wetland due to water from the storm system.

- *Plants*

Vegetation is dominated by red alder (*Alnus rubra*; FAC), western red cedar (*Thuja plicata*; FAC), salmonberry (*Rubus spectabilis*; FAC), vine maple (*Acer circinatum*; FAC), slough sedge (*Carex obnupta*; OBL) and skunk cabbage (*Lysichiton americanum*; OBL).

- *Soils*

Soils were a 10YR3/1, black sandy loam underlain with a 10YY 4/2 and 10YR 4/6 redox.

- *Hydrology*

Hydrology was directly observed within 12 inches of the surface. The area appears to be drained by a storm system which has changed the hydrology of the area due to drying a large area to the northeast.

Wetland C

Wetland C is a large depressional wetland that receives water from a pipe as well as numerous springs along the wetland.

- *Plants*

Himalayan blackberry (*Rubus armeniacus*; FAC), salmonberry (*Rubus spectabilis*; FAC), field horsetail (*Equisetum arvense*; FAC), and common ladyfern (*Athyrium cyclosorum*; FAC) were the primary plants found in the wetland.

- *Soils*

Soils were sampled, and a dark brown, 10YR 3/2 silt loam underlain with a 10YR4/1 with a 10YR3/6 redox was found.

- *Hydrology*

It was end of the rainy season, so hydrology was directly observed at 8 inches. High groundwater and surface water after rain events sustain wetland hydrology.

5.0 WETLAND FUNCTIONAL VALUES

5.1 Wetland Functional Analysis Methodology

Wetlands, in general, provide many valuable ecological and social functions, including 1) stormwater storage, 2) groundwater recharge, 3) erosion control, 4) water quality improvement, 5) natural biological support, 6) overall habitat functions, 7) specific habitat functions, and 8) cultural and socioeconomic value.

Several procedures have been developed for assessing the importance and magnitude of functions and include the Washington Functional Assessment Method (WAFAM) Wetland Evaluation Technique, the Hydrogeomorphic Assessment Method the Habitat Evaluation Procedure (HEP), and numerous regional and/or local procedures. However, none of these methods were consistent with the needs of this project.

Wetland functions were also semi-quantitatively assessed using information gathered while performing the ECY Wetland Rating System for Western Washington (Hruby, 2014). The scores from the analysis of the wetland are found in Appendix J. This method is a comprehensive approach requiring substantial data input and assessment of onsite and landscape functions. The descriptions of wetland functions and the factors and parameters considered by that method are very helpful in interpreting the functioning of the subject wetlands and buffer areas. The methodology is scientifically based, in that its application requires a prior understanding of how wetlands function. Advanced experience, training and scientific objectivity of a wetland scientist applying the method is essential for an accurate assessment. Alex Callender has attended and received credit for the training in this method.

5.2 Wetland Functions

Wetland A

Wetland A is an approximately 5.46 – acre, mostly undisturbed depressional wetland that drains much of the springs along the way to the east and to a culvert where it finally discharges to the Deschutes River. The wetland scored 22 overall and had a habitat score of seven (HLH)

- *Water Quality*

  Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. The soil two inches below the surface is not true clay or true organic. The wetland has persistent, ungrazed plants in greater than 95% of area. The area seasonally ponded is greater than ¼ the total area of wetland. The wetland unit receives stormwater discharges, and greater than 10% of the area within 150 feet of the wetland is in land uses that generate pollutants. There are no septic systems within 250 feet of the wetland, and there are no other sources of pollutants coming into the wetland. The wetland discharges directly (i.e., within 1 mile) to a stream, river, lake, or marine water that is on the 303(d) list. The wetland is in a basin or sub-basin where an aquatic resource is on the 303(d) list. The site has been identified in a watershed or local plan as important for maintaining water quality.

- *Hydrologic Functions*

  Wetland A has an intermittently flowing stream/ditch. Marks of ponding are at least 0.5 feet to less than two feet from surface or bottom of outlet. The area of the basin is 10 to 100 times the area of the unit. The wetland receives stormwater discharges, and greater than 10% of the area within 150 feet of the wetland is in land uses that generate excess runoff. More than 25% of the contributing basin of the wetland is covered with intensive human land uses. Flooding from groundwater is an issue in the sub-basin. The site has not been identified as important for flood storage or flood conveyance in a regional flood control plan.

- *Habitat functions*

  The structure of the plant community is comprised of aquatic bed, emergent, scrub-shrub, forested, and forested class that has three out of five strata. There are four hydroperiods: permanently flooded or inundated, seasonally flooded or inundated, occasionally flooded or inundated, and saturated only. There are greater than 19 plant species and high interspersion of habitat. The wetland has five special habitat features: large, downed, woody debris; standing snags; undercut banks; stable steep banks of fine materials; and at least ¼ acres of thin-stemmed persistent plants or woody branches. Accessible habitat is 10-19% of one-kilometer

polygon, and total habitat is 10-50% and greater than three patches. Greater than 50% of one-kilometer polygon is high intensity land use. The wetland has three Priority Habitats (instream, riparian, and snags and logs) within 100 meters and is mapped as a location for an individual WDFW Priority Species.

Wetland B

Wetland B is an approximately 2.3-acre, mostly undisturbed slope wetland that drains the springs along the way to the southeast and to a culvert where it crosses the golf course to another water feature to the northeast. The wetland had an overall score of 16 and a habitat score of seven (MMH).

- *Water Quality*

  The slope of Wetland B is 1% or less. The soil two inches below the surface (or duff layer) is not true clay or true organic. Dense, uncut, herbaceous plants are greater than ¼ of the area. Less than 10% of the area within 150 feet on the uphill side of the wetland is in land uses that generate pollutants. There are no other sources of pollutants coming into the wetland. The wetland discharges directly (i.e., within 1 mile) to a stream, river, lake, or marine water that is on the 303(d) list. The wetland is in a basin or sub-basin where water quality is an issue. The site has been identified in a watershed or local plan as important for maintaining water quality.

- *Hydrologic Functions*

  Less than 25% of the area within 150 feet upslope of wetland is in land uses or cover that generate excess surface runoff. Surface flooding problems are in a sub-basin farther downgradient. The site has not been identified as important for flood storage or flood conveyance in a regional flood control plan.

- *Habitat functions*

  The structure of the plant community is scrub-shrub, forested, and the forested class has 3 out of 5 strata. There are two hydroperiods: seasonally flooded or inundated, and intermittently or seasonally flowing stream in, or adjacent to, the wetland. There are 5-19 plant species and a moderate interspersion of habitat. There are four special habitat features: large, downed woody debris; standing snags; undercut banks; and at least ¼ acre of thin-stemmed persistent plants or woody branches. Accessible habitat is 10-19% of one-kilometer polygon, and total habitat in the polygon is 10-50% and greater than 3 patches. Greater than 50% of one-kilometer polygon is high intensity land use. There are three Priority Habitats within 100m: riparian, instream functions, as well as snags and log habitat.

Wetland C

Wetland C is large depressional wetland that has a storm drain to the northeast via a culvert. The wetland is a Category II wetland with an overall score of 21 and a habitat score of six (MMM)

- *Water Quality*

  Wetland C is a depression or flat depression with no surface water leaving it. The soil two inches below the surface is true clay or true organic. There are persistent, ungrazed plants in greater than 95% of the area. The area seasonally ponded is greater than ¼ the total area of wetland. The wetland unit does not receive stormwater discharges, and greater than 10% of the area

within 150 feet of the wetland is in land uses that generate pollutants. There are no septic systems within 250 feet of the wetland, and there are no other sources of pollutants coming into the wetland. The wetland does not discharge directly to a stream, river, lake, or marine water that is on the 303(d) list. The wetland is in a basin or sub-basin where an aquatic resource is on the 303(d) list. The site has been identified in a watershed or local plan as important for maintaining water quality.

- *Hydrologic Functions*
  Wetland C is a depression or flat depression with no surface water leaving it. Marks of ponding are at least 0.5 feet to less than two feet from surface or bottom of outlet. The area of the basin is 10 to 100 times the area of the unit. The wetland does not receive stormwater discharges, and greater than 10% of the area within 150 feet of the wetland is in land uses that generate excess runoff. More than 25% of the contributing basin of the wetland is covered with intensive human land uses. Flooding occurs in a sub-basin that is immediately downgradient of the unit. The site has not been identified as important for flood storage or flood conveyance in a regional flood control plan.

- *Habitat functions*
  The structure of the plant community is scrub-shrub, forested and the forested class has 3 out of 5 strata. There are three hydroperiods: permanently flooded or inundated, seasonally flooded or inundated, and saturated only. There are 5-19 plant species and a moderate interspersion of habitat. There are three special habitat features: large, downed woody debris; standing snags; and at least ¼ acre of thin-stemmed persistent plants or woody branches. Accessible habitat is 20-33% of 1-kilometer polygon and total habitat in the polygon is 10-50% and greater than patches. Greater than 50% of 1-kilometer polygon is high intensity land use. The site has one Priority Habitat of snags and logs within 100 meters.

6.0 REGULATORY CONSIDERATIONS

6.1 City of Tumwater Regulations

The City of Tumwater regulates wetlands using a combination of land use intensity wetland category and habitat scores. The wetlands were rated using the Wetland Rating System for Western WA (Hruby, 2014)

Wetland A

Wetland A is rated a Category II wetland with an overall score of 22, and a habitat score of seven (HLH) for habitat. According to **TMC Table 24.30-1. Standard Wetland Buffer Widths**. Wetlands with a habitat score of seven (HLH) would require a 150-foot buffer. This can be reduced to the buffers recommended for moderate land use intensity using mitigation measures in the table below to reduce the land use intensity of the project and maintain no net loss of wetland functions and values.

Wetland B is a Category III wetland with an overall score of 16 and a habitat score of seven (MMH). Category III wetlands in the City of Tumwater with a habitat score of six typically carry a 150-foot buffer.

This can be reduced to the buffers recommended for moderate land use intensity using mitigation measures in the table below to reduce the land use intensity of the project and maintain no net loss of wetland functions and values.

Wetland C is a Category II wetland with an overall score of 21 and a habitat score of six (MMM). Category II wetlands in the City of Tumwater with a habitat score of seven typically carry a 150-foot buffer. This can be reduced to the buffers recommended for moderate land use intensity using mitigation measures in the table below to reduce the land use intensity of the project and maintain no net loss of wetland functions and values.

The primary land use is a golf course that will also be home to a multi-use trail that will occupy a small portion of the course. No new impacts to the wetlands is due to the golf course and the existing trail as they are both legal existing non-conforming uses.

Under **16.28.030 Definitions.**

P. "High-intensity land use" includes land uses which are associated with high levels of human disturbance or substantial wetland habitat impacts including, but not limited to: commercial, industrial, institutional, residential densities of one or more units per acre, new agricultural uses (high-intensity processing such as dairies, nurseries and green houses, raising and harvesting crops requiring annual tilling, raising and maintaining animals), **high-intensity recreation (golf courses**, ball fields) and hobby farms.

Table 16.28.170(2): Category II Wetland Buffer Widths

(Buffers for wetlands scoring twenty to twenty-two points for all functions or having the "special characteristics" identified in the rating system)

Wetland Characteristics	**Buffer Widths by Impact of Proposed Land Use (Apply Most Protective if More Than One Criterion Is Met)**	**Other Measures Recommended for Protection**
High level of function for habitat (score for habitat 8 – 9 points)	Low – 150 ft Moderate – 225 ft High – 300 ft	Maintain connections to other habitat areas
Moderate level of function for habitat (score for habitat 5 – 7 points)	Low – 75 ft	No recommendations at this time (1)

Table 16.28.170(2): Category II Wetland Buffer Widths

(Buffers for wetlands scoring twenty to twenty-two points for all functions or having the "special characteristics" identified in the rating system)

Wetland Characteristics	**Buffer Widths by Impact of Proposed Land Use (Apply Most Protective if More Than One Criterion Is Met)**	**Other Measures Recommended for Protection**
Wetland B and C	Moderate – 110 ft **High – 150 ft**	
High level of function for water quality improvement and low for habitat (score for water quality 8 – 9 points; habitat less than 5 points)	Low – 50 ft Moderate – 75 ft High – 100 ft	No additional discharges of untreated runoff
Not meeting above criteria	Low – 50 ft Moderate – 75 ft High – 100 ft	No recommendations at this time (1)

Table 16.28.170(2) Explanatory Notes:

(1) No information on other measures for protection was available at the time the 2014 Washington State Wetland Rating System for Western Washington was written. The Washington State Department of Ecology will continue to collect new information for future updates of the 2014 rating system.

Table 16.28.170(3): Category III Wetland Buffer Widths

(Buffers for wetlands scoring sixteen to nineteen points for all functions)

Wetland Characteristics	Buffer Widths by Impact of Proposed Land Use	Other Measures Recommended for Protection
Moderate level of function for habitat (score for habitat 5 – 7 points) If wetland scores 8 – 9 habitat points, use Table 16.28.170(2): Category II Wetland Buffer Widths	Low – 75 ft Moderate – 110 ft **High – 150 ft**	No recommendations at this time (1)
Score for habitat 3 – 4 points	Low – 40 ft Moderate – 60 ft High – 80 ft	No recommendations at this time (1)

Table 16.28.170(3) Explanatory Notes:

(1) No information on other measures for protection was available at the time the 2014 Washington State Wetland Rating System for Western Washington was written. The Washington State Department of Ecology will continue to collect new information for future updates of the 2014 rating system.

TMC 16.28.170 Wetland buffers.

A. Standard Buffer Zone Widths. Wetland buffer zones shall be required for all regulated activities adjacent to regulated wetlands.

1. Any wetland created, restored or enhanced as compensation for approved wetland alterations shall also include the standard buffer required for the category of the created, restored, or enhanced wetland.

2. All buffers shall be measured from the wetland boundary as surveyed in the field pursuant to the requirements of TMC 16.28.080.

3. The width of the wetland buffer zone shall be determined according to wetland category, the functions and special characteristics of the wetland, and the proposed land use.

4. Wetlands of high conservation value, bogs, and forested wetlands shall have the buffers shown in the table below independent of points scored for habitat in the rating system.

5. If a wetland meets more than one of the characteristics listed in Tables 16.28.170(1) to 16.28.170(4), the buffer recommended to protect the wetland is the widest one.

C. Buffer Width Reduction. The buffer widths recommended for land uses with high-intensity impacts to wetlands can be reduced to those widths recommended for moderate-intensity impacts under the following conditions:

1. For wetlands that score moderate or high for habitat (five points or more), the width of the buffer around the wetland can be reduced if both the following criteria are met:

a. A relatively undisturbed vegetated corridor at least one hundred feet wide is protected between the wetland and any other priority habitats as defined by the Washington State Department of Fish and Wildlife. The corridor must be protected for the entire distance between the wetland and the priority habitat via some type of legal protection such as a conservation easement; and
There is a 110-ft buffer after the reduction.

b. Measures to minimize the impacts of different land uses on wetlands, such as the examples summarized in Table 16.28.170(5), are applied.

2. For wetlands that score less than five points for habitat, the buffer width can be reduced to that required for moderate land use impacts if measures to minimize impacts of different land uses on wetlands, such as the examples summarized in Table 16.28.170(5), are applied.

Table 16.28.170(5): Measures to Minimize Impacts to Wetlands

Examples of Disturbance	Examples of Measures to Minimize Impacts	Activities That Cause the Disturbance
Lights	Direct lights away from wetland	Parking lots, warehouses, manufacturing, residential
Noise	Locate activity that generates noise away from wetland	Manufacturing, residential
Toxic runoff (1)	Route all new runoff away from wetland while ensuring that wetland is not dewatered Establish covenants limiting use of pesticides within 150 ft of wetland Apply integrated pest management	Parking lots, roads, manufacturing, residential areas, application of agricultural pesticides, landscaping
Stormwater runoff	Retrofit stormwater detention and treatment for roads and existing adjacent development Prevent channelized flow from lawns that directly enters the buffer	Parking lots, roads, manufacturing, residential areas, commercial, landscaping
Change in water regime	Infiltrate or treat, detain, and disperse into buffer new runoff from impervious surfaces and new lawns	Impermeable surfaces, lawns, tilling
Pets and human disturbance	Use privacy fencing Plant dense vegetation to delineate buffer edge and to discourage disturbance using vegetation appropriate for the ecoregion Place wetland and its buffer in a separate tract	Residential areas
Dust	Utilize best management practices to control dust	Tilled fields

Table 16.28.170(5) Explanatory Notes:

(1) These examples are not necessarily adequate to meet the rules for minimizing toxic runoff if threatened or endangered species are present at the site.

The applicant will be able to meet the requirements of the table above.

The wetlands, and their buffers are depicted below (**Figure 4**).

Streams

Streams in the City of Tumwater are regulated under TMC 16.32.

16.32.065 Riparian habitat areas – Buffers.

Recommended riparian habitat area widths are shown in the table below. A riparian habitat shall have the width recommended, unless a greater width is required pursuant to subsection A of this section, or a lesser width is allowed pursuant to subsection B of this section. Widths shall be measured outward in each direction, from the ordinary high water mark or the top of the bank if the ordinary high water mark cannot be identified. Riparian areas should be sufficiently wide to achieve the full range of riparian and aquatic ecosystem functions. Such functions include but are not limited to protection of instream fish habitat through control of temperature and sedimentation in streams; preservation of fish and wildlife habitat; and connection of riparian habitat to other habitats.

Table 1: Riparian Habitat Areas

Stream Type	**Recommended RHA Widths**
Type 1 and 2; or shorelines of the state, or shorelines of statewide significance	250 feet
Type 3; or other perennial or fish bearing streams, 5 – 20 feet wide	**200 feet Stream Z**
Type 3; or other perennial or fish bearing streams, < 5 feet wide	100 feet
Type 4 and 5	**50 feet Stream Y**

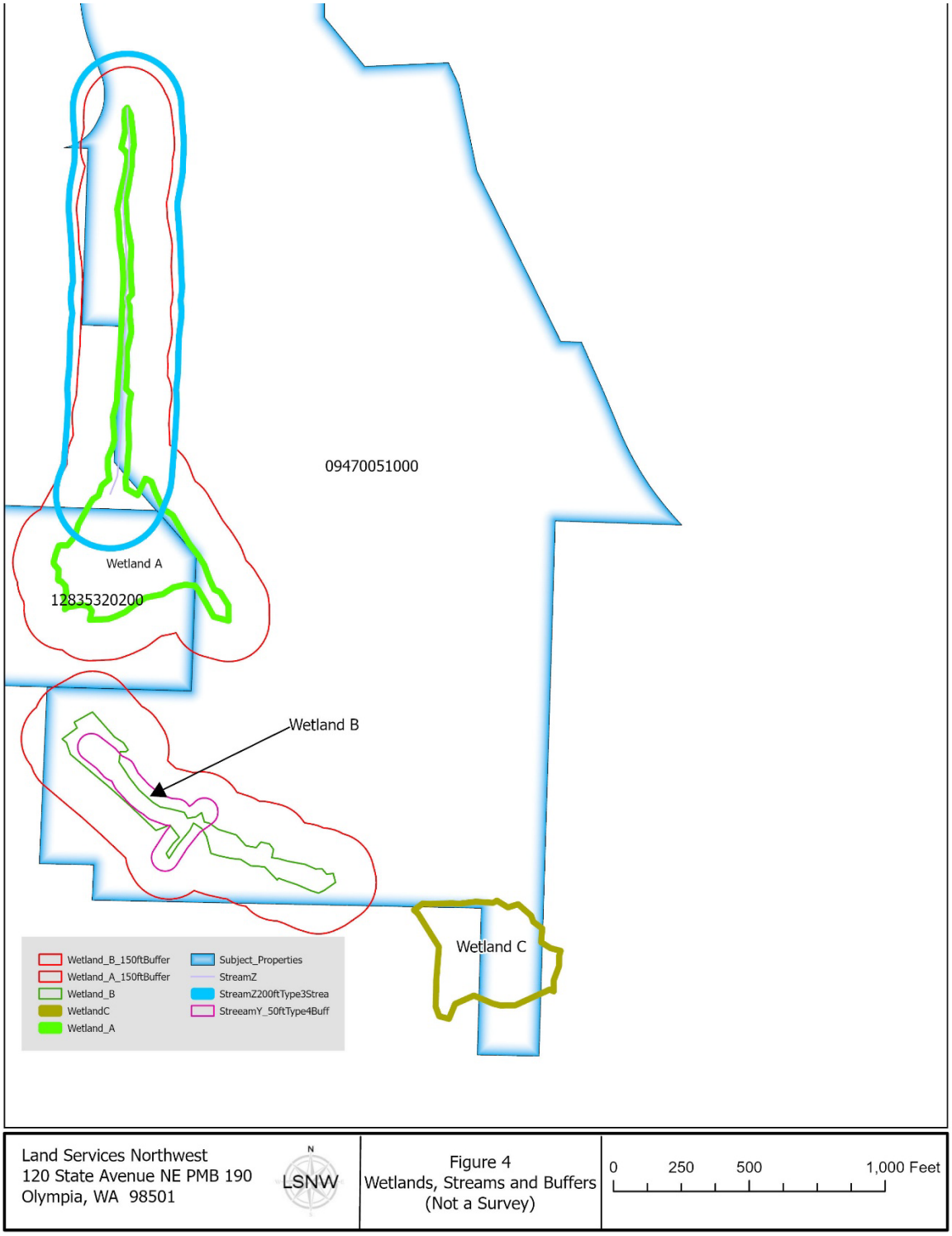


Figure 4 - Standard Wetland Buffers

TMC 16.28.290 Legal Non-conforming structures uses and Activities
The trail is located along the wetland edge and is within the inner 75% of the wetland buffer. This condition existed before the latest code revisions and would then be regulated under TMC-16.28.290 Existing legal nonconforming structures, uses, and activities which states:

A regulated structure, use or activity that legally existed or was approved prior to the passage of this chapter, but which is not in conformity with the provisions of this chapter may be continued subject to the following:

A. No such structure, use or activity shall be expanded, changed, enlarged or altered in any way that increases the extent of its nonconformity without a permit issued pursuant to the provisions of this chapter;

We will be applying for a permit in accordance with the provisions in this chapter for any expansion of the trail, or its associated facilities.

B. Except for cases of discontinuance as part of normal agricultural practices, if a nonconforming activity is discontinued for twelve consecutive months, any resumption of the activity shall conform to this chapter;

This does not apply.

C. If a nonconforming structure, use or activity is destroyed by human activities or an act of God, it shall not be resumed except in conformity with the provisions of this chapter;

Nothing has been destroyed, so this does not apply.

D. Structures, uses or activities or adjuncts thereof that are or become nuisances shall not be entitled to continue as nonconforming activities.

No nuisance has been established here.

A. Standard Buffer Zone Widths. Wetland buffer zones shall be required for all regulated activities adjacent to regulated wetlands.

1. Any wetland created, restored or enhanced as compensation for approved wetland alterations shall also include the standard buffer required for the category of the created, restored, or enhanced wetland.

No direct impacts to wetlands are expected from the new trail. Impacts to the wetland buffers are expected and the category of the wetlands is provided in this report to help with impacts and mitigation.

2. All buffers shall be measured from the wetland boundary as surveyed in the field pursuant to the requirements of TMC 16.28.080.

LSNW Inc has conducted a survey of the wetland boundary as required in TMC 16.28.080 buffers will be measured from the wetland boundary. Buffers will be determined by using the Wetland Rating System for Western Washington.

3. The width of the wetland buffer zone shall be determined according to wetland category, the functions and special characteristics of the wetland, and the proposed land use.

The wetland category is presented in this report. The other requirements will be met with the wetland delineation and mitigation report which will be produced with the acceptance of the mitigation concepts in this memorandum.

4. Wetlands of high conservation value, bogs, and forested wetlands shall have the buffers shown in the table below independent of points scored for habitat in the rating system.

Noted.

5. If a wetland meets more than one of the characteristics listed in Tables 16.28.170(1) to 16.28.170(4), the buffer recommended to protect the wetland is the widest one.

We will consider this in the report.

TMC 16.28.115.D Exceptions – Infrastructure.

A. If the application of this title would prohibit a development proposal by a public agency, public utility, or a private entity installing public or private infrastructure that is in compliance with the comprehensive transportation, capital facilities or utility plans of Tumwater, the agency or utility may apply for an exception pursuant to this section.

B. Exception Request and Review Process. An application for an infrastructure exception shall be made to the city and shall include a critical area identification form; critical area report, including mitigation plan, if necessary; and any other related project documents such as permit applications to other agencies, special studies, and environmental documents prepared pursuant to the State Environmental Policy Act (Chapter 43.21C RCW). The community development director shall prepare a recommendation to the hearing examiner based on review of the submitted information, a site inspection, and the proposal's ability to comply with infrastructure exception review criteria in subsection D of this section.

C. Hearing Examiner Review. The hearing examiner shall review the application and the community development director's recommendation, and conduct a public hearing. The hearing examiner shall approve, approve with conditions, or deny the request based on the proposal's ability to comply with all of the infrastructure exception review criteria in subsection D of this section.

D. Infrastructure Exception Review Criteria per Tumwater Municipal Code 16.28.170H.3

The criteria for review and approval of infrastructure exceptions are provided below, along with justification demonstrating how the Deschutes Valley Trail Segment C project meets each criterion:

1. There is no other practical alternative to the proposed development with less impact on critical areas;

The majority of the project is aligned with the existing Tumwater Valley Golf course golf cart trail along the right side of the fairways. The Deschutes Valley Trail relies on existing infrastructure (Tumwater Valley Golf Course Cart Path) which was legally built for the purpose of providing a non-degrading surface along the Tumwater Valley Golf Course primarily for use by golf carts, although pedestrian use is

accommodated too. Widening will occur from the edge of the existing path and extend towards the golf course to allow for a dedicated cart path and shared-use path, opening access to other patrons to experience the exceptional natural environment associated with the wetlands, streams and open spaces that are situated along this path. The current alignment has moved tee boxes and golf course infrastructure to the maximum extent practical while maintaining the viable golfing uses.

Other areas for the path were considered, however alternative areas of the golf course were not available without creating additional environmental impacts to floodplains, wetlands and shorelines. The original design, completed prior to 2018, proposed retaining the existing golf cart path and expanding the path toward the wetlands to accommodate the shared-use trail. Following delineation of the wetland in 2025, the design was revised at each project milestone to reduce impacts to the wetland and wetland buffer. The current proposed alignment will replace both the existing cart path and the shared-use trail within the footprint of the existing cart path, allowing the alignment to shift farther toward the golf course and away from the wetland and wetland buffer. As a result, impacts to the wetland and wetland buffer have been reduced to the maximum extent feasible with the proposed alignment. The expansion in use is accommodated by expanding the existing cart path for the majority of the trail and creating new trail areas in specific locations. The majority of the path expansion will occur to the east of the existing cart path, however there are two locations where the path will result in new impacts within the wetland buffer. These two locations could not remain outside of the wetland buffer without impacting portions of the golf course functional facilities, specifically near the Tee Boxes for Hole 2 and 4 (Appendix J).

A portion of the area the new path is proposed is routinely mowed and cleared of invasive species, including, but not limited to blackberry bushes, based on aerial imagery over the years (Appendix K). The routine clearing and mowing within the wetland buffer presents an ongoing negative impact on wetland functions. This impact will be mitigated through wetland buffer enhancements and will prevent future clearing on the east side of the course due to the separation the trail will create between the wetland and golf course.

The project will increase the area of non-pollution generating impervious surface. However, maintained golf course areas are considered pollution generating pervious surfaces per the definition in WAC 173-218-030 and the majority of the additional non-pollution generating impervious surface area will replace areas currently managed as pollution generating pervious areas due to the fertilizers and maintenance that occurs on golf course.

Due to site constraints with high ground water, the proximity of the wetlands, and the shoreline, many stormwater best management practices (BMPs) are not feasible. The BMP selected for this project is sheet flow dispersion, which is considered low impact and the preferred BMP when feasible. Sheet flow dispersion is based on using overland flow across native vegetation to provide stormwater flow control. The current condition of the wetland buffer on the golf course side contains non-native species, primarily Himalayan Blackberry, that encroaches on the wetland and the golf course. The wetland buffer enhancement will remove non-native species from the wetland buffer increasing its wetland buffer function and stormwater dispersion efficacy as it will realign the area with its native state. With enhanced and rehabilitated vegetation, the wetland buffer will be closer in line to a natural wetland buffer than its current state. A natural wetland buffer is an ideal condition for sheet flow dispersion as it uses the natural ecology to manage stormwater.

Even with the avoidance and minimization measures incorporated into the project, some new impacts will occur. These impacts will be mitigated through an extensive mitigation and enhancement plan,

including invasive species removal, as described in Section 9.0 of this Wetland Report. This combination of wetland enhancement and invasive species removal will result in a substantial improvement in wetland and adjacent upland functions while also providing additional amenities for the public.

2. The application of this title would unreasonably restrict the ability to provide utility services to the public;

Without approval of the infrastructure exemption, there is no feasible alternative alignment that would allow the project to meet its intended purpose while avoiding additional impacts to regulated critical areas and maintaining the functional use of the golf course. Relocating the shared-use path farther east would conflict with the operational functions of the golf course and would result in increased encounters with regulated environmental constraints, including wetlands, wetland buffers, floodplains, and shoreline areas. Accordingly, further eastward relocation does not provide a practicable means of avoiding or minimizing critical area impacts.

The Segment C alignment of the Deschutes Valley Trail has been refined through the project design process to avoid encroachment into the shoreline and to reduce impacts within the floodplain. The current alignment also reflects iterative design modifications following wetland delineation and has been configured to avoid and minimize impacts to the wetland and wetland buffer to the maximum extent feasible. The remaining wetland buffer impact is associated with the proposed stormwater best management practice (BMP), which is necessary to provide stormwater management for the trail improvements. The BMP has been located to minimize additional disturbance and will maintain the existing drainage pattern, including the existing flow path and sheet flow toward the wetland. Therefore, the proposed design represents the practicable alternative that minimizes impacts to regulated critical areas while maintaining the functional use of the golf course and providing the intended shared-use trail connection.

It is not anticipated that the new shared use path will have adverse impacts to the wetlands. The buffer enhancements and rehabilitations will provide increase wetland functionality and restore the wetland buffer closer to its natural functional state. The shared use path will also provide a separation from the golf course maintenance and pollution generating elements further enhancing the wetland and wetland buffer function.

3. The proposal does not pose an unreasonable threat to the public health, safety, or welfare on or off the development proposal site;

The new trail will not pose an unreasonable threat to public health, safety, or welfare. Public safety will be improved through the proposed upgrades, including new fencing to keep golf balls from the shared non-motorized path area and wetland. The existing path will be widened and its surface improved to meet the ADA standards for Accessible Design. Public use of the path will also provide a public health benefit by providing opportunities for walking, exercise, and recreation.

The project is not expected to result in an increase in environmental impacts, as supported by the functional analysis. The increase in native vegetation from the mitigation plan described in Section 9.0 will improve the overall environmental health by removal of invasive species and planting of native species.

4. The proposal attempts to protect and mitigate impacts to the critical area functions and values consistent with other applicable regulations and standards.

An assessment of critical area functions has been provided to demonstrate that the critical area functions and values will be maintained due to the planned mitigation actions in accordance with applicable critical areas regulations and standards. The project includes a mitigation plan designed to meet the Department of Ecology's applicable mitigation standards.

Even with the proposed encroachment of the wetland buffer, there will be no-net-loss of wetland functions and values, as demonstrated by the assessment of wetland and stream functions provided in Section 9.3 of this report.

E. Burden of Proof. The burden of proof shall be on the applicant to bring forth evidence in support of the application and to provide sufficient information on which any decision has to be made on the application.

The wetland functional assessment which is conducted using the best available science (BAS) looks at functions before and after the project shows a functional lift of wetland functions due to the improved screening of the wetland with common native flora and will also provided other improved buffer functions such food production, shade, roughness, and aesthetics to patrons.

Table 2 - Summary of Wetlands and Streams on or in the Vicinity of the Subject Property

Wetland	Onsite Size (acres)	Offsite Size (acres)	Category/Type	Habitat Score	Buffer Width (feet)	Buffer after Mitigation	Comments
A	5.46		II	7 (HLH)	150	Variable	Buffer impacts only
B	2.31		III	7 (MMH)	50	Variable	Buffer impacts only
C	2.00	1.52	II	6 (MMM)	150	Variable	Buffer impacts only
Stream Z	150 ft		3		200	Variable	Buffer impacts only
Stream Y	200 ft		4-5		50	Variable	Buffer impacts only

6.2 Corps Regulations

Wetland A flows to the Deschutes River via a culvert to a connected stream channel. B flows via a culvert to other wetlands, and it is assumed that it connects with the Deschutes River and then to the Puget Sound. Therefore, it would be maintained as a water of the U.S. and regulated under the Clean Water Act. No impacts are proposed to Wetland A beyond the buffer reduction.

6.3 Department of Ecology

Under RCW 90.48, the Washington Department of Ecology (DOE) reserves regulatory authority to regulate “waters of the state” under Section 401 of the Clean Water Act. No wetland impacts are proposed.

7.0 WILDLIFE

Wildlife observed during the field investigations are typical of urban/suburban adapted species (Table 2). The European starling, possum, and other species adapted to urbanization may inhabit or visit the site for food and shelter.

No other federally listed, or priority species was observed on the subject property or near the site based on the WDFW Priority Habitats and Species (PHS) and field observations during the reconnaissance and delineation. During the limited duration of the site reconnaissance and delineation, no evidence of the marbled murrelet, or spotted owl was observed onsite. No raptors such as Bald eagles or other raptors, or their nests were found along the trail.

Although some species of salmon may visit the site, no federally listed salmonid species are known to use the Deschutes as a primary spawning ground onsite, based on the WDFW SalmonScape database, the WDFW PHS database, and site reconnaissance. The Deschutes Falls are a significant barrier to access, although the WDFW fish ladder is managed to allow sea run cutthroat trout and some salmon are given access to the upper Deschutes.

Wildlife observed onsite during site visits included the occasional mole mound, deer and coyote scat, and beaver dams. There was one Great blue Heron (*Ardea Herodias)* found feeding in Wetland A along with a few pairs of Mallard ducks (*Anas platyrhynchos*). It does not appear that there is a heron rookery here. Robins (*Turdus migratorius*) were seen on the fairways.

8.0 PROPOSED PROJECT

8.1 Description

The project is to build the first phase of an approximately .87 mile pedestrian/bicycle trail utilizing parts of an existing golf cart path on a portion of the Tumwater Valley Municipal Golf Course. The path will start near the clubhouse and end for this phase to the southeast along the Deschutes River (**See Figure 1**). This will provide improved public access to a limited access area of the shoreline in accordance with the policies of the Tumwater SMP and the Shoreline Management Act.

To accomplish this project, the city proposes an expansion of the driving/walking surface and unavoidable buffer impacts, but as the mitigation analysis will show, there will be no net loss of the shoreline functions or wetland and stream ecological functions as a result of this expansion of the trail after the mitigation is installed (See Site Plan).

8.2 Development Impacts

Since the golf course, the maintenance of the golf course, and the existing cart path are determined to be ongoing, legal non-conforming structures and uses, they are considered part of the baseline condition of the area. The activities within these areas are ongoing, not considered as an impact and should not require mitigation.

Any activity beyond the footprint of the existing trail for accommodating the trail or improving the stormwater treatment would be considered an impact, so the question to be asked is how much impact would be attributed to each type of activity.

We consider the activities/ impacts due to the project as follows:

- Proposed New Impervious Trail Within Maintained Areas (Typically grass or invasive blackberry and grassy areas.)
- Proposed New Impervious Trail Within Unmaintained Natural Areas (Typically forested or shrub with some invasives, but much more native vegetation currently present.

8.3 Impact Avoidance and Minimization

In order to maintain wetland functions, the city has avoided impacts to the greatest extent possible by maintaining the footprint of the trail within the bounds of the existing paved cart path for the Tumwater Valley Golf Course. There are some small areas where the path will diverge from the existing cart path, but these areas will be in well-drained upland forest or upland grassy fields and will be proposed only as needed to make interconnections with other parts of the trail. No new wetland impacts will occur, and buffer impacts will mostly be limited to areas near the edge of already impacted areas. The two main areas of new impact have been discussed and they are found along Tee box 2 and Tee box 4. The impacts have been reduced by moving the Tee boxes and the remaining impacts will result in an improvement through native mitigation plantings and the new non-polluting surfaces.

8.4 Minimization of Water Quality Impacts

Although most work will be done in the dry, implementing water quality and sedimentation best management practices (BMPs) will act to minimize sedimentation and protect water quality onsite. Any bare areas will be planted with a cover crop. Silt fences and straw waddles will be used where necessary. infiltration galleries will be used to reduce stormwater impacts from the residence. The increase in vegetation from the proposed buffer enhancement plan will provide for increased surface roughness and nutrient uptake among other improvements (See Chapter 9 – Mitigation).

9.0 MITIGATION

16.28.030 Definitions

W. "Mitigation" includes avoiding, minimizing or compensating for adverse wetland impacts. Mitigation, in the following order of preference, is defined as:

1. Avoiding the impact altogether by not taking a certain action or parts of an action;

The avoidance of impact as mentioned before includes expansion away from the wetlands and moving the Tee boxes and alignment away from the wetlands

2. Minimizing impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps to avoid or reduce impacts;

As mentioned earlier the degree or magnitude of the action was explored and the current alignment has the greatest avoidance of new impacts and minimizes impacts by using existing non polluting cart path and creating new non-polluting trail that replaces pollution generating golf course turf.

3. Rectifying the impact by repairing, rehabilitating or restoring the affected environment to the conditions existing at the time of the initiation of the project;

The project will rehabilitate and enhance affected areas existing at the time of the initiation of the project.

4. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action;

The impact over time will be minimized as the mitigation matures and becomes self sustaining.

5. Compensating for the impact by replacing, enhancing, or providing substitute resources or environments;

An extensive planting plan is provided to enhance and rehabilitate the buffer.

6. Monitoring the impact and the compensation project and taking appropriate corrective measures. Mitigation for individual actions may include a combination of the above measures.

A maintenance and monitoring plan is included.

9.1 Mitigation Plan Requirements

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The objective of the mitigation is to meet the no-net-loss requirements found in code.

It will be necessary to provide an invasive species removal plan followed by a native plant buffer enhancement plan. The applicant will enhance the **buffer** of the wetlands along the trail by removing invasive blackberries, English ivy, and English holly and other invasive species that may be present along the route and install native plants to enhance the density and provide a resilient buffer that will be self-maintaining once established. The plantings may require some trimming along the interface with the golf course in order to prevent encroachment into the playing area or the new paved pathway. The shrubs chosen should perform well in this position in the landscape and be able to withstand periodic trimming while maintaining functions.

9.2 IMPACTS

As mentioned earlier, the applicant proposes only buffer impacts and mitigation will be conducted in accordance with the mitigation requirements found in TCC.

There are two main impacts to be considered for the expansion and reconfiguration of the cart path into the multi-use Deschutes Valley Trail

The impacts that will be considered are:

- Proposed New Impervious Trail Within Maintained Areas
- Proposed New Impervious Trail Within Unmaintained Natural Areas

These areas are illustrated (**See Appendix K- WETLAND BUFFER IMPACTS DESCHUTES VALLEY TRAIL – SEGMENT C**)

Typically, buffer Impacts to the outer 75% in the City of Tumwater are mitigated at a 1:1 enhancement to impact ratio with invasive species removal in an area that is impacted. The expected impacts to the trail will mostly be within the inner 75% of the wetland buffers due to the existing legal non-conforming nature of the existing cart path that was built well before the change to the newest version of the Tumwater CAO.

Therefore, the intensification of the impacts due to the reconfiguration of the trail will require greater mitigation, and they are treated more as an indirect impact to the Wetland. We will use the mitigation table 16.28.220(6): Mitigation Ratios for Projects in Western Washington in conjunction with the impact reducing measures found in Table 16.28.170(5) below.

Table 16.28.170(5): Measures to Minimize Impacts to Wetlands

Examples of Disturbance	Examples of Measures to Minimize Impacts	Activities That Cause the Disturbance
Lights	Direct lights away from wetland	Parking lots, warehouses, manufacturing, residential
Noise	Locate activity that generates noise away from wetland	Manufacturing, residential
Toxic runoff (1)	Route all new runoff away from wetland while ensuring that wetland is not dewatered Establish covenants limiting use of pesticides within 150 ft of wetland Apply integrated pest management	Parking lots, roads, manufacturing, residential areas, application of agricultural pesticides, landscaping
Stormwater runoff	Retrofit stormwater detention and treatment for roads and existing adjacent development Prevent channelized flow from lawns that directly enters the buffer	Parking lots, roads, manufacturing, residential areas, commercial, landscaping
Change in water regime	Infiltrate or treat, detain, and disperse into buffer new runoff from impervious surfaces and new lawns	Impermeable surfaces, lawns, tilling
Pets and human disturbance	Use privacy fencing Plant dense vegetation to delineate buffer edge and to discourage disturbance using vegetation appropriate for the ecoregion Place wetland and its buffer in a separate tract	Residential areas
Dust	Utilize best management practices to control dust	Tilled fields

Table 16.28.170(5) Explanatory Notes:

(1) These examples are not necessarily adequate to meet the rules for minimizing toxic runoff if threatened or endangered species are present at the site.

The table will be followed as relevant to the project plans and activities; however, there may be some recommendations that are not applicable.

In addition to the impact reducing measures of the table above, it is recommended that the following table is used to provide mitigation for impacts to the wetlands at levels that are supported by the best available science.

Unmaintained Areas will be enhanced and use the appropriate enhancement ratios determined by the category of the wetland.

Maintained areas will be rehabilitated.

The impact and mitigation area are found in Appendix K -Wetland Buffer Impact Areas – Segment C and Appendix L - Wetland Buffer Impact Mitigation Areas – Segment C)

The impacts due to the project are buffer impacts only, so the rehabilitation definition used here is slightly different than the 2008 Federal Rule. Rehabilitation of buffer vegetation, which is primarily invasive species or golf course turf, will be removed and replaced with native trees and shrubs. Enhancement areas will be adding shrubs and trees to improve functions by improving density and therefore the roughness, screening, nutrient uptake and other functions as shown in the functional analysis. The removal of invasive species may also occur in enhancement areas, but not typically to the extent that will occur in the rehabilitation areas which are primarily not native vegetation now.

Table 16.28.220(6): Mitigation Ratios for Projects in Western Washington

Category and Type of Wetland Impacts (1)	Reestablishment or Creation	Rehabilitation (2)	Enhancement (2)
Category I – bogs or wetlands of high conservation value	Not considered possible (3)	6:1	Case-by-case
Category I – mature forested	6:1	12:1	24:1
Category I based on score for functions	4:1	8:1	16:1
All category II	3:1	**6:1**	**12:1**
All category III	2:1	**4:1**	**8:1**
All category IV	1.5:1	3:1	6:1

The table below has the overall mitigation totals for a quick understanding of the expected impacts to mitigation acreages.

Table 3 – Summary of Buffer Impact Areas

Summary of Wetland Buffer Impact Areas	Impacts Within Golf Course Maintained Areas			Impacts within Unmaintained Areas		
	Proposed Impacts sq ft	Ratio	Proposed Rehabilitation Mitigation sq. ft.	Proposed Impacts sq. ft.	Ratio	Proposed Enhancement Mitigation sq. ft.
Wetland A Category II	10,661	6:1	63,966	8,238	12:1	98,856
Wetland B; Category III	3,603	4:1	14,412	6,631	8:1	53,048
Wetland C; Category II	2,836	6:1	17,016	1,675	12:1	20,100
Total	**17,100**		**95,394**	**16,544**		**172,004**

9.2 Integrated Pest Management

The applicant will use the Integrated pest Management Plan (IPM) methods and utilize management recommendations from the Thurston County IPM Website. The primary objectives of the planting plan is to provide shrub species that will shade and outcompete the two main species which require control: **Himalayan blackberries Scotch broom, English holly, and the single-seeded hawthorn.**
The applicant will use manual or mechanical means as the preferred method for removal of the Himalayan and Evergreen blackberries onsite. If these methods are found to be ineffective or infeasible, other more aggressive methods will be considered to include use of popular effective herbicides consistent with the recommended label application rates and conducted during the dry season by licensed applicators. Other species which may require control from time to time will use recommendations from the Thurston County Noxious Weed website and the Homeowner IPM recommendations adopted for this particular purpose.

Reed Canary Grass (Phalaris arundanacea; FACW) and Himalayan and Evergreen blackberry (*Rubus armeniacus and laciniatus; FAC*)
These are the primary invasive weeds found throughout the golf course edges. Recommendations for removal are provided in **Appendix M**. These weeds are known to be a persistent and problematic weed, when found growing in native planting areas for mitigation plans. The National Park Service has had success with the herbicide Imazapyr for this persistent weed. It may take a concentrated effort over a period of years, and offsite sources may provide a continuing seed source that may be difficult to overcome, however, once established, native plants can shade out and ultimately provide a resilient impact to prevent reinfestation of the weeds over time.

9.3 Functional Analysis

As mentioned earlier, the following planting plan to rehabilitate the buffer will maintain wetland functions and improve the overall landscape as well by:

- providing increase roughness,
- increasing nutrient uptake of stormwater,
- increasing site plant diversity,
- providing screening for wildlife,
- providing shade for improved water quality and habitat,
- producing food for wildlife and structure,
- providing nectar for threatened butterflies.

Currently, the areas that will be impacted are on the edge of the paved pathway consisting of fields with invasive Himalayan blackberry and Scotch broom (Cytisus scoparius, One seeded hawthorne (Crataegus monogyna; FAC), English holly (*Ilex aquiliinum*; FACU), and English ivy (*Helix hedera*; FACU). There is a lack of trees, and native shrub vegetation and the screening that they provide. This plan will provide a properly rehabilitated buffer in the area, where it matters most, between the wetland and the trail.

Areas will be planted with buffer plants, which will not only provide benefits already mentioned, but will also become a landscape amenity that combines the practical plantings with aesthetic attributes of our native flora which are not so dependent on water during our dry summers. There were areas of beaver use where the plantings could quickly be wiped out by the beavers so protection may be required for the tree and shrubs to prevent them from becoming food or forage for the area beavers.

The following analysis uses the qualitative scoring values like the values developed in the Wetland Rating System for Western Washington (Hruby, 2014). The best available science has found that the resolution of value can only be rated using a qualitative system and maintain a rapid assessment of less than one day. Therefore, we have examined common buffer functions for wetlands and other habitats to show the overall expected lift by the rehabilitation plan. The functions we are studying were found in the latest buffer BAS (Hruby, 2013)

Table 4- Buffer Functions Comparison Before and After Rehabilitation

Buffer Perf criteria	Other Habitats (Bat, Martin and Wood duck habitat	Screening	Nutrient uptake	Invasive Species	Food source	Structure	Surface roughness	Temperature attenuation	Diversity
Before mitigating measures	Low	Medium	Low	High	Low	Low	Medium	Low	Low
After mitigating measures	Medium	High	Medium	Low	Medium	High	High	Medium	Medium

The enhancement and rehabilitation measures will have many similar results over time; however, the enhancement will mostly add to the existing functions while the rehabilitation will require removal of invasives and preparation of the substrate to allow for the introduction of native plants to the point where they can dominate the area. Once applied, the rehabilitation and enhancement should have similar results and will provide new habitat for birds, bats and macroinvertebrates and in the future provide structure and reduce invasive species. There is little doubt that the small impacts will be compensated for by an effective enhancement and rehabilitation plan. The objective of the enhancement area is to provide shrub and tree species to create a long-lasting conifer dominated overstory and a shrub scrub understory to improve buffer functions.

9.4 Planting Plan

To provide for a higher functioning wetland, a wetland invasive removal plan was developed to make the remaining buffer and wetland more resilient and effective.

Blackberries will be removed using brushing equipment on a skid steer to knock down the existing canes. These will be raked up and either composted, landfilled or disposed of in some acceptable manner. One seeded hawthorne and other shrubs like English holly could be ground or girdled.

The placement area which was created to maximize plant performance by placing species in a position in the landscape where they will thrive and provide the most benefit to the system (Appendix L- WETLAND BUFFER IMPACTS MITIGATION DESCHUTES VALLEY TRAIL – SEGMENT C)

Trees and shrubs will be planted at grade in holes 2-3 times the width of the container or root ball. Mulch will be applied around each tree two to four inches deep in a three-foot diameter around the tree with an edge to retain water. Containerized rootbound trees will be cut with sharp shears on the bottom in an x pattern to promote root growth. Four cuts will be made vertically to allow roots to spread. Trees and shrubs will be thoroughly watered after installation.

Table 5 - Wetland A Enhancement Area (98,856 sq. ft.)

Common Name	Scientific Name	Size	Spacing	Quantity
Pacific willow	*Salix lasiandra*	5 Gallon	15 ft. oc	100
Sitka spruce	*Picea sitchensis*	1 Gallon	15 ft. oc	200
Western hemlock	*Tsuga heterophylla*	1 Gallon	15 ft oc	139
Nootka rose	*ranunculus occidentalis*	1 Gallon	5 ft. oc	250
Pacific ninebark	*Physocarpus capitatus*	1 Gallon	8 ft oc	250
Douglas hawthorne	*Crataegus douglasii*	1 Gallon	8 ft. oc	250
Osoberry	*Oemleria cerasiformis*	1 Gallon	8 ft oc	106
Slough sedge	Carex obnupta	1 Gallon	5 ft oc	250
Total				**1545**

Table 6 –Wetland B Enhancement Area (53,048 sq. ft.)

Common Name	Scientific Name	Size	Spacing	Quantity
Western red cedar	*Thuja plicata*	5 gal	15 ft oc	**50**
Scoulers willow	*Salix scouleriana*	1 gal	10 ft oc	50
Oregon ash	*Fraxinus latifolia*	5 gal	15 ft oc	136
Twinberry	*Lonicera involucrata*	1 Gallon	8 ft. oc	100
Salmonberry	*Rubus spectabilis*	1 gal	5 ft oc	100
Scoulers willow	*Salix scouleri*	1 Gallon	8 ft. oc	100
Red osier dogwood	*Cornus sericea*	1 Gallon	8 ft oc	100
Pacific rhododendron	*Rhododendron macrophyllum*	1 Gallon	5 ft oc	100
Red elderberry	*Sambuca racemosa*	1 Gallon	8 ft oc	100
Total				**836**

Table 7 – Wetland C Enhancement Area (20,100 sq. ft.)

Common Name	Scientific Name	Size	Spacing	Quantity
Sitka spruce	*Picea sitchensis*	1 Gallon	15 ft oc	49
Western red cedar	*Thuja plicata*	1 Gallon	15 ft oc	40
Snowberry	*Symphoricarpus alba*	1 Gallon	5 ft. oc	50
Salmonberry	*Rubus spectabilis*	1 Gallon	5 ft. oc	50
Red elderberry	*Sambuca racemosa*	1 Gallon	5 ft. oc	50
Red flowering currant	*Ribes sanguineum*	1 Gallon	8 ft. oc	50
Oceanspray	*Holodiscus discolor*	1 Gallon	8 ft. O.C.	25
Total				

Table8 – Wetland A – Rehabilitation (63,966 sq ft)

Common Name	Scientific Name	Size	Spacing	Quantity
Sitka spruce	Picea sitchensis	1 Gallon	15 ft oc	100
Bitter cherry	Prunus emarginata	1 Gallon	15 ft oc	100
Black cottonwood	Populus balsamifera	1 Gallon	15 ft oc	100
Vine maple	Acer circinatum	1 Gallon	8 ft oc	1000
Pacific crabapple	*Malus fusca*	1 Gallon	5 ft. O.C.	100
Salmonberry	*Rubus spectabilis*	1 Gallon	5 ft. O.C.	200
Red elderberry	*Sambuca racemosa*	1 Gallon	5 ft. O.C.	116
Mock orange	*Philadelphus lewisii*	1 Gallon	8 ft. O.C.	100
Oceanspray	*Holodiscus discolor*	1 Gallon	8 ft. O.C.	100
Total				

Table 9 – Wetland B – Rehabilitation Planting (14,412 sq ft)

Common Name	Scientific Name	Size	Spacing	Quantity
Western red cedar	Thuja plicata	1 Gallon	15 ft oc	40
Sitka willow	*Salix sitchensis*	1 Gallon	10 ft. oc	24
Salmonberry	*Rubus spectabilis*	1 Gallon	5 ft. oc	40
Pacific crab	Malus fusca	1 Gallon	8 ft oc	40
Blue elderberry	*Sambuca negra*	1 Gallon	5 ft. oc	40
Douglas hawthorne	*Crataegus douglasii*	1 Gallon	8 ft. oc	20
Oceanspray	*Holodiscus discolor*	1 Gallon	8 ft. oc	20
Total				

Table 10– Wetland C – Rehabilitation Planting (17,016 sq ft)

Common Name	Scientific Name	Size	Spacing	Quantity
Western hemlock	Picea sitchensis	1 Gallon	15 ft oc	40
Pacific willow	Salix lasiandra	1 Gallon	15 ft oc	20
Vine maple	Acer macrophyllum	1 Gallon	15 ft oc	16
Snowberry	*Symphoricarpus alba*	1 Gallon	5 ft. O.C.	50
Osoberry	*Oemleria cerasiformis*	1 Gallon	5 ft. O.C.	50
Red elderberry	*Sambuca racemosa*	1 Gallon	5 ft. O.C.	40
Mock orange	*Philadelphus lewisii*	1 Gallon	8 ft. O.C.	25
Oceanspray	*Holodiscus discolor*	1 Gallon	8 ft. O.C.	25
Total				

9.5 Monitoring Plan

The planting plan will be monitored for 10 years following the as – built (Year 0). Monitoring of the performance standards will be provided each spring, shortly after leafing out, to aid in plant identification. A report that communicates the findings will be provided to the city staff a month following the monitoring.

The report will contain pictures from photo points established during the as-built year to allow the city personnel to evaluate site conditions and performance standards. The photos in the report will be taken in four cardinal directions, unless there is a direction that provides a better view. Four photo points will be established during the as-built (Year 0). Management of performance deficiencies or maintenance will occur during the spring or fall season following monitoring, and a summary of management actions will be included in the following year's monitoring report to track effectiveness and adaptively manage the site. A form has been developed to facilitate the monitoring process (**Appendix M**).

9.6 Performance Standards

The performance standards are as follows:

Year 0 - an inventory of plants and photo points will be established for monitoring during the monitoring period within 1 month of the installation.

Year 1-2 will have 100% survival of installed plants. Noxious weeds will be less than 10% aerial coverage.

Volunteer trees or shrubs may account for up to 10% of the overall count of surviving plants. Dead plants will be replaced in kind unless a volunteer is a replacement.

Year 2 -10 will have a survival rate of 80 % of the original count. Volunteers can account for 10% of the total, if present. Noxious weeds such as Himalayan blackberry, Scotch broom, reed canary grass, and other invasives will not have more than 10% aerial coverage of the planting area.

If the area meets the survival and aerial coverage performance measure in Year 5, the applicant can be given approval to end monitoring.

Japanese knotweed, yellow flag iris, and hogweed will have a zero percent tolerance and will be removed or sprayed using an appropriate herbicide approved for aquatic use by a licensed applicator.

The aerial coverage will be 70% by Year 5, 80% by Year 7, and 90% by Year 10. If these coverage measures are not met and it does not appear that they will meet performance measures because of neglect, more plants may be planted to make up the difference.

Failure to meet standards by Year 10 will require an additional year of monitoring.

9.7 Contingency Plans

If the site does not meet performance standards, contingencies may be developed to adapt to the site-specific conditions. Contingencies may include:

- Increased watering
- Mulching
- Integrated Pest Management
- Microtopography changes
- Species substitution
- Herbivory protection
- Bark wrap

The area is frequented by deer, and the choice of plants was chosen to avoid herbivory issues, but exclusion fencing may be necessary until the plants reach maturity. This is not expected to be needed as a permanent fixture, if required. Any contingencies will be developed in conjunction with landscapers, nursery staff, and City Staff. The city would be notified in advance of the contingency plans. No contingencies will be applied without city consent.

10.0 SUMMARY AND CONCLUSIONS

Three jurisdictional wetlands and two streams were found on- and offsite and were delineated.

Wetland A is a Category II wetland with an overall score of 22 and a habitat score of 7(HLH). Wetlands in the City of Tumwater with a habitat score of seven (HLH) carry a 150-foot buffer.

Wetland B is a Category III wetland with an overall score of 16 and a habitat score of seven (MMM). Category IV wetlands in the City of Tumwater typically carry a 150-foot buffer.

Wetland C is a Category II wetland with an overall score of 21 and a habitat score of six (MMM This wetland will also carry a 150-foot buffer.

Stream Z is located within Wetland A. This stream is a type 3 stream 5-20 feet wide and will carry a 200-foot buffer.

Stream Y is located within Wetland B. This is a type NS stream, and this stream discharges to a culvert. The stream is less than 2 feet wide and is a type 4 stream. It will carry a 50-foot buffer.

The City wants to provide a new trail in approximately the same position as an existing golf cart path with expansions to occur outside of wetlands but due to the legal non-conforming status within the inner 75% of the current buffers. No direct impacts to wetlands are proposed and the expected buffer impacts are unavoidable and will be mitigated at a much higher enhancement and rehabilitation rate than typical buffer impacts treating them more like indirect wetland impacts. The mitigation will be combined with invasive species removal. This should stop the natural resource degradation that occurs when invasive species are left unmanaged as they will be removed and monitored for 10 years at which time the mitigation areas will be self-sustaining. All the mitigation treatments will have a positive impact to the wetlands and result in no-net-loss in accordance with the City of Tumwater Municipal Code.

This project will be a great community asset and will maintain and improve the natural resources to the benefit of the citizens of the Puget Sound region and the City of Tumwater.

11.0 LIMITATIONS

This report was created with care and best professional judgment using the current best available science, but the report is subject to interpretation by local state and federal regulators who have the final regulatory authority on wetlands and other boundary determinations. No outcomes are warranted by this report.

12.0 REFERENCE

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Appendix A - Photographs




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310 O St SE, Tumwater, WA 98501


TVGC
Tp1
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315 N St SE, Tumwater, WA 98501


TVGC
Tp1
01.27.2026 03:19 PM
47.00209, -122.90265
315 N St SE, Tumwater, WA 98501


TVGC
Tp1
01.27.2026 03:19 PM
47.00210, -122.90265
315 N St SE, Tumwater, WA 98501


MUNSELL
TVGC
Tp1
01.27.2026 03:19 PM
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315 N St SE, Tumwater, WA 98501


TVGC
Tp2
01.27.2026 03:29 PM
47.00197, -122.90256
310 O St SE, Tumwater, WA 98501


TVGC
Tp2
01.27.2026 03:29 PM
47.00196, -122.90256
310 O St SE, Tumwater, WA 98501


TVGC
Tp2
01.27.2026 03:29 PM
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310 O St SE, Tumwater, WA 98501


TVGC
Tp2
01.27.2026 03:29 PM
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310 O St SE, Tumwater, WA 98501


TVGC
Offsite
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787 T St SE, Tumwater, WA 98501


TVGC
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Deschutes Valley Park, 600 T St SE, Tumwater, WA 98501


TVGC
Tp2661b
02.23.2026 02:29 PM
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Deschutes Valley Park, 600 T St SE, Tumwater, WA 98501


TVGC
Tp2682a
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787 T St SE, Tumwater, WA 98501


TVGC
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787 T St SE, Tumwater, WA 98501


TVGC
Tp2682a
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787 T St SE, Tumwater, WA 98501


TVGC
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231 Ruby St SE, Tumwater, WA 98501


TVGC
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231 Ruby St SE, Tumwater, WA 98501


TVGC
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787 T St SE, Tumwater, WA 98501


TVGC
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02.23.2026 03:27 PM
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787 T St SE, Tumwater, WA 98501


TVGC
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787 T St SE, Tumwater, WA 98501

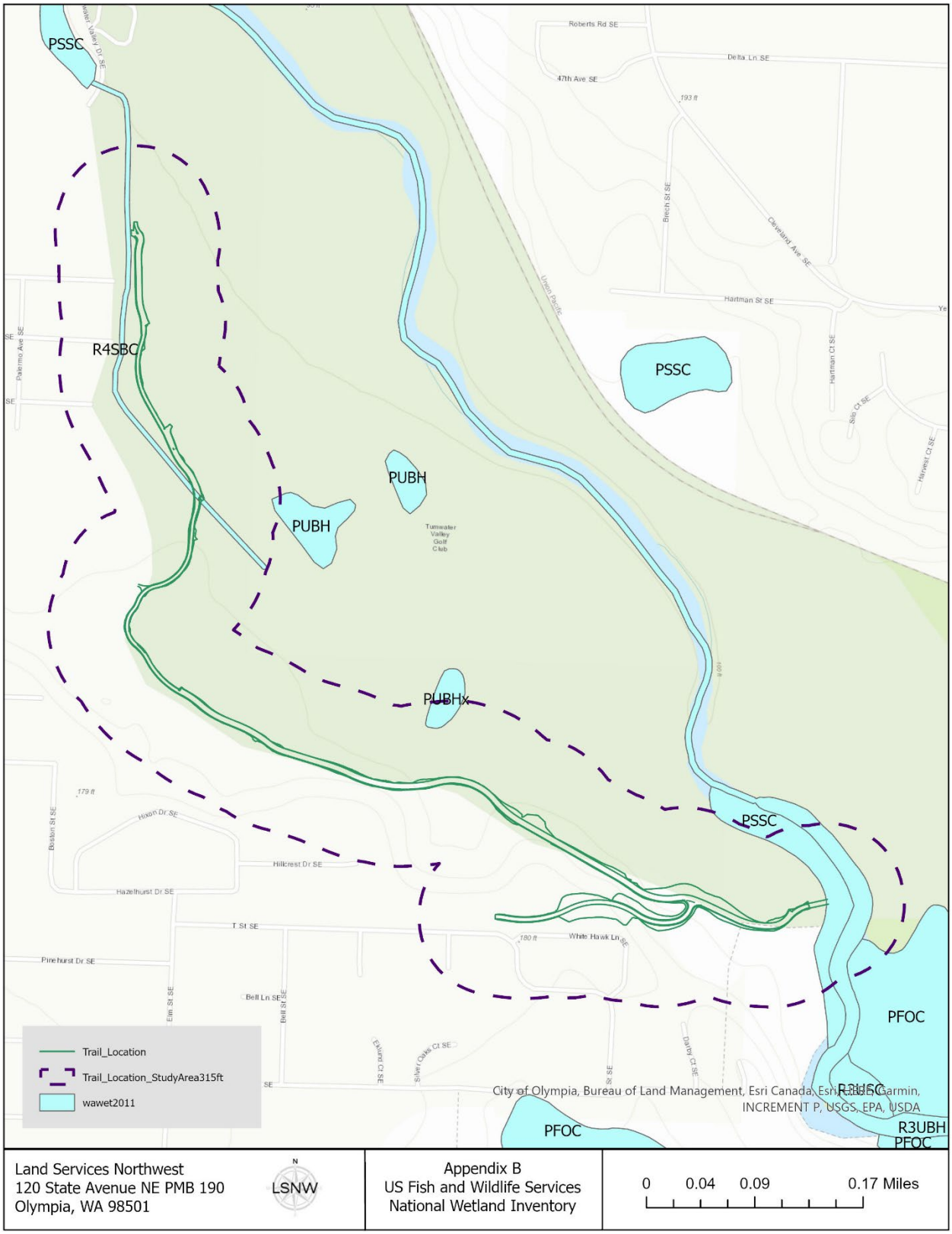

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787 T St SE, Tumwater, WA 98501


TVGC
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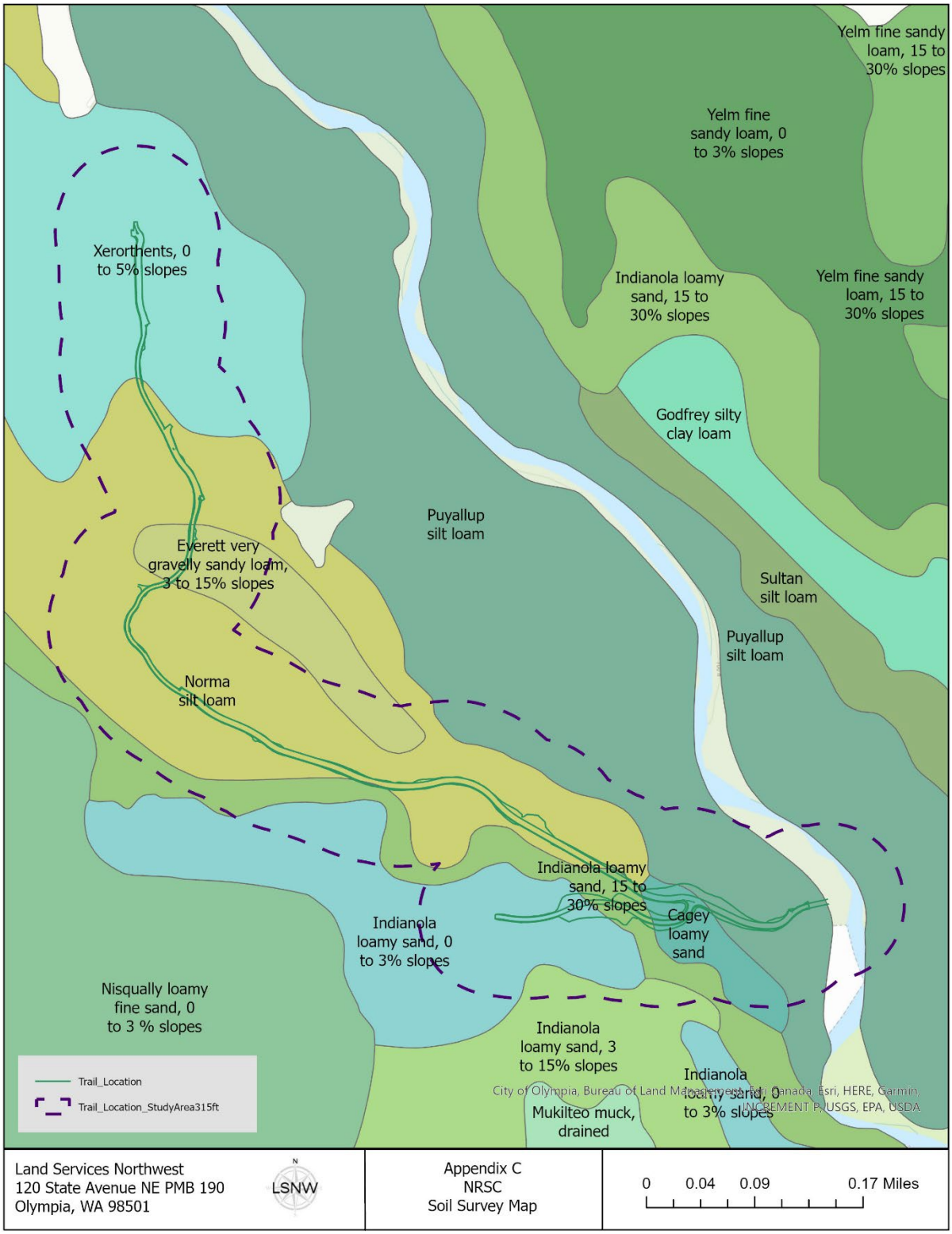

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TVGC
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787 T St SE, Tumwater, WA 98501

Appendix B - U.S. Fish and Wildlife Service NWI MAP



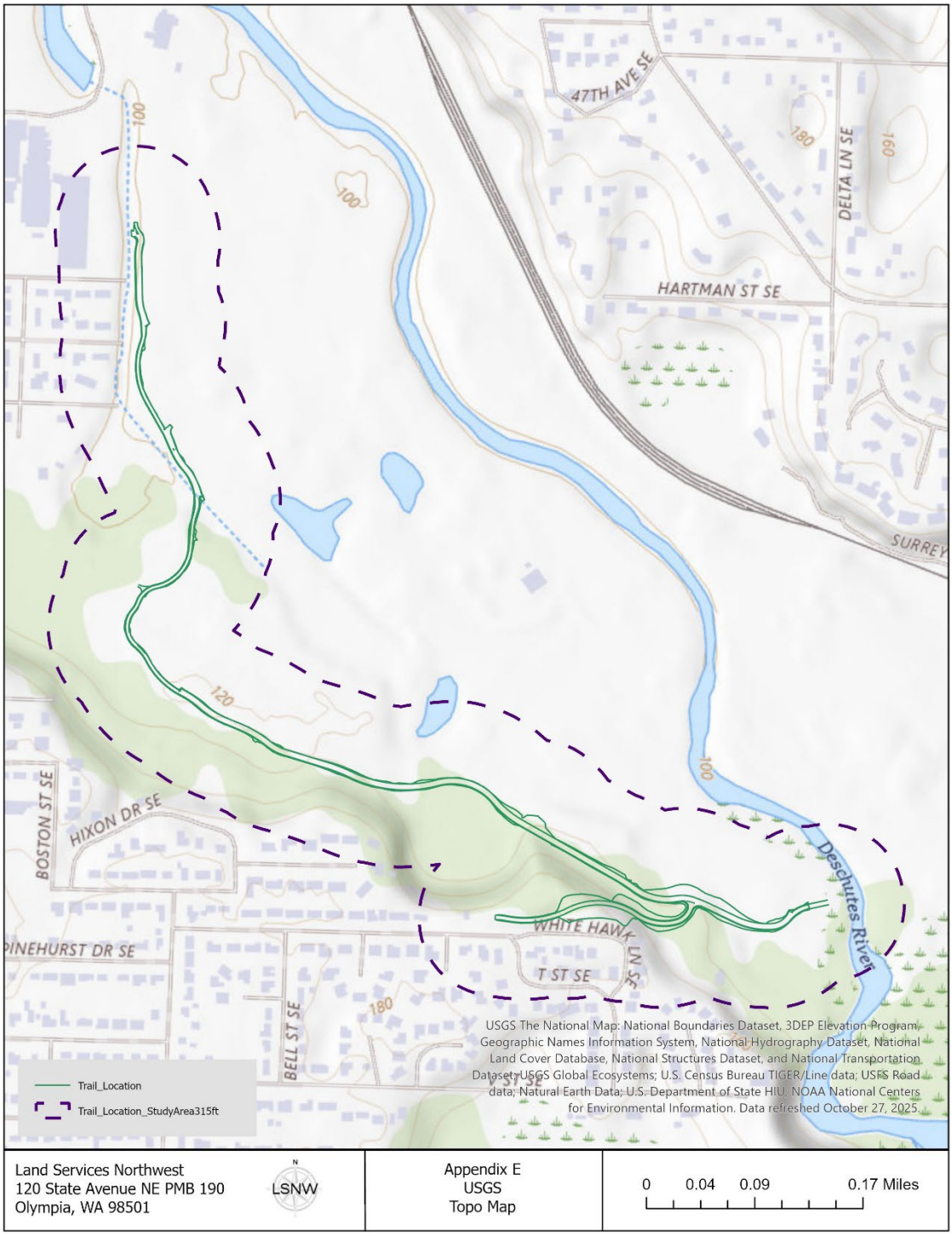
Appendix C - NRSC Soil Survey Map for Thurston County



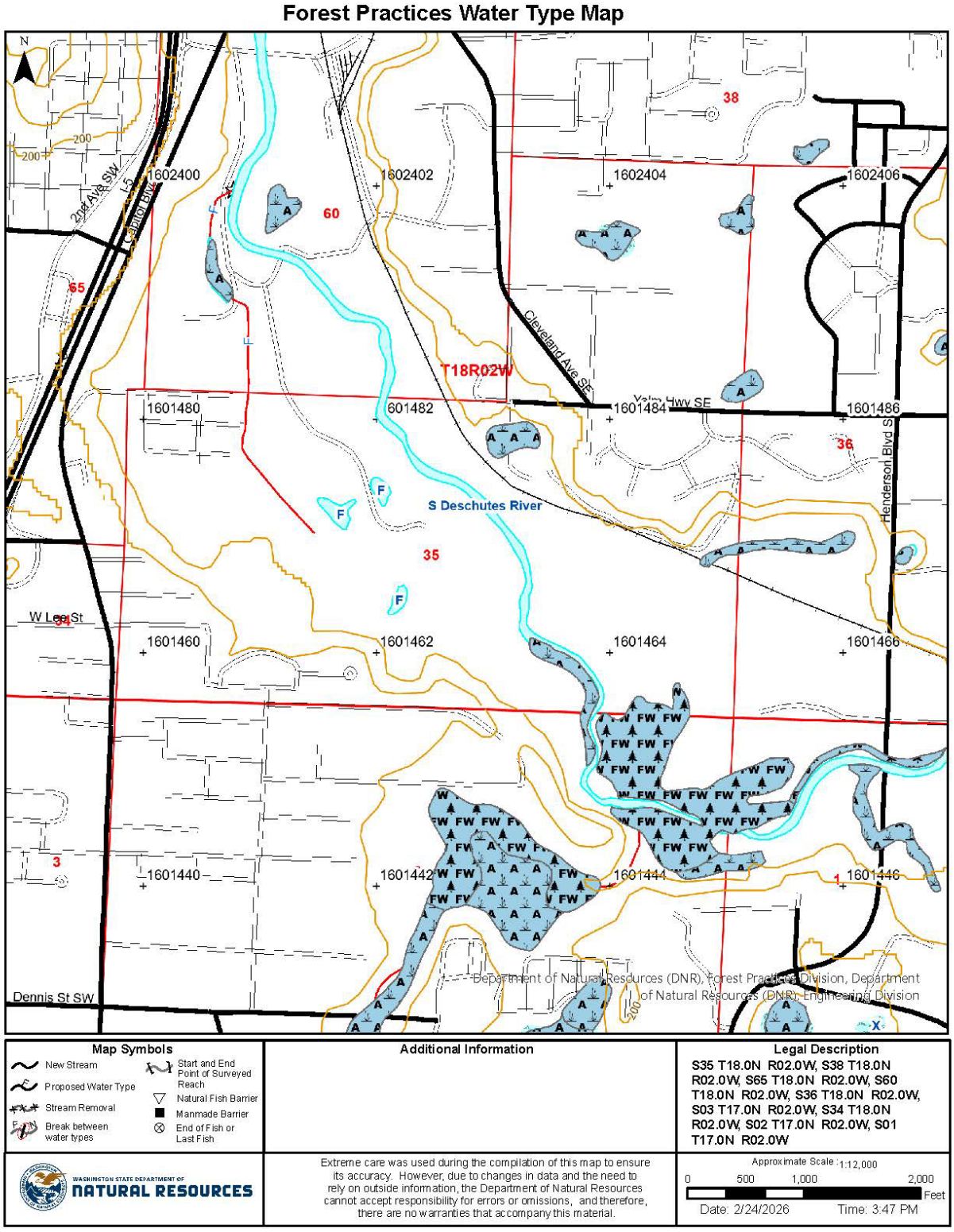
Appendix D - Thurston County Stream and Wetland Inventory



Appendix E - USGS 7.5 Minute Topographic Map

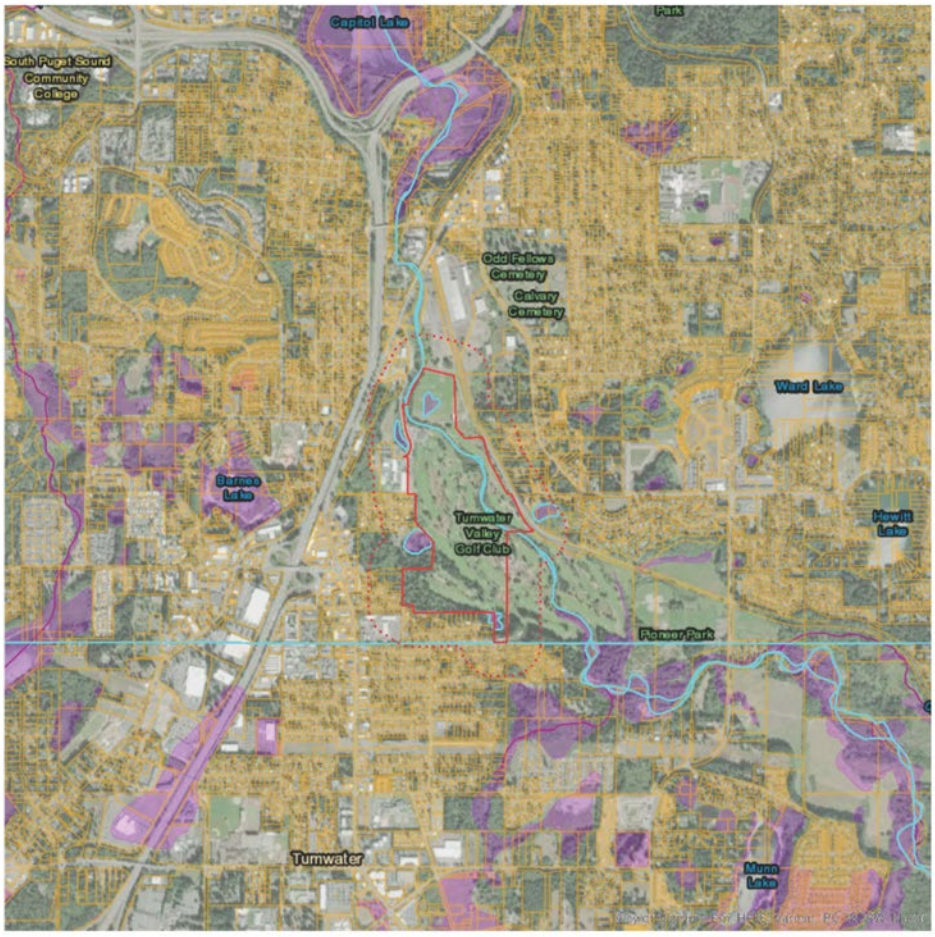


Appendix F - WADNR Forest Practices Stream Type Map



Appendix G - WDFW Priority Habitats and Species Map and Salmonscape Map

Priority Habitats and Species on the Web



Buffer radius: 600 Feet

Report Date: 09/09/2025, Parcel ID: 09470051000

PHS Species/Habitats Overview:

Occurence Name	Federal Status	State Status	Sensitive Location
Fall Chinook	N/A	N/A	No
Coho	N/A	N/A	No
Cutthroat	Not Warranted	N/A	No
Fall Chum	N/A	N/A	No
Winter Steelhead	N/A	N/A	No
Coho	Candidate	N/A	No
Steelhead	Threatened	N/A	No
Snag-rich Areas	N/A	N/A	No
Freshwater Emergent Wetland	N/A	N/A	No
Freshwater Forested/Shrub Wetland	N/A	N/A	No
Big brown bat			Yes
Little Brown Bat			Yes
myotis spp			Yes
Yuma myotis			Yes
Townsend's Big-eared Bat		Candidate	Yes

PHS Species/Habitats Details:

Fall Chinook	
Scientific Name	*Oncorhynchus tshawytscha*
Priority Area	Breeding Area
Site Name	Deschutes River
Accuracy	NA
Notes	LLID: 1229016470241, Fish Name: Chinook Salmon, Run Time: Fall, Life History: Anadromous
Source Record	56036
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Coho	
Scientific Name	*Oncorhynchus kisutch*
Priority Area	Occurrence/Migration
Site Name	Unnamed stream [1229025470085]
Accuracy	NA
Notes	LLID: 1229025470085, Fish Name: Coho Salmon, Run Time: Unknown or not Applicable, Life History: Anadromous
Source Record	56059
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Cutthroat	
Scientific Name	*Oncorhynchus clarki*
Priority Area	Occurrence
Site Name	Deschutes River
Accuracy	NA
Notes	LLID: 1229016470241, Stock Name: West South Sound Coastal Cutthroat, Run: Unspecified, Status: Unknown
Source Record	7020
Source Dataset	SASI
Source Name	Not Given
Source Entity	WDFW Fish Program
Federal Status	Not Warranted
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Fall Chum	
Scientific Name	*Oncorhynchus keta*
Priority Area	Occurrence/Migration
Site Name	Deschutes River
Accuracy	NA
Notes	LLID: 1229016470241, Fish Name: Chum Salmon, Run Time: Fall, Life History: Anadromous
Source Record	56037
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Winter Steelhead	
Scientific Name	*Oncorhynchus mykiss*
Priority Area	Occurrence/Migration
Site Name	Deschutes River
Accuracy	NA
Notes	LLID: 1229016470241, Fish Name: Steelhead Trout, Run Time: Winter, Life History: Anadromous
Source Record	56045
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Coho	
Scientific Name	*Oncorhynchus kisutch*
Priority Area	Occurrence
Site Name	Deschutes River
Accuracy	NA
Notes	LLID: 1229016470241, Stock Name: Deschutes Coho, Run: Unspecified, Status: Critical
Source Record	3199
Source Dataset	SASI
Source Name	Not Given
Source Entity	WDFW Fish Program
Federal Status	Candidate
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Steelhead	
Scientific Name	*Oncorhynchus mykiss*
Priority Area	Occurrence
Site Name	Deschutes River
Accuracy	NA
Notes	LLID: 1229016470241, Stock Name: Deschutes Winter Steelhead, Run: Winter, Status: Not Rated
Source Record	6210
Source Dataset	SASI
Source Name	Not Given
Source Entity	WDFW Fish Program
Federal Status	Threatened
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Coho	
Scientific Name	*Oncorhynchus kisutch*
Priority Area	Breeding Area
Site Name	Deschutes River
Accuracy	NA
Notes	LLID: 1229016470241, Fish Name: Coho Salmon, Run Time: Unknown or not Applicable, Life History: Anadromous
Source Record	56043
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Winter Steelhead	
Scientific Name	*Oncorhynchus mykiss*
Priority Area	Breeding Area
Site Name	Deschutes River
Accuracy	NA
Notes	LLID: 1229016470241, Fish Name: Steelhead Trout, Run Time: Winter, Life History: Anadromous
Source Record	56046
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Snag-rich Areas	
Priority Area	Habitat Feature
Site Name	Tumwater Valley Golf Course
Accuracy	1/4 mile (Quarter Section)
Notes	Scattered snags and possibly downed trees in the area.
Source Record	921016
Source Dataset	PHSREGION
Source Name	Johnson, Terry WDFW
Source Entity	WA Dept. of Fish and Wildlife
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
Geometry Type	Polygons

Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Emergent Wetland - NWI Code: PEM1C
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Forested/Shrub Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PSSC
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Forested/Shrub Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: Freshwater Forested/Shrub Wetland - NWI Code: PSSC
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Big brown bat	
Scientific Name	*Eptesicus fuscus*
Notes	This polygon mask represents one or more records of the above species or habitat occurrence. Contact PHS Data Release at phsproducts@dfw.wa.gov for obtaining information about masked sensitive species and habitats.
PHS Listing Status	PHS Listed Occurrence
Sensitive	Y
Display Resolution	TOWNSHIP
ManagementRecommendations	http://wdfw.wa.gov/publications/pub.php?id=00605

Little Brown Bat	
Scientific Name	*Myotis lucifugus*
Notes	This polygon mask represents one or more records of the above species or habitat occurrence. Contact PHS Data Release at phsproducts@dfw.wa.gov for obtaining information about masked sensitive species and habitats.
PHS Listing Status	PHS Listed Occurrence
Sensitive	Y
Display Resolution	TOWNSHIP
ManagementRecommendations	http://wdfw.wa.gov/publications/pub.php?id=00605

myotis spp	
Scientific Name	*Myotis myotis spp*
Notes	This polygon mask represents one or more records of the above species or habitat occurrence. Contact PHS Data Release at phsproducts@dfw.wa.gov for obtaining information about masked sensitive species and habitats.
PHS Listing Status	PHS Listed Occurrence
Sensitive	Y
Display Resolution	TOWNSHIP

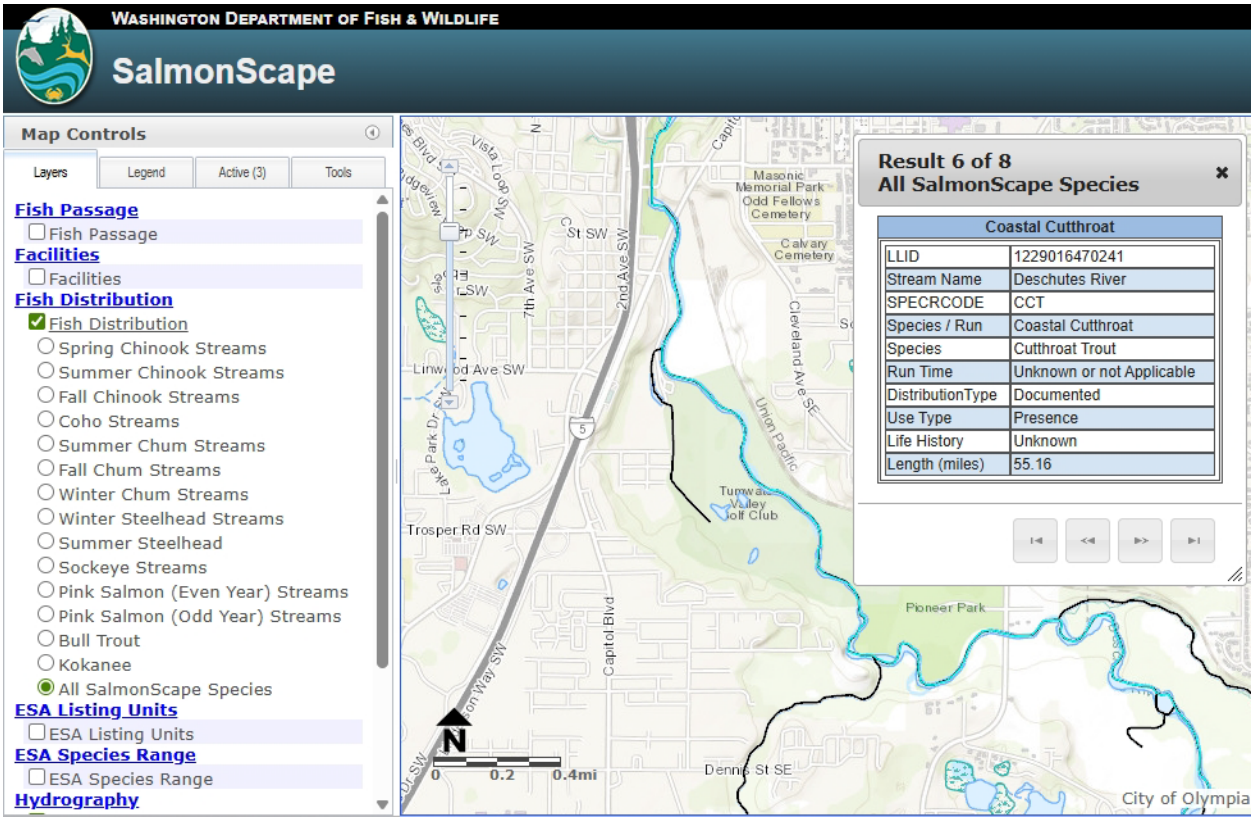
Yuma myotis	
Scientific Name	*Myotis yumanensis*
Notes	This polygon mask represents one or more records of the above species or habitat occurrence. Contact PHS Data Release at phsproducts@dfw.wa.gov for obtaining information about masked sensitive species and habitats.
PHS Listing Status	PHS Listed Occurrence
Sensitive	Y
Display Resolution	TOWNSHIP
ManagementRecommendations	http://wdfw.wa.gov/publications/pub.php?id=00605

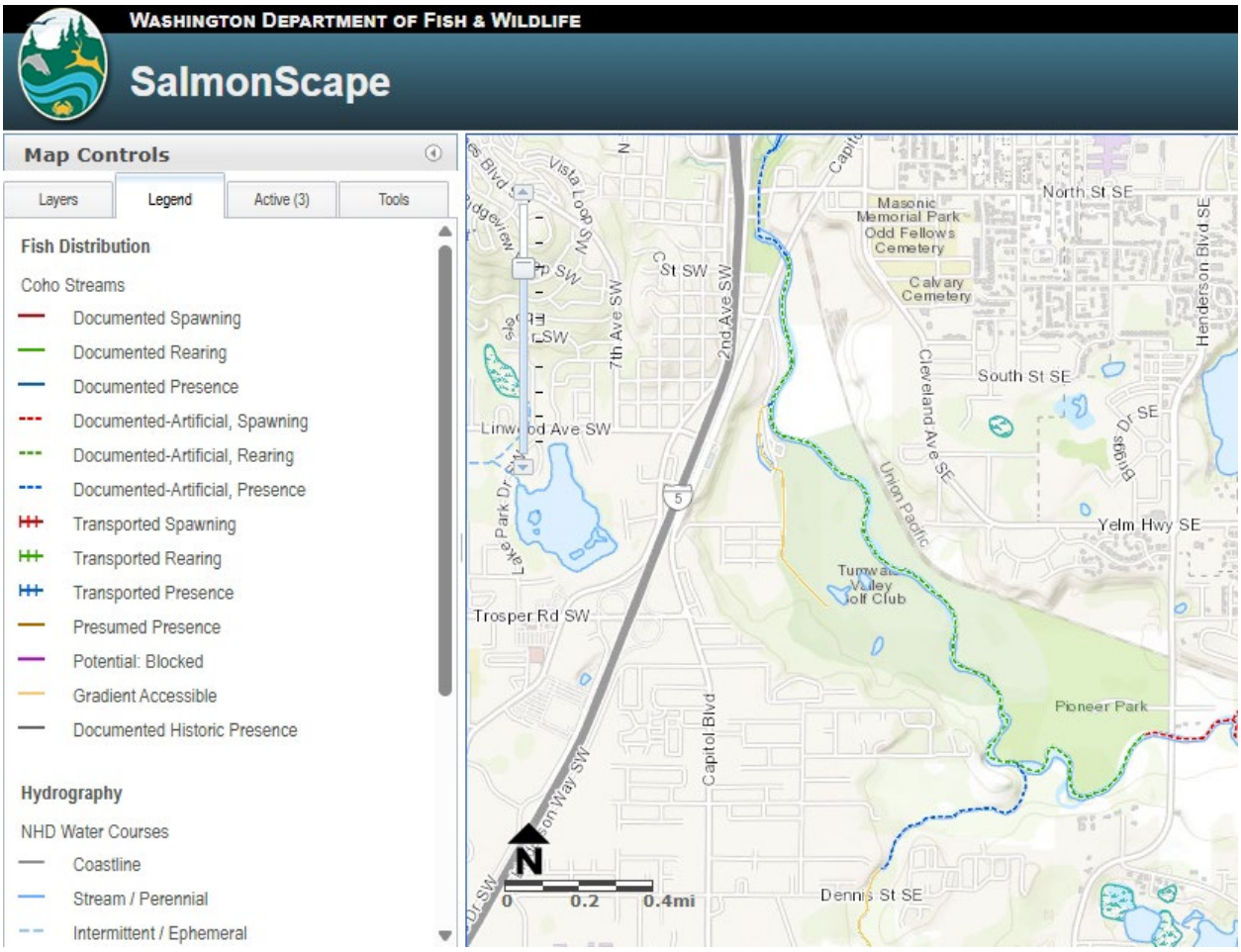
Big brown bat	
Scientific Name	*Eptesicus fuscus*
Notes	This polygon mask represents one or more records of the above species or habitat occurrence. Contact PHS Data Release at phsproducts@dfw.wa.gov for obtaining information about masked sensitive species and habitats.
PHS Listing Status	PHS Listed Occurrence
Sensitive	Y
Display Resolution	TOWNSHIP
ManagementRecommendations	http://wdfw.wa.gov/publications/pub.php?id=00605

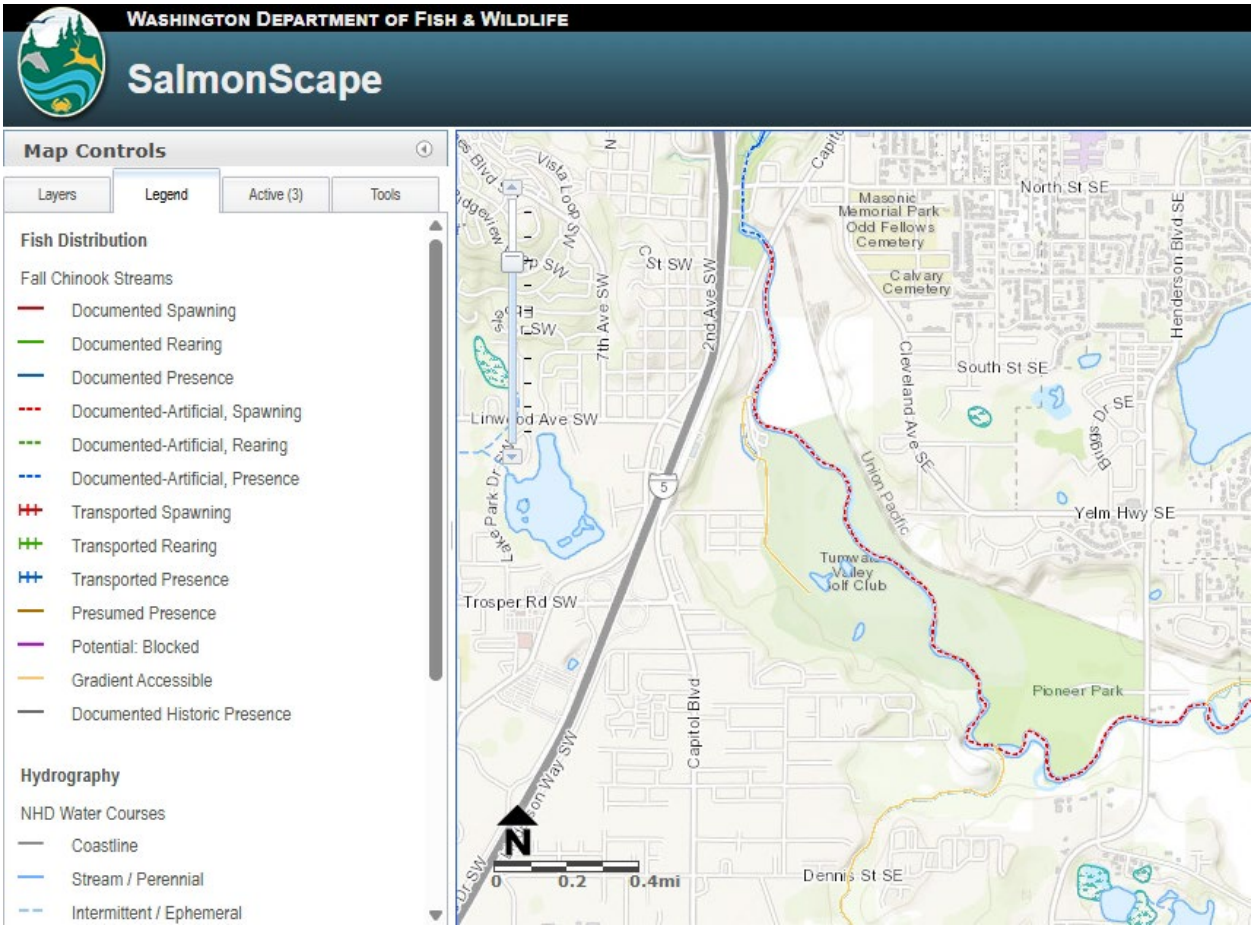
Little Brown Bat	
Scientific Name	*Myotis lucifugus*
Notes	This polygon mask represents one or more records of the above species or habitat occurrence. Contact PHS Data Release at phsproducts@dfw.wa.gov for obtaining information about masked sensitive species and habitats.
PHS Listing Status	PHS Listed Occurrence
Sensitive	Y
Display Resolution	TOWNSHIP
ManagementRecommendations	http://wdfw.wa.gov/publications/pub.php?id=00605

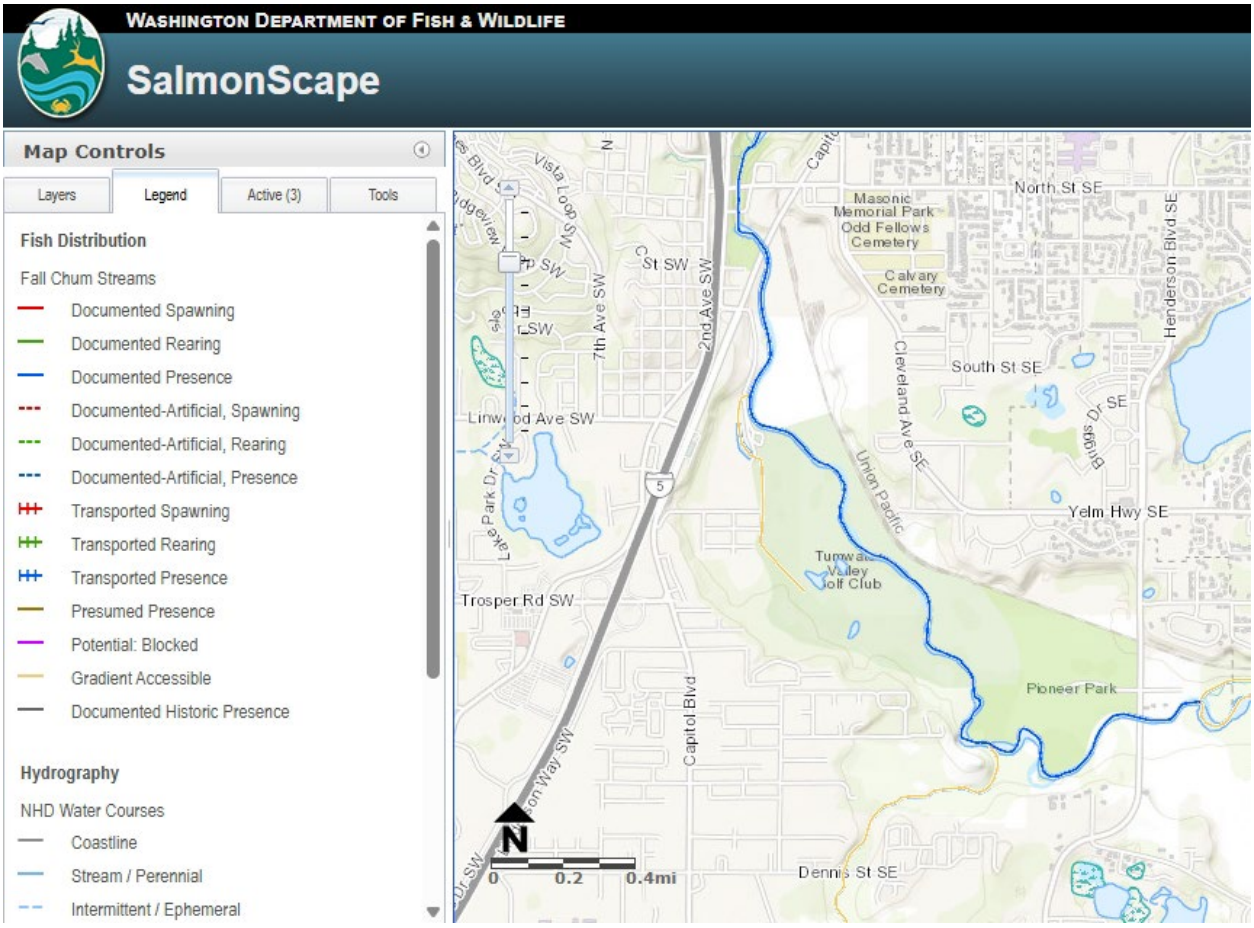
myotis spp	
Scientific Name	*Myotis myotis spp*
Notes	This polygon mask represents one or more records of the above species or habitat occurrence. Contact PHS Data Release at phsproducts@dfw.wa.gov for obtaining information about masked sensitive species and habitats.
PHS Listing Status	PHS Listed Occurrence
Sensitive	Y
Display Resolution	TOWNSHIP

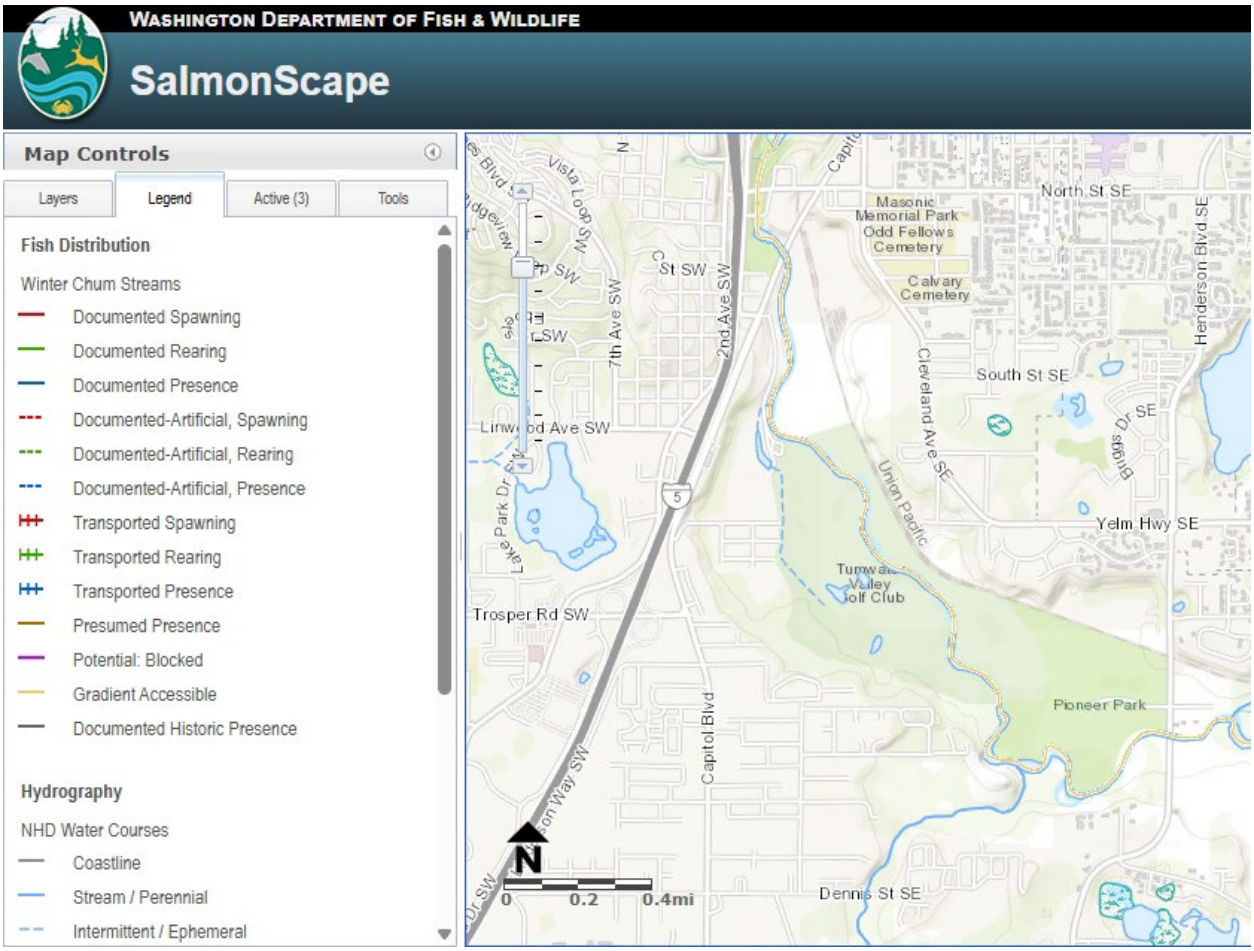
Townsend's Big-eared Bat	
Scientific Name	*Corynorhinus townsendii*
Notes	This polygon mask represents one or more records of the above species or habitat occurrence. Contact PHS Data Release at phsproducts@dfw.wa.gov for obtaining information about masked sensitive species and habitats.
State Status	Candidate
PHS Listing Status	PHS Listed Occurrence
Sensitive	Y
SGCN	Y
Display Resolution	TOWNSHIP
ManagementRecommendations	http://wdfw.wa.gov/publications/pub.php?id=00027

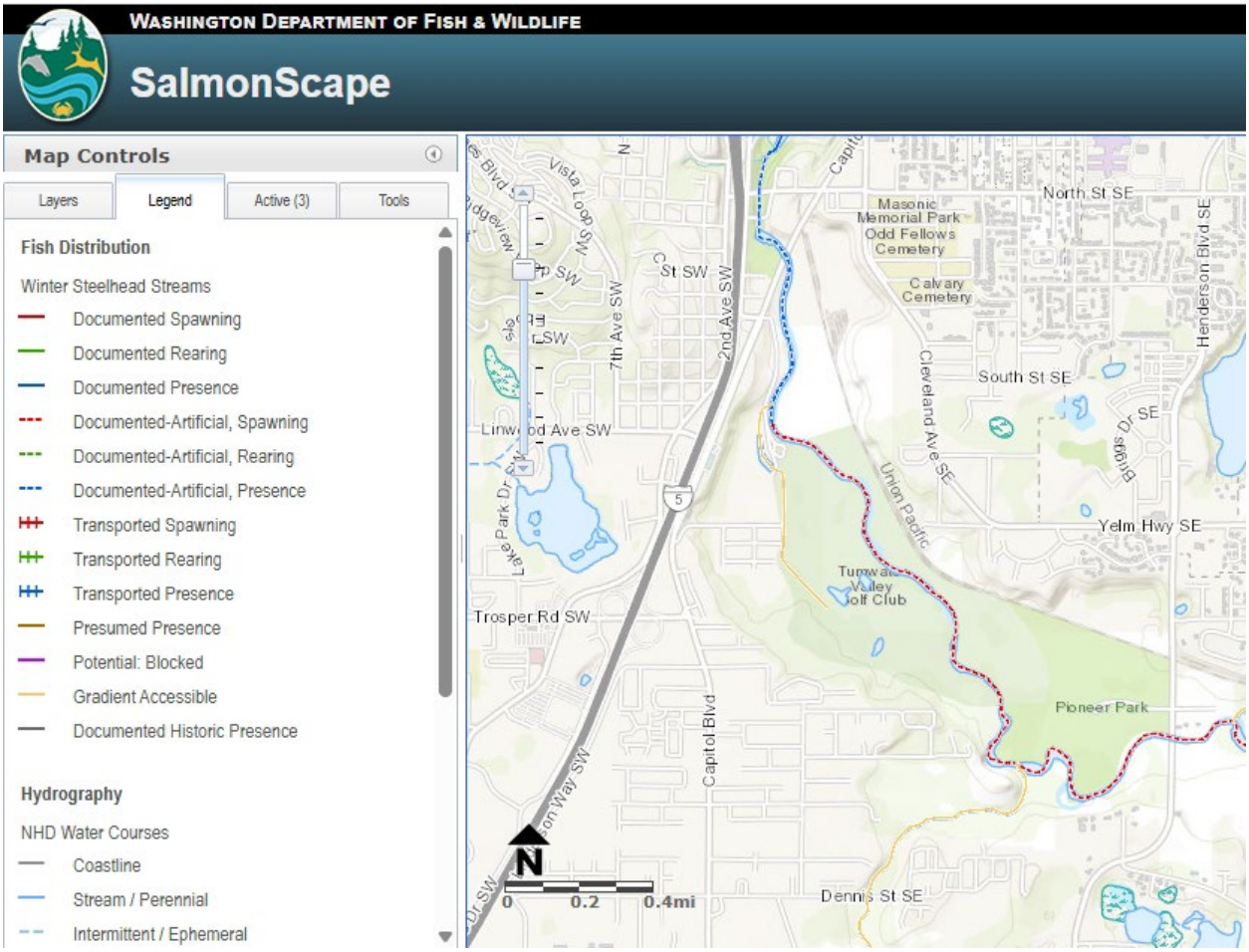

WASHINGTON DEPARTMENT OF FISH & WILDLIFE
SalmonScape
Map Controls
Layers
Legend
Active (3)
Tools
Fish Passage
Fish Passage
Facilities
Facilities
Fish Distribution
Fish Distribution
Spring Chinook Streams
Summer Chinook Streams
Fall Chinook Streams
Coho Streams
Summer Chum Streams
Fall Chum Streams
Winter Chum Streams
Winter Steelhead Streams
Summer Steelhead
Sockeye Streams
Pink Salmon (Even Year) Streams
Pink Salmon (Odd Year) Streams
Bull Trout
Kokanee
All SalmonScape Species
ESA Listing Units
ESA Listing Units
ESA Species Range
ESA Species Range
Hydrography
Result 6 of 8
All SalmonScape Species
Coastal Cutthroat
LLID 1229016470241
Stream Name Deschutes River
SPECRCODE CCT
Species / Run Coastal Cutthroat
Species Cutthroat Trout
Run Time Unknown or not Applicable
DistributionType Documented
Use Type Presence
Life History Unknown
Length (miles) 55.16
Masonic Memorial Park
Odd Fellows Cemetery
Calvary Cemetery
Cleveland Ave SE
Union Pacific
Tumwater Valley Golf Club
Trosper Rd SW
Capitol Blvd
Pioneer Park
Deschutes Way SW
Linwood Ave SW
Lake Park Dr SW
7th Ave SW
2nd Ave SW
Vista Loop SW
Ridgeview
Dennis St SE
City of Olympia
N
0 0.2 0.4mi


WASHINGTON DEPARTMENT OF FISH & WILDLIFE
SalmonScape
Map Controls
Layers
Legend
Active (3)
Tools
Fish Distribution
Coho Streams
Documented Spawning
Documented Rearing
Documented Presence
Documented-Artificial, Spawning
Documented-Artificial, Rearing
Documented-Artificial, Presence
Transported Spawning
Transported Rearing
Transported Presence
Presumed Presence
Potential: Blocked
Gradient Accessible
Documented Historic Presence
Hydrography
NHD Water Courses
Coastline
Stream / Perennial
Intermittent / Ephemeral
Masonic Memorial Park
Odd Fellows Cemetery
Calvary Cemetery
North St SE
South St SE
Yelm Hwy SE
Henderson Blvd SE
Cleveland Ave SE
Union Pacific
Tumwater Valley Golf Club
Pioneer Park
Trosper Rd SW
Capitol Blvd
2nd Ave SW
7th Ave SW
Linwood Ave SW
Lakeridge Park Dr SW
Vista Loop SW
Dennis St SE
N
0
0.2
0.4mi

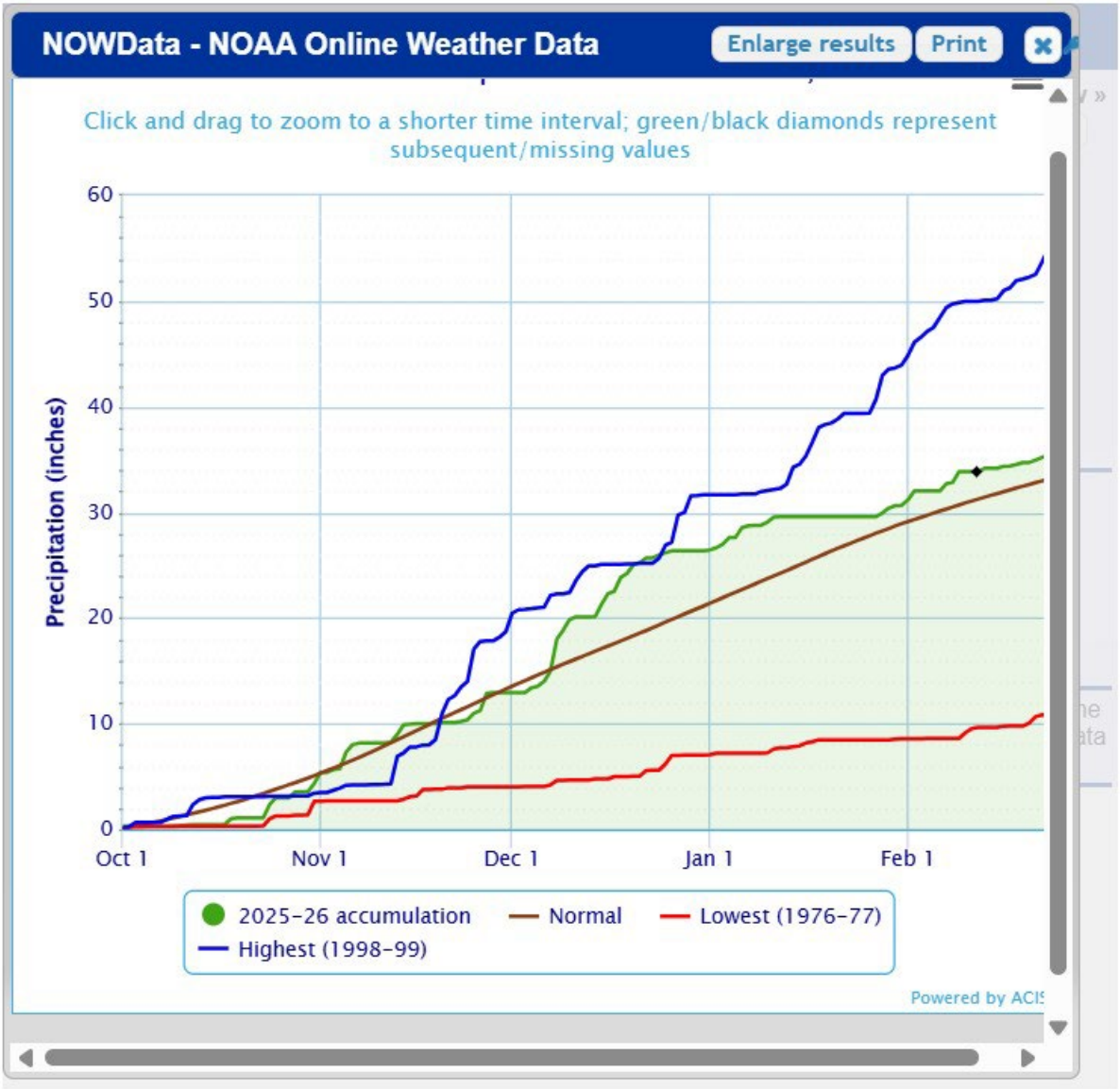

WASHINGTON DEPARTMENT OF FISH & WILDLIFE
SalmonScape
Map Controls
Layers
Legend
Active (3)
Tools
Fish Distribution
Fall Chinook Streams
Documented Spawning
Documented Rearing
Documented Presence
Documented-Artificial, Spawning
Documented-Artificial, Rearing
Documented-Artificial, Presence
Transported Spawning
Transported Rearing
Transported Presence
Presumed Presence
Potential: Blocked
Gradient Accessible
Documented Historic Presence
Hydrography
NHD Water Courses
Coastline
Stream / Perennial
Intermittent / Ephemeral
Vista Loop SW
C St SW
7th Ave SW
2nd Ave SW
Linwood Ave SW
Lake Park Dr SW
Trosper Rd SW
Capitol Blvd
Masonic Memorial Park Odd Fellows Cemetery
Calvary Cemetery
North St SE
Henderson Blvd SE
South St SE
Cleveland Ave SE
Union Pacific
Yelm Hwy SE
Tumwater Valley Golf Club
Pioneer Park
Dennis St SE
N
0
0.2
0.4mi


WASHINGTON DEPARTMENT OF FISH & WILDLIFE
SalmonScape
Map Controls
Layers
Legend
Active (3)
Tools
Fish Distribution
Fall Chum Streams
Documented Spawning
Documented Rearing
Documented Presence
Documented-Artificial, Spawning
Documented-Artificial, Rearing
Documented-Artificial, Presence
Transported Spawning
Transported Rearing
Transported Presence
Presumed Presence
Potential: Blocked
Gradient Accessible
Documented Historic Presence
Hydrography
NHD Water Courses
Coastline
Stream / Perennial
Intermittent / Ephemeral
Masonic Memorial Park
Odd Fellows Cemetery
Calvary Cemetery
North St SE
South St SE
Henderson Blvd SE
Cleveland Ave SE
Union Pacific
Yelm Hwy SE
Pioneer Park
Trosper Rd SW
Capitol Blvd
7th Ave SW
2nd Ave SW
Vista Loop SW
Lake Park Dr SW
Dennis St SE
N
0
0.2
0.4mi


WASHINGTON DEPARTMENT OF FISH & WILDLIFE
SalmonScape
Map Controls
Layers
Legend
Active (3)
Tools
Fish Distribution
Winter Chum Streams
Documented Spawning
Documented Rearing
Documented Presence
Documented-Artificial, Spawning
Documented-Artificial, Rearing
Documented-Artificial, Presence
Transported Spawning
Transported Rearing
Transported Presence
Presumed Presence
Potential: Blocked
Gradient Accessible
Documented Historic Presence
Hydrography
NHD Water Courses
Coastline
Stream / Perennial
Intermittent / Ephemeral
Vista Loop SW
St SW
7th Ave SW
2nd Ave SW
Linwood Ave SW
Trosper Rd SW
Capitol Blvd
Masonic Memorial Park Odd Fellows Cemetery
Calvary Cemetery
North St SE
South St SE
Cleveland Ave SE
Union Pacific
Yelm Hwy SE
Pioneer Park
Dennis St SE
Henderson Blvd SE
N
0
0.2
0.4mi


WASHINGTON DEPARTMENT OF FISH & WILDLIFE
SalmonScape
Map Controls
Layers
Legend
Active (3)
Tools
Fish Distribution
Winter Steelhead Streams
Documented Spawning
Documented Rearing
Documented Presence
Documented-Artificial, Spawning
Documented-Artificial, Rearing
Documented-Artificial, Presence
Transported Spawning
Transported Rearing
Transported Presence
Presumed Presence
Potential: Blocked
Gradient Accessible
Documented Historic Presence
Hydrography
NHD Water Courses
Coastline
Stream / Perennial
Intermittent / Ephemeral
Vista Loop SW
St SW
7th Ave SW
2nd Ave SW
Linwood Ave SW
Trosper Rd SW
Capitol Blvd
Masonic Memorial Park
Odd Fellows Cemetery
Calvary Cemetery
North St SE
South St SE
Cleveland Ave SE
Henderson Blvd SE
Union Pacific
Yelm Hwy SE
Pioneer Park
Dennis St SE
N
0
0.2
0.4mi

Appendix H - NOAA NOW Precipitation Data


NOWData - NOAA Online Weather Data
Enlarge results
Print
Click and drag to zoom to a shorter time interval; green/black diamonds represent subsequent/missing values
Precipitation (inches)
60
50
40
30
20
10
0
Oct 1
Nov 1
Dec 1
Jan 1
Feb 1
2025-26 accumulation
Normal
Lowest (1976-77)
Highest (1998-99)
Powered by ACIS

Appendix I - USACE WMVC Soil Data Sheets

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

Project/Site: Tumwater Valley GC | City/County: Tumwater/Thurston | Sampling Date: 2.18.26
Applicant/Owner: City of Tumwater | State: WA | Sampling Point: TP1
Investigator(s): Alex Callender | Section, Township, Range: 35 18 2W
Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): concave | Slope (%): 2
Subregion (LRR): 2 | Lat: 47.010829 | Long: -122.904540 | Datum: Wgs84
Soil Map Unit Name: Puyallup Silt Loam | NWI classification: PSSC
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 x	No ___	**Is the Sampled Area within a Wetland?** **Yes** ___ **No** x
Hydric Soil Present?	Yes ___	No x	
Wetland Hydrology Present?	Yes ___	No x	

Remarks: No hydric soil or wetland hydrology indicators are present. Hydrophytic vegetation is present.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	___ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Alnus rubra*	25	Y	FAC
2. *Salix X pendulina*	35	Y	FAC
3.			
4.			
5.			
	60 = Total Cover		
Herb Stratum (Plot size: 15)			
1. *Juncus effusus*	15	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	___ = Total Cover		

% Bare Ground in Herb Stratum ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	___	x 1 =	___
FACW species	___	x 2 =	___
FAC species	___	x 3 =	___
FACU species	___	x 4 =	___
UPL species	___	x 5 =	___
Column Totals:	___ (A)		___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
x 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** x **No** ___

Remarks: Greater than 50% of dominant vegetation is FAC or wetter.

SOIL

Sampling Point: TP1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-5	10YR4/2	100					Silt loam	
5-18	10YR3/2	100					Silt loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** x

Remarks: No hydric soil indicators present.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes x No ___ Depth (inches): 16”

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

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

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

Remarks: No wetland hydrology indicators present.

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

Project/Site: Tumwater Valley GC | City/County: Tumwater/Thurston | Sampling Date: 2.18.26
Applicant/Owner: City of Tumwater | State: WA | Sampling Point: TP2
Investigator(s): Alex Callender | Section, Township, Range: 35 18 2W
Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): convex | Slope (%): 0
Subregion (LRR): 2 | Lat: 47.010829 | Long: -122.904540 | Datum: Wgs84
Soil Map Unit Name: Puyallup Silt Loam | NWI classification: PSSC
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 x	No ___	**Is the Sampled Area within a Wetland?** **Yes** ___ **No** x
Hydric Soil Present?	Yes ___	No x	
Wetland Hydrology Present?	Yes ___	No x	

Remarks: No hydric soil or wetland hydrology indicators are present. Hydrophytic vegetation is present.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Rubus armeniacus*	10	Y	FAC
2.			
3.			
4.			
5.			
	10 = Total Cover		
Herb Stratum (Plot size: 15)			
1. *Phalaris arundinacea*	90	Y	FACW
2. *Agrostis capillaris*	10	N	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum ___

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
x 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** x **No** ___

Remarks: Greater than 50% of dominant vegetation is FAC or wetter.

SOIL

Sampling Point: TP2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	10YR3/2	100				M	Silt loam	
4-10	10YR4/3	100				M	Silt loam	
10-18	10YR4/2	85	10YR4/6	15	C	M	Silt loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** x

Remarks: No hydric soil indicators present.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes x No ___ Depth (inches): 17”

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

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

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

Remarks: No wetland hydrology indicators present. After rain.

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

Project/Site: Tumwater Valley GC | City/County: Tumwater/Thurston | Sampling Date: 2.18.26
Applicant/Owner: City of Tumwater | State: WA | Sampling Point: TP2557
Investigator(s): Alex Callender | Section, Township, Range: 35 18 2W
Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): concave | Slope (%): 1
Subregion (LRR): 2 | Lat: 47.010829 | Long: -122.904540 | Datum: Wgs84
Soil Map Unit Name: Puyallup Silt Loam | NWI classification: PSSC
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	x	No	
Hydric Soil Present?	Yes	x	No	
Wetland Hydrology Present?	Yes	x	No	

Is the Sampled Area within a Wetland? **Yes x No ___**

Remarks: Hydrophytic vegetation, hydric soil indicators, and wetland hydrology indicators are present.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	45	Y	FAC
2.			
3.			
4.			
	45	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	___	= Total Cover	

Herb Stratum (Plot size: 15)			
1. *Hedera helix*	65	Y	FACU
2. *Ranunculus repens*	5	N	FAC
3. *Phalaris arundinacea*	30	Y	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100	= Total Cover	

Woody Vine Stratum (Plot size:)			
1.			
2.			
	___	= Total Cover	

% Bare Ground in Herb Stratum ___

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
x 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes x No ___**

Remarks: Greater than 50% of dominant vegetation is FAC or wetter.

SOIL

Sampling Point: TP2557

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	10YR3/2	100					Silt loam	
4-18	10YR4/2	95	10YR4/6	5	C	M	Silt loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** x **No** ___

Remarks: Hydric soil indicator present.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes x No ___ Depth (inches): 12”

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

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

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

Remarks: Wetland hydrology indicator present.

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

Project/Site: Tumwater Valley GC | City/County: Tumwater/Thurston | Sampling Date: 2.18.26
Applicant/Owner: City of Tumwater | State: WA | Sampling Point: TP2558
Investigator(s): Alex Callender | Section, Township, Range: 35 18 2W
Landform (hillslope, terrace, etc.): valley | Local relief (concave, convex, none): convex | Slope (%): 0
Subregion (LRR): 2 | Lat: 47.010829 | Long: -122.904540 | Datum: Wgs84
Soil Map Unit Name: Puyallup Silt Loam | NWI classification: PSSC
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	x	No	
Hydric Soil Present?	Yes		No	x
Wetland Hydrology Present?	Yes		No	x

Is the Sampled Area within a Wetland? **Yes** ___ **No** x

Remarks: No hydric soil or wetland hydrology indicators are present. Hydrophytic vegetation is present.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	15	Y	FAC
2.			
3.			
4.			
	15	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15)			
1. *Sambucus racemosa*	35	Y	FACU
2. *Cornus alba*	15	Y	FACW
3.			
4.			
5.			
	50	= Total Cover	

Herb Stratum (Plot size: 15)			
1. *Ranunculus repens*	35	Y	FAC
2. *Hedera helix*	30	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	65	= Total Cover	

Woody Vine Stratum (Plot size:)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- x 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** x **No** ___

Remarks: Greater than 50% of dominant vegetation is FAC or wetter.

SOIL

Sampling Point: TP2558

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-8	10YR3/2	100				M	Sandy loam	
8-18	10YR4/2	100				M	Sandy loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** x

Remarks: No hydric soil indicators present.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

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

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

Remarks: No wetland hydrology indicators present.

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

Project/Site: Tumwater Valley GC | City/County: Tumwater/Thurston | Sampling Date: 2.18.26
Applicant/Owner: City of Tumwater | State: WA | Sampling Point: TP2569
Investigator(s): Alex Callender | Section, Township, Range: 35 18 2W
Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): concave | Slope (%): 0
Subregion (LRR): 2 | Lat: 47.010829 | Long: -122.904540 | Datum: Wgs84
Soil Map Unit Name: Puyallup Silt Loam | NWI classification: PSSC
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	x	No	
Hydric Soil Present?	Yes		No	x
Wetland Hydrology Present?	Yes		No	x

Is the Sampled Area within a Wetland? **Yes** ___ **No** x

Remarks: No hydric soil or wetland hydrology indicators are present. Hydrophytic vegetation is present.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	___ = Total Cover		

Sapling/Shrub Stratum (Plot size: 15)			
1. *Cornus alba*	45	Y	FACW
2. *Rubus armeniacus*	25	Y	FAC
3.			
4.			
5.			
	70 = Total Cover		

Herb Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	___ = Total Cover		

Woody Vine Stratum (Plot size:)			
1.			
2.			
	___ = Total Cover		

% Bare Ground in Herb Stratum ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	___	x 1 =	
FACW species	___	x 2 =	
FAC species	___	x 3 =	
FACU species	___	x 4 =	
UPL species	___	x 5 =	
Column Totals:	___ (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
x 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** x **No** ___

Remarks: Greater than 50% of dominant vegetation is FAC or wetter.

SOIL

Sampling Point: TP2569

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	10YR4/2	100					Silt loam	
6-18	Gley10YR4/ 10	100						

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** x

Remarks: No hydric soil indicators present.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes x No ___ Depth (inches): 16”

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

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

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

Remarks: No wetland hydrology indicators present.

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

Project/Site: Tumwater Valley GC City/County: Tumwater/Thurston Sampling Date: 2.18.26
Applicant/Owner: City of Tumwater State: WA Sampling Point: TP2571
Investigator(s): Alex Callender Section, Township, Range: 35 18 2W
Landform (hillslope, terrace, etc.): Valleu Local relief (concave, convex, none): convex Slope (%): 1
Subregion (LRR): 2 Lat: 47.010829 Long: -122.904540 Datum: Wgs84
Soil Map Unit Name: Puyallup Silt Loam NWI classification: PSSC
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	x	No	
Hydric Soil Present?	Yes		No	x
Wetland Hydrology Present?	Yes		No	x

Is the Sampled Area within a Wetland? **Yes** ___ **No** x

Remarks: No hydric soil or wetland hydrology indicators are present. Hydrophytic vegetation is present.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 15)			
1. *Ranunculus repens*	45		FAC
2. *Phalaris arundinacea*	55		FACW
3. *Epilobium ciliatum*	10		FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	110 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- x 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** x **No** ___

Remarks: Greater than 50% of dominant vegetation is FAC or wetter.

SOIL

Sampling Point: TP2571

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-8	10YR4/2	100					Silt loam	
8-18	10YR4/2	75	10YR4/6	25	c	m	Silt loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** x

Remarks: No hydric soil indicators present.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes x No ___ Depth (inches): 16”

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

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

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

Remarks: No wetland hydrology indicators present.

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

Project/Site: Tumwater Valley GC | City/County: Tumwater/Thurston | Sampling Date: 2.23.26
Applicant/Owner: City of Tumwater | State: WA | Sampling Point: TP2607a
Investigator(s): Alex Callender | Section, Township, Range: 35 18 2W
Landform (hillslope, terrace, etc.): Valley | Local relief (concave, convex, none): convex | Slope (%): 1-2
Subregion (LRR): 2 | Lat: 47.010829 | Long: -122.904540 | Datum: Wgs84
Soil Map Unit Name: Puyallup Silt Loam | NWI classification: PSSC
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	x	No	
Hydric Soil Present?	Yes		No	x
Wetland Hydrology Present?	Yes		No	x

Is the Sampled Area within a Wetland? Yes ___ No x

Remarks: No hydric soil or wetland hydrology indicators are present. Hydrophytic vegetation is present.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer circinatum*	55	Y	FAC
2. *Alnus rubra*	25	Y	FAC
3.			
4.			
	80	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	___	= Total Cover	

Herb Stratum (Plot size: 15)			
1. *Montia parvifolia*	55	Y	FACW
2. *Claytonia sibirica*	10	N	FAC
3. *Polypodium glycyrrhiza*	10	N	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	75	= Total Cover	

Woody Vine Stratum (Plot size:)			
1.			
2.			
	___	= Total Cover	

% Bare Ground in Herb Stratum ___

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
x 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes x No ___

Remarks: Greater than 50% of dominant vegetation is FAC or wetter.

SOIL

Sampling Point: TP2607a

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	10YR2/1	100					Sandy loam	
6-18	10YR3/3	100					Sandy loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** x

No hydric soil indicators present.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

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

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

Remarks: No wetland hydrology indicators present.

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

Project/Site: Tumwater Valley GC | City/County: Tumwater/Thurston | Sampling Date: 2.23.26
Applicant/Owner: City of Tumwater | State: WA | Sampling Point: TP2607b
Investigator(s): Alex Callender | Section, Township, Range: 35 18 2W
Landform (hillslope, terrace, etc.): Valley | Local relief (concave, convex, none): convex | Slope (%): 1-2
Subregion (LRR): 2 | Lat: 47.010829 | Long: -122.904540 | Datum: Wgs84
Soil Map Unit Name: Puyallup Silt Loam | NWI classification: PSSC
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	x	No	
Hydric Soil Present?	Yes		No	x
Wetland Hydrology Present?	Yes		No	x

Is the Sampled Area within a Wetland? **Yes** ___ **No** x

Remarks: No hydric soil or wetland hydrology indicators are present. Hydrophytic vegetation is present.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer circinatum*	75	Y	FAC
2.			
3.			
4.			
	75	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	___	= Total Cover	

Herb Stratum (Plot size: 15)			
1. *Carex obnupta*	25	Y	OBL
2. *Claytonia sibirica*	25	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	50	= Total Cover	

Woody Vine Stratum (Plot size:)			
1.			
2.			
	___	= Total Cover	

% Bare Ground in Herb Stratum ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- x 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** x **No** ___

Remarks: Greater than 50% of dominant vegetation is FAC or wetter.

SOIL

Sampling Point: TP2607b

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3	10YR2/1	100					Silt loam	
3-18	10YR5/1	99	10YR5/6	1	c	m	Silt loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** x

Remarks: No hydric soil indicators present.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

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

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

Remarks: No wetland hydrology indicators present.

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

Project/Site: Tumwater Valley GC | City/County: Tumwater/Thurston | Sampling Date: 2.23.26
Applicant/Owner: City of Tumwater | State: WA | Sampling Point: TP2648
Investigator(s): Alex Callender | Section, Township, Range: 35 18 2W
Landform (hillslope, terrace, etc.): Valley | Local relief (concave, convex, none): concave | Slope (%): 1-2
Subregion (LRR): 2 | Lat: 47.010829 | Long: -122.904540 | Datum: Wgs84
Soil Map Unit Name: Puyallup Silt Loam | NWI classification: PSSC
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 x	No ___	**Is the Sampled Area within a Wetland?** **Yes** ___ **No** x
Hydric Soil Present?	Yes ___	No x	
Wetland Hydrology Present?	Yes ___	No x	

Remarks: No hydric soil or wetland hydrology indicators are present. Hydrophytic vegetation is present.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 15)			
1. *Phalaris arundinacea*	100	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum ___

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
x 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** x **No** ___

Remarks: Greater than 50% of dominant vegetation is FAC or wetter.

SOIL

Sampling Point: TP2648

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-18	10YR4/3	100					Silt loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** x

Remarks: No hydric soil indicators present.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

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

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

Remarks: No wetland hydrology indicators present.

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

Project/Site: Tumwater Valley GC | City/County: Tumwater/Thurston | Sampling Date: 2.23.26
Applicant/Owner: City of Tumwater | State: WA | Sampling Point: TP2661a
Investigator(s): Alex Callender | Section, Township, Range: 35 18 2W
Landform (hillslope, terrace, etc.): Valley | Local relief (concave, convex, none): concave | Slope (%): 1-2
Subregion (LRR): 2 | Lat: 47.010829 | Long: -122.904540 | Datum: Wgs84
Soil Map Unit Name: Puyallup Silt Loam | NWI classification: PSSC
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	___	No	x
Hydric Soil Present?	Yes	___	No	X
Wetland Hydrology Present?	Yes	___	No	X

Is the Sampled Area within a Wetland? **Yes** ___ **No** **X**

Remarks: No hydric soil indicators, hydrophytic vegetation, or wetland hydrology present.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	___ = Total Cover		

Sapling/Shrub Stratum (Plot size: 15)			
1. *Rubus spectabilis*	5	Y	FAC
2. *Acer circinatum*	20	Y	FAC
3.			
4.			
5.			
	25 = Total Cover		

Herb Stratum (Plot size: 15)			
1. *Polystichum munitum*	30	Y	FACU
2. *Rubus ursinus*	20	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	50 = Total Cover		

Woody Vine Stratum (Plot size:)			
1.			
2.			
	___ = Total Cover		

% Bare Ground in Herb Stratum ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	25	x 3 =	75
FACU species	50	x 4 =	200
UPL species		x 5 =	
Column Totals:	75 (A)		275 (B)

Prevalence Index = B/A = 3.67

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ___ **No** **x**

Remarks: Prevalence test >3.0.

SOIL

Sampling Point: TP2661a

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-14	10YR 2/2	100					Peaty sandy loam	
14-18	10YR 3/2	100					Sandy loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks: No hydric soil indicators present.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

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

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

Remarks: No wetland hydrology indicators present.

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

Project/Site: Tumwater Valley GC | City/County: Tumwater/Thurston | Sampling Date: 2.23.26
Applicant/Owner: City of Tumwater | State: WA | Sampling Point: TP2661b
Investigator(s): Alex Callender | Section, Township, Range: 35 18 2W
Landform (hillslope, terrace, etc.): Valley | Local relief (concave, convex, none): convex | Slope (%): 1-2
Subregion (LRR): 2 | Lat: 47.010829 | Long: -122.904540 | Datum: Wgs84
Soil Map Unit Name: Puyallup Silt Loam | NWI classification: PSSC
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	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes	X	No	

Is the Sampled Area within a Wetland? **Yes X No**

Remarks: Hydric soil indicators, wetland hydrology, and hydrophytic vegetation present.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Sambucus racemosa*	20	Y	FACU
2. *Acer circinatum*	10	Y	FAC
3.			
4.			
5.			
	30	= Total Cover	
Herb Stratum (Plot size: 15)			
1. *Athyrium cyclosorum*	15	Y	FAC
2. *Lysichiton americanus*	10	N	OBL
3. *Cardamine cordifolia*	40	Y	NR (FAC)
4. *Rubus ursinus*	10	Y	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	75	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- x 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks: Greater than 50% of dominant vegetation is FAC or wetter.

SOIL

Sampling Point: TP2661b

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	10YR 2/1	100					Mucky sandy loam	
6-18	10YR 4/1	90	10YR 3/6	10	c	m	Sand	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks: Hydric soil indicators present.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches):	___
Water Table Present?	Yes	X	No	___	Depth (inches):	8
Saturation Present? (includes capillary fringe)	Yes	___	No	X	Depth (inches):	___

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

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

Remarks: Wetland hydrology indicators present. High water table at 8".

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

Project/Site: Tumwater Valley GC | City/County: Tumwater/Thurston | Sampling Date: 2.23.26
Applicant/Owner: City of Tumwater | State: WA | Sampling Point: TP2675b
Investigator(s): Alex Callender | Section, Township, Range: 35 18 2W
Landform (hillslope, terrace, etc.): Valley | Local relief (concave, convex, none): convex | Slope (%): 1-2
Subregion (LRR): 2 | Lat: 47.010829 | Long: -122.904540 | Datum: Wgs84
Soil Map Unit Name: Puyallup Silt Loam | NWI classification: PSSC
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	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes	X	No	

Is the Sampled Area within a Wetland? **Yes X No**

Remarks: Hydric soil indicators, wetland hydrology, and hydrophytic vegetation present.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Rubus spectabilis*	10	Y	FAC
2. *Rubus armeniacus*	20	Y	FAC
3.			
4.			
5.			
	30 = Total Cover		
Herb Stratum (Plot size: 15)			
1. *Equisetum arvense*	90	Y	FAC
2. *Cardamine cordifolia*	10	N	NR (FAC)
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
x 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X No**

Remarks: Greater than 50% of dominant vegetation is FAC or wetter.

SOIL

Sampling Point: TP2675b

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2	10YR 3/2	100					Sandy loam	
2-18	10YR 4/1	85	10YR 3/6	15	c	m	Sand	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks: Hydric soil indicators present.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes X No ___ Depth (inches): 8

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

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

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

Remarks: Wetland hydrology indicators present. High water table at 8".

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

Project/Site: Tumwater Valley GC | City/County: Tumwater/Thurston | Sampling Date: 2.23.26
Applicant/Owner: City of Tumwater | State: WA | Sampling Point: TP2680a
Investigator(s): Alex Callender | Section, Township, Range: 35 18 2W
Landform (hillslope, terrace, etc.): Valley | Local relief (concave, convex, none): convex | Slope (%): 1-2
Subregion (LRR): 2 | Lat: 47.010829 | Long: -122.904540 | Datum: Wgs84
Soil Map Unit Name: Puyallup Silt Loam | NWI classification: PSSC
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	___	No	X
Hydric Soil Present?	Yes	___	No	X
Wetland Hydrology Present?	Yes	___	No	X

Is the Sampled Area within a Wetland? **Yes** ___ **No** **X**

Remarks: No hydric soil indicators, hydrophytic vegetation, or wetland hydrology present.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Pseudotsuga menziesii*	20	Y	FACU
2.			
3.			
4.			
	20	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15)			
1. *Malus fusca*	80	Y	FACW
2. *Symphoricarpos albus*	15	N	FACU
3.			
4.			
5.			
	95	= Total Cover	

Herb Stratum (Plot size: 15)			
1. *Carex leptopoda*	10	Y	FAC
2. *Polystichum munitum*	2	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	12	= Total Cover	

Woody Vine Stratum (Plot size:)			
1. *Rubus ursinus*	10	Y	FACU
2.			
	10	= Total Cover	

% Bare Ground in Herb Stratum ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	___	x 1 =	___
FACW species	___	x 2 =	___
FAC species	___	x 3 =	___
FACU species	___	x 4 =	___
UPL species	___	x 5 =	___
Column Totals:	___ (A)		___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ___ **No** **X**

Remarks: Less than 50% of dominant vegetation is FAC or wetter.

SOIL

Sampling Point: TP2680a

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-18	10YR 3/2	100					Silt loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks: No hydric soil indicators present.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

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

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

Remarks: No wetland hydrology indicators present.

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

Project/Site: Tumwater Valley GC | City/County: Tumwater/Thurston | Sampling Date: 2.23.26
Applicant/Owner: City of Tumwater | State: WA | Sampling Point: TP2681a
Investigator(s): Alex Callender | Section, Township, Range: 35 18 2W
Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): convex | Slope (%): 1-2
Subregion (LRR): 2 | Lat: 47.010829 | Long: -122.904540 | Datum: Wgs84
Soil Map Unit Name: Puyallup Silt Loam | NWI classification: PSSC
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	X	No	
Hydric Soil Present?	Yes		No	X
Wetland Hydrology Present?	Yes		No	X

Is the Sampled Area within a Wetland? **Yes** ___ **No** **X**

Remarks: No hydric soil indicators or wetland hydrology present. Hydrophytic vegetation is present.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	50	Y	FAC
2.			
3.			
4.			
	50	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15)			
1. *Malus fusca*	60	Y	FACW
2. *Cornus alba*	20	Y	FACW
3.			
4.			
5.			
	80	= Total Cover	

Herb Stratum (Plot size: 15)			
1. *Tolmiea menziesii*	5	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	5	= Total Cover	

Woody Vine Stratum (Plot size:)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum ___

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
x 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **X** **No** ___

Remarks: Greater than 50% of dominant vegetation is FAC or wetter.

SOIL

Sampling Point: TP2681a

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-14	10YR 3/2	100					Silt loam	
14-18	10YR 4/2	100					Silt loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks: No hydric soil indicators present.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

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

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

Remarks: No wetland hydrology indicators present.

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

Project/Site: Tumwater Valley GC | City/County: Tumwater/Thurston | Sampling Date: 2.23.26
Applicant/Owner: City of Tumwater | State: WA | Sampling Point: TP2682a
Investigator(s): Alex Callender | Section, Township, Range: 35 18 2W
Landform (hillslope, terrace, etc.): Valley | Local relief (concave, convex, none): convex | Slope (%): 1-2
Subregion (LRR): 2 | Lat: 47.010829 | Long: -122.904540 | Datum: Wgs84
Soil Map Unit Name: Puyallup Silt Loam | NWI classification: PSSC
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	X	No	
Hydric Soil Present?	Yes		No	X
Wetland Hydrology Present?	Yes		No	X

Is the Sampled Area within a Wetland? **Yes** ___ **No** **X**

Remarks: No hydric soil indicators or wetland hydrology present. Hydrophytic vegetation is present.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	40	Y	FAC
2.			
3.			
4.			
	40	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15)			
1. *Rubus spectabilis*	10	Y	FAC
2. *Cornus alba*	40	Y	FACW
3.			
4.			
5.			
	50	= Total Cover	

Herb Stratum (Plot size: 15)			
1. *Ranunculus repens*	30	Y	FAC
2. *Carex leptopoda*	5	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	35	= Total Cover	

Woody Vine Stratum (Plot size:)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum ___

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
x 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **X** **No** ___

Remarks: Greater than 50% of dominant vegetation is FAC or wetter.

SOIL

Sampling Point: TP2682a

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-10	10YR 4/2	100					Clay loam	
10-18	10YR 4/2	90	10YR 3/6	10	c	m	Clay loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks: No hydric soil indicators present.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

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

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

Remarks: No wetland hydrology indicators present.

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

Project/Site: Tumwater Valley GC | City/County: Tumwater/Thurston | Sampling Date: 2.23.26
Applicant/Owner: City of Tumwater | State: WA | Sampling Point: TP2684A
Investigator(s): Alex Callender | Section, Township, Range: 35 18 2W
Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): CONCAVE | Slope (%): 2
Subregion (LRR): 2 | Lat: 47.010829 | Long: -122.904540 | Datum: Wgs84
Soil Map Unit Name: Puyallup Silt Loam | NWI classification: PSSC
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	X	No	
Hydric Soil Present?	Yes		No	x
Wetland Hydrology Present?	Yes		No	x

Is the Sampled Area within a Wetland? **Yes** ___ **No** **X**

Remarks: No hydric soil indicators or wetland hydrology present. Hydrophytic vegetation is present.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	20	Y	FAC
2.			
3.			
4.			
	20	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15)			
1. *Acer circinatum*	20	Y	FAC
2. *Rubus spectabilis*	15	Y	FAC
3.			
4.			
5.			
	35	= Total Cover	

Herb Stratum (Plot size: 15)			
1. *Carex obnupta*	80	Y	OBL
2. *Athyrium cyclosorum*	10	N	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90	= Total Cover	

Woody Vine Stratum (Plot size:)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum ___

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
x 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **X** **No** ___

Remarks: Greater than 50% of dominant vegetation is FAC or wetter.

SOIL

Sampling Point: TP2684a

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	10YR 2/2	100					Peaty loam	
6-18	10YR 5/1	98	10YR 5/6	2	c	m	Sand	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks: No hydric soil indicators present.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

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

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

Remarks: No wetland hydrology indicators present.

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

Project/Site: Tumwater Valley GC | City/County: Tumwater/Thurston | Sampling Date: 2.23.26
Applicant/Owner: City of Tumwater | State: WA | Sampling Point: TP2684B
Investigator(s): Alex Callender | Section, Township, Range: 35 18 2W
Landform (hillslope, terrace, etc.): Valley | Local relief (concave, convex, none): CONCAVE | Slope (%): 2
Subregion (LRR): 2 | Lat: 47.010829 | Long: -122.904540 | Datum: Wgs84
Soil Map Unit Name: Puyallup Silt Loam | NWI classification: PSSC
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	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes		No	X

Is the Sampled Area within a Wetland? **Yes** ___ **No** **X**

Remarks: No hydric soil indicators or wetland hydrology present. Hydrophytic vegetation is present.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	20	Y	FAC
2.			
3.			
4.			
	20	= Total Cover	

Sapling/Shrub Stratum (Plot size: ___)			
1. *Acer circinatum*	20	Y	FAC
2. *Rubus spectabilis*	15	Y	FAC
3.			
4.			
5.			
	35	= Total Cover	

Herb Stratum (Plot size: ___)			
1. *Equisetum arvense*	10	Y	FAC
2. Polystichum munitum	15	Y	FACU
3. *Athyrium cyclosorum*	10	Y	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	35	= Total Cover	

Woody Vine Stratum (Plot size: ___)		
1.		
2.		
	___	= Total Cover

% Bare Ground in Herb Stratum ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)
Total Number of Dominant Species Across All Strata: 6 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 83 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- x 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **X** **No** ___

Remarks: Greater than 50% of dominant vegetation is FAC or wetter.

SOIL

Sampling Point: TP2684a

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	10YR 3/1	100					Sandy loam	
6-18	10YR 5/2	98	10YR5/6	2	c	m	Sand	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks: No hydric soil indicators present.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

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

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

Remarks: No wetland hydrology indicators present.

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

Project/Site: Tumwater Valley GC City/County: Tumwater/Thurston Sampling Date: 2..26
Applicant/Owner: City of Tumwater State: WA Sampling Point: Tptee1
Investigator(s): Alex Callender Section, Township, Range: 35 18 2W
Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): concave Slope (%): 1-2
Subregion (LRR): 2 Lat: 47.010829 Long: -122.904540 Datum: Wgs84
Soil Map Unit Name: Puyallup Silt Loam NWI classification: PSSC
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	x	No	
Hydric Soil Present?	Yes		No	x
Wetland Hydrology Present?	Yes		No	x

Is the Sampled Area within a Wetland? **Yes** ___ **No** x

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	___ = Total Cover		

Sapling/Shrub Stratum (Plot size:)			
1. *Alnus rubra*	25	Y	FAC
2. *Salix sp*	35	Y	FAC
3.			
4.			
5.			
	60 = Total Cover		

Herb Stratum (Plot size:)			
1. *Juncus effusus*	15	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15 = Total Cover		

Woody Vine Stratum (Plot size:)			
1.			
2.			
	___ = Total Cover		

% Bare Ground in Herb Stratum ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- x 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** x **No** ___

Remarks: Greater than 50% of dominant vegetation is FAC or wetter.

SOIL

Sampling Point: TP

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-5	10YR3/2	100					Sandy loam	
5-18	10YR4/2	100					Sandy loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** x

Remarks: No hydric soil indicators present.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

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

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

Remarks: No wetland hydrology indicators present.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, andCoast Region

Project/Site: Tumwater Valley GC | City/County: Tumwater/Thurston | Sampling Date: 2..18.26

Applicant/Owner: City of Tumwater | State: WA | Sampling Point: Tptee2

Investigator(s): Alex Callender | Section, Township, Range: 35 18 2W

Landform (hillslope, terrace, etc.): valley | Local relief (concave, convex, none): convex | Slope (%): 1-2

Subregion (LRR): 2 | Lat: 47.010829 | Long: -122.904540 | Datum: Wgs84

Soil Map Unit Name: Puyallup Silt Loam | NWI classification: PSSC

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 x	No ___	**Is the Sampled Area within a Wetland?** **Yes** ___ **No** x
Hydric Soil Present?	Yes ___	No x	
Wetland Hydrology Present?	Yes ___	No x	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	___ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Rubus armeniacus*	10	Y	FAC
2.			
3.			
4.			
5.			
	10 = Total Cover		
Herb Stratum (Plot size: 15)			
1. *Phalaris arundinacea*	90	Y	FACW
2. *Agrostis capillaris*	10	N	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	___ = Total Cover		

% Bare Ground in Herb Stratum ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	___	x 1 =	
FACW species	___	x 2 =	
FAC species	___	x 3 =	
FACU species	___	x 4 =	
UPL species	___	x 5 =	
Column Totals:	___ (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

x 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** x **No** ___

Remarks: Greater than 50% of dominant vegetation is FAC or wetter.

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	10YR3/2	100					Sandy loam	
4-18	10YR4/2	90	10YR4/6	10	c	m	Sandy loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ____ **No** x

Remarks: No hydric soil indicators present.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** ____ **No** x

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

Remarks: No wetland hydrology indicators present.

Appendix J – Realignment for Tee Boxes on Hole 2 and 4



0 20 40

SCALE IN FEET

SCJ ALLIANCE
CONSULTING SERVICES
8730 TALLON LANE NE, LACEY, WA 98516
P: 360.352.1465
SCJALLIANCE.COM

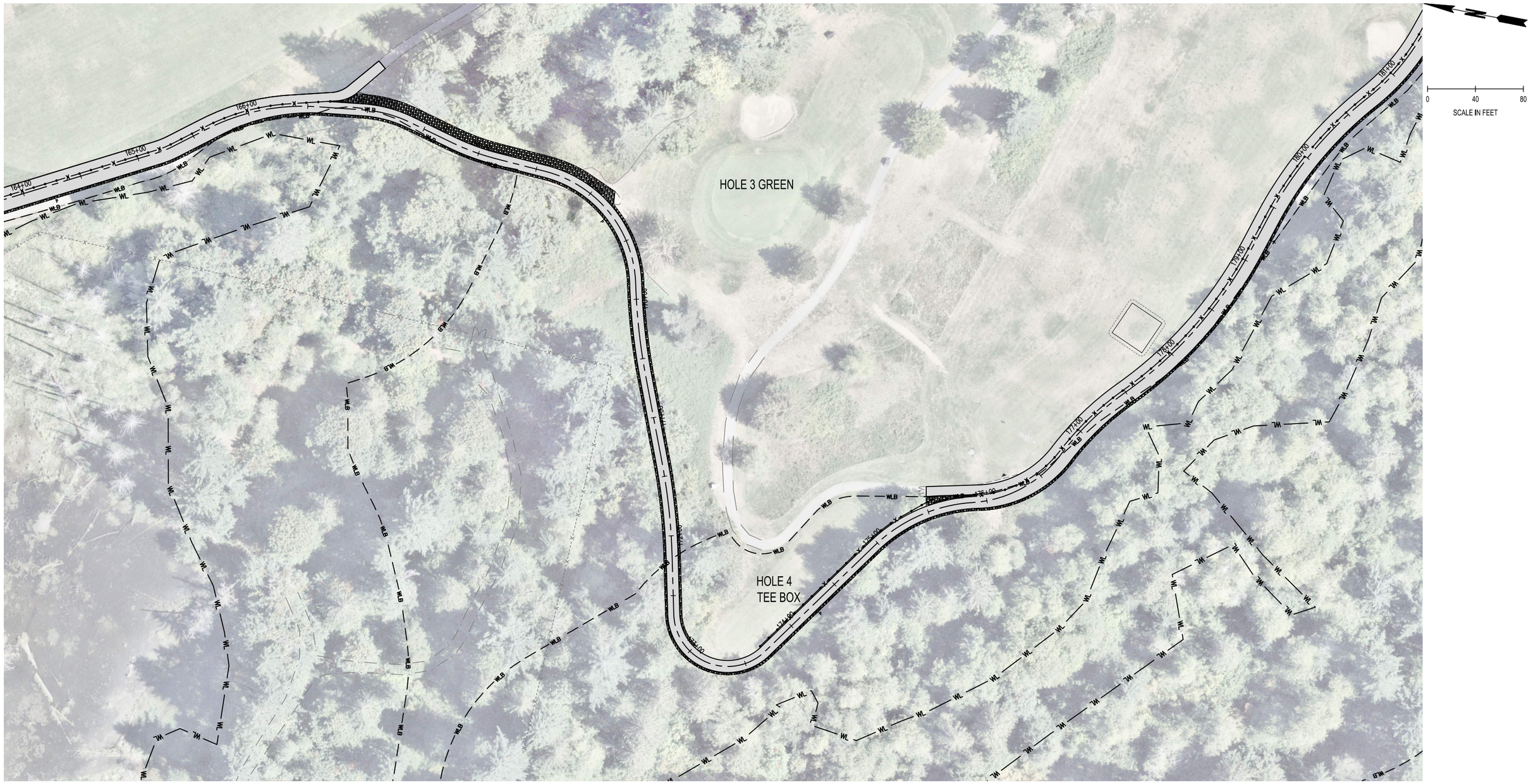
HORIZONTAL SCALE:	1"=20'
DATE:	SEPTEMBER 2026
JOB No.:	25-000313
DRAWING FILE No.:	WETLAND REPORT EXHIBIT.DWG

WETLAND BUFFER ENCROACHMENT
DESCHUTES VALLEY TRAIL

EXHIBIT No:

SHEET No:
1 OF 2

Sep 03, 2026 - 4:45:01pm - User: nikki.martinez
N:\PROJECTS\0625 CITY OF TUMWATER\25-000313 TUMWATER DESCHUTES VALLEY TRAIL\CAD\EXHIBITS\HOLE 2 AND 4 WETLAND REPORT EXHIBITS\WETLAND REPORT EXHIBIT.DWG



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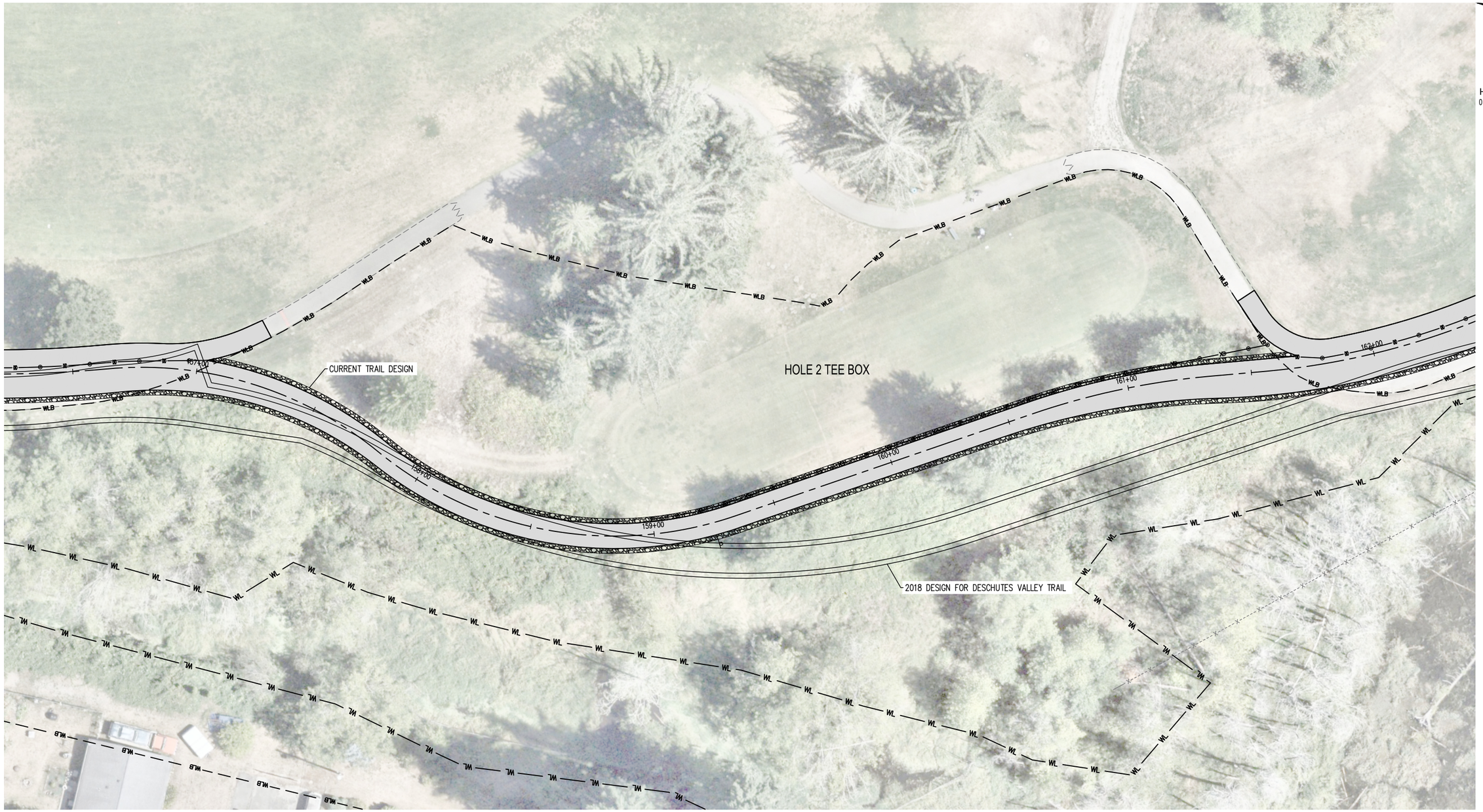
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DATE:	SEPTEMBER 2026
JOB No.:	25-000313
DRAWING FILE No.:	WETLAND REPORT EXHIBIT.DWG

WETLAND BUFFER ENCROACHMENT
DESCHUTES VALLEY TRAIL

EXHIBIT No:

SHEET No:
2 OF 2

Sep 03, 2026 4:45:02pm - User nikkimartinez
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Sep 04, 2026 9:13:26am – User: rikki.martinez
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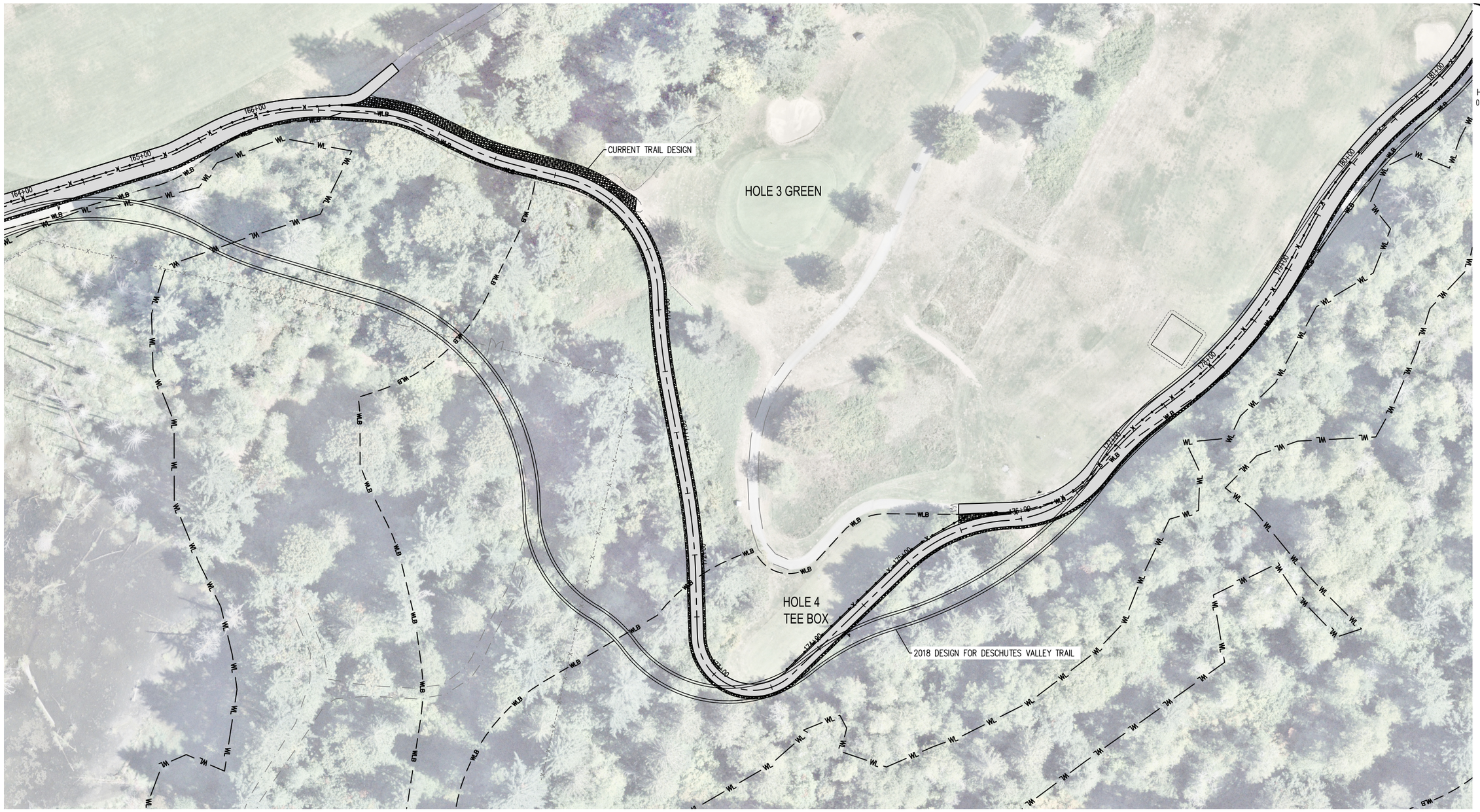
SCJ ALLIANCE
CONSULTING SERVICES
8730 TALLON LANE NE, LACEY, WA 98516
P: 360.352.1465
SCJALLIANCE.COM

HORIZONTAL SCALE: 1"=20'
DATE: SEPTEMBER 2026
JOB No.: 25-000313
DRAWING FILE No.: WETLAND REPORT EXHIBIT_OVERLAY WITH 2018 DESIGN.DWG

DESIGN EVOLUTION
DESCHUTES VALLEY TRAIL

EXHIBIT No:

SHEET No: 1 OF 2



Sep 04, 2026 9:13:28am - User: nikkimartinez
N:\PROJECTS\0625_CITY OF TUMWATER\25-000313 TUMWATER DESCHUTES VALLEY TRAIL\CADD\EXHIBITS\HOLE 2 AND 4 WETLAND REPORT EXHIBITS\WETLAND REPORT EXHIBIT_OVERLAY WITH 2018 DESIGN.DWG

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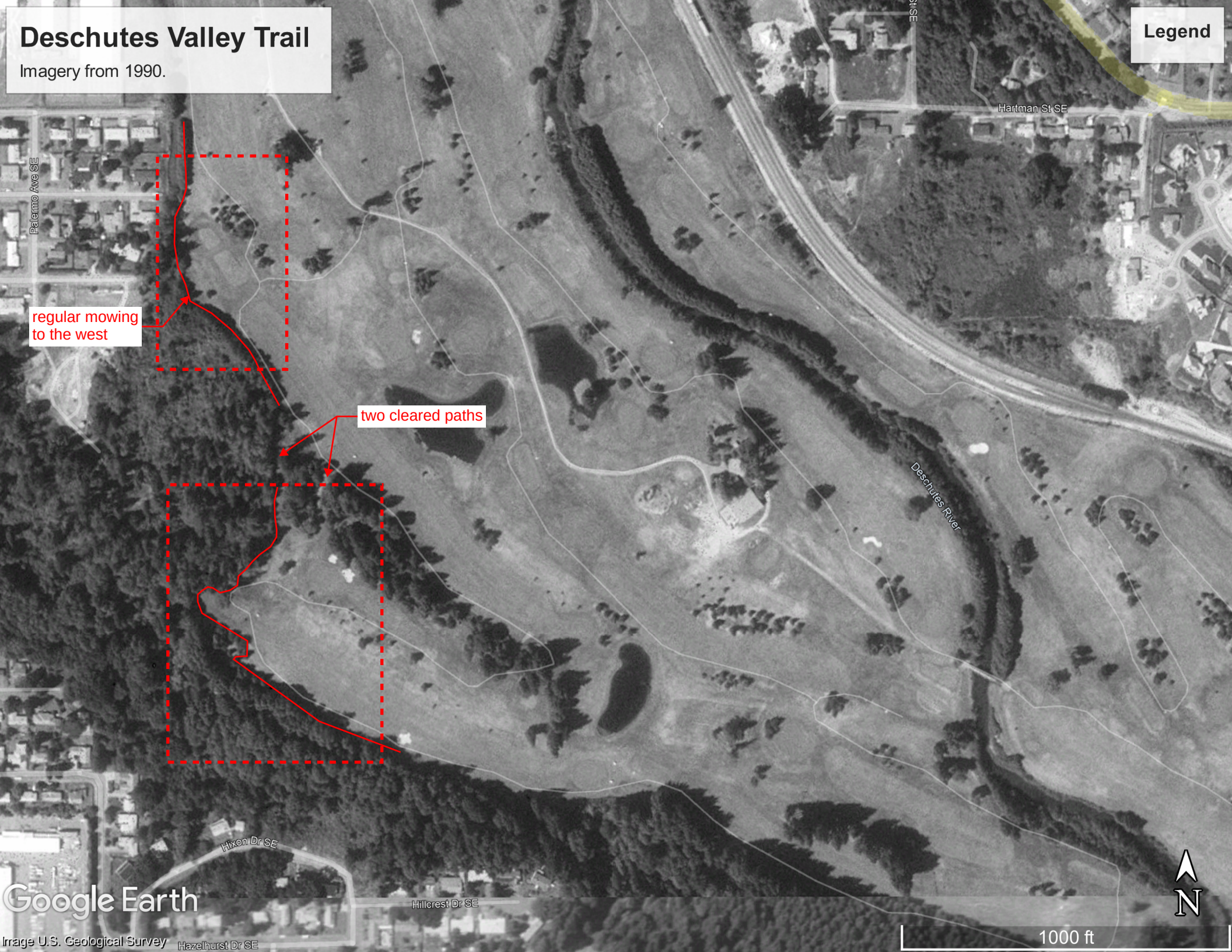
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DATE:	SEPTEMBER 2026
JOB No.:	25-000313
DRAWING FILE No.:	WETLAND REPORT EXHIBIT_OVERLAY WITH 2018 DESIGN.DWG

DESIGN EVOLUTION
DESCHUTES VALLEY TRAIL

EXHIBIT No:

SHEET No:
2 OF 2

Appendix K – Historical Aerial Imagery of Tee Box 2 and 4 Showing Maintenance Mowing


Deschutes Valley Trail
Imagery from 1990.
Legend
Hartman St SE
Palermo Ave SE
regular mowing
to the west
two cleared paths
Deschutes River
Hixon Dr SE
Hillcrest Dr SE
Hazelhurst Dr SE
Google Earth
Image U.S. Geological Survey
N
1000 ft


Deschutes Valley Trail
Imagery from 2003.
Legend
Hartman St SE
Palermo Ave SE
regular mowing
to the west
two cleared paths
Deschutes River
Hixon Dr SE
Hillcrest Dr SE
Hazelhurst Dr SE
Google Earth
Image U.S. Geological Survey
N
1000 ft


Deschutes Valley Trail
Imagery from 2006.
Legend
Hartman St SE
Palermo Ave SE
regular mowing
to the west
two cleared paths
Deschutes River
Hixon Dr SE
Hillcrest Dr SE
Hazelhurst Dr SE
Google Earth
Image USDA/FPAC/GEO
N
1000 ft


Deschutes Valley Trail
Imagery from 2011.
Legend
Hartman St SE
Palermo Ave SE
regular mowing to the west
two cleared paths
Deschutes River
Hixon Dr SE
Hillcrest Dr SE
Hazelhurst Dr SE
Google Earth
Image USDA/FPAC/GEO
N
1000 ft


Deschutes Valley Trail
Imagery from 2016.
Legend
Hartman St SE
Palermo Ave SE
regular mowing to the west
two cleared paths
Deschutes River
Hixon Dr SE
Hillcrest Dr SE
Hazelhurst Dr SE
Google Earth
N
1000 ft


Deschutes Valley Trail
Imagery from 2022.
Legend
Hartman St SE
Palermo Ave SE
regular mowing
to the west
maintenance path
Deschutes River
Hixon Dr SE
Hillcrest Dr SE
Hazelhurst Dr SE
Google Earth
N
1000 ft


Deschutes Valley Trail
Imagery from 2023.
Legend
Hartman St SE
Palermo Ave SE
regular mowing
to the west
maintenance path
Deschutes River
Hixon Dr SE
Hillcrest Dr SE
Hazelhurst Dr SE
Google Earth
Image © 2026 Airbus
N
1000 ft

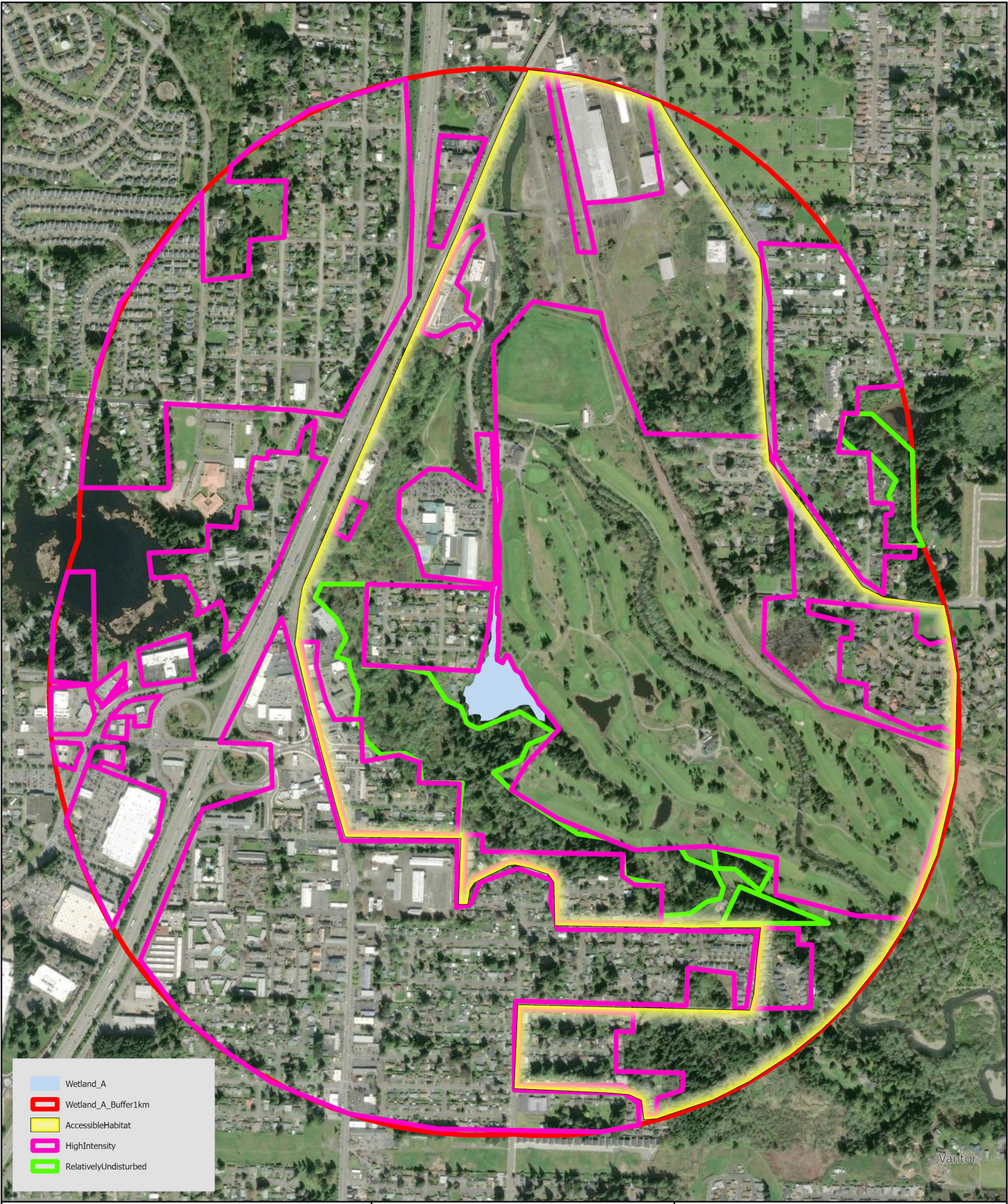

Deschutes Valley Trail
Imagery from 2024.
Legend
clearing still occuring west of trees
two cleared paths
Palermo Ave SE
Hartman St SE
Yelm Hwy SE
Deschutes River
Hixon Dr SE
Hillcrest Dr SE
Hazelhurst Dr SE
T St SE
T St SE
Google Earth
N
1000 ft

Deschutes Valley Trail

Imagery from 2026.



Appendix L- ECY Wetland Rating Forms for Western Washington



Land Services Northwest
120 State Avenue NE PMB 190
Olympia, WA 98501

N

LSNW

Wetland A
1 km Land Use Intensity Map

0 0.07 0.15 0.3 Miles

Land Use Calculations

	ACRES		%
1KM	1120		
Wetland A	5		
1KM-Wetland A	1115		100
High Intensity	707.634651	0.63465	63.46499
Relatively Undisturbed	48.7680566	0.043738	4.373817
Low Medium Use	358.597292	0.321612	32.16119
Accessible Habitat	581.13147	0.518867	
Wetland A	5		
Accessible Habitat-Wet A	576.13147	0.51671	
RU	42.3629935	0.037994	3.799372
Low/Medium LU	228.959221	0.206565	20.6565
High Intensity	304.809256	0.272151	27.21511



Land Services Northwest
120 State Avenue NE PMB 190
Olympia, WA 98501

N

LSNW

Wetland A
150 ft
Pollution Generating Land Use

0 0.02 0.04 0.09 Miles



Land Services Northwest
120 State Avenue NE PMB 190
Olympia, WA 98501

N
LSNW

Wetland A
Cowardin Classifications

0 110 220 440 Feet



Land Services Northwest
120 State Avenue NE PMB 190
Olympia, WA 98501

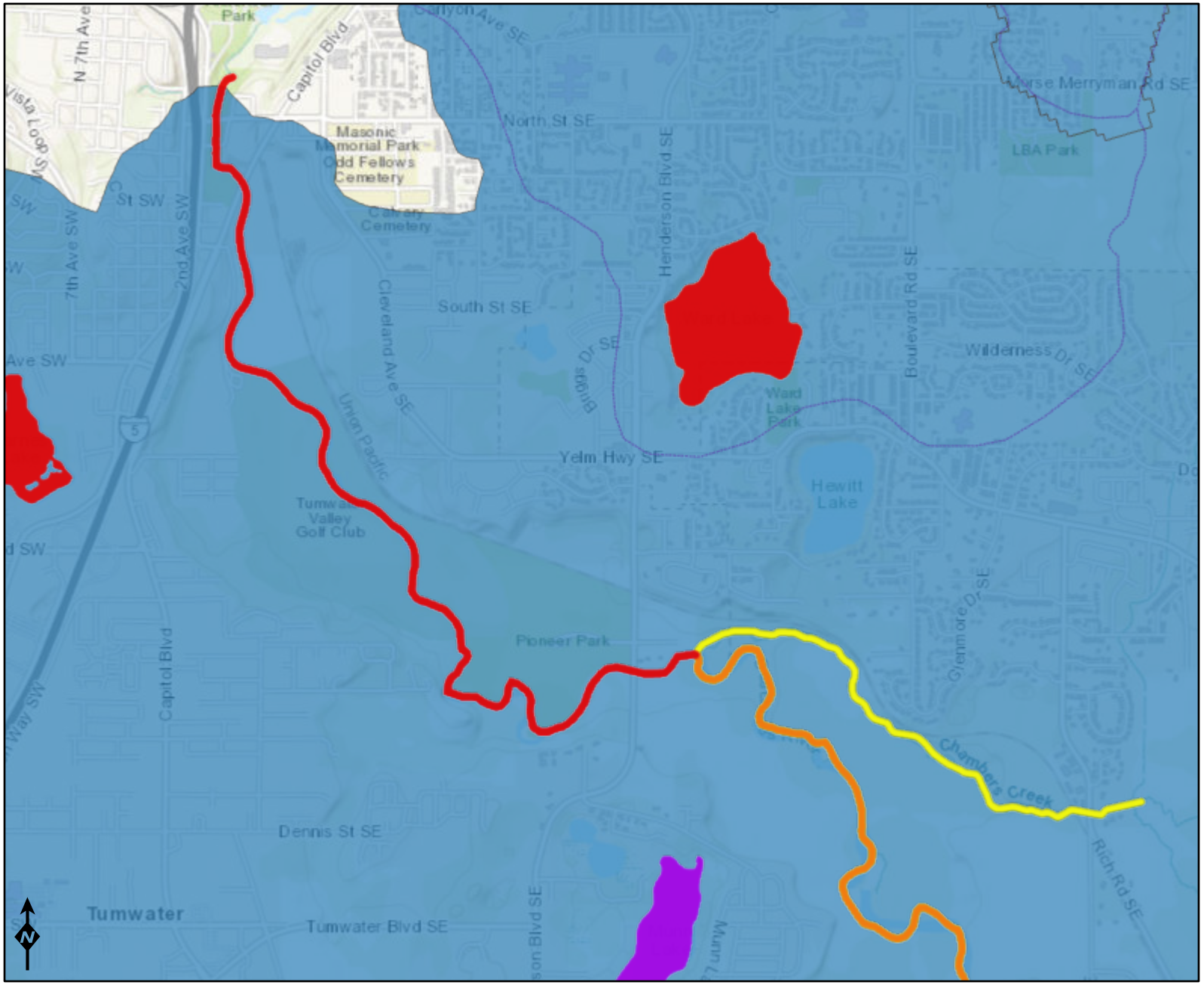
N
LSNW

Wetland A
Hydroperiod Classification Map

0 0.02 0.04 0.09 Miles

March 6, 2026

303d and TMDL



City of Olympia, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS

Assessed Water/Sediment

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

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

WQ Improvement Projects
- TMDL - Approved
- 4B - Approved
- STI - Approved
- ARP - Approved
- TMDL - In Development
- STI - In Development
- ARP - In Development

Parcels
- Parcel boundary

Subbasins (12 digit HUCs)
- HUC boundary

Wetland name or number Wetland A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A Date of site visit: 2/23/26

Rated by Alexander Callender Trained by Ecology? X Yes ___ No Date of training 12/2013

HGM Class used for rating Depressional Wetland has multiple HGM classes? ___ Y x N

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

Source of base aerial photo/map ESRI 2024

OVERALL WETLAND CATEGORY II (based on functions x or special characteristics __)

1. Category of wetland based on FUNCTIONS

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

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

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

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

Site Potential	H	(M)	L	H	(M)	L	(H)	M	L
Landscape Potential	(H)	M	L	(H)	M	L	H	M	(L)
Value	(H)	M	L	H	(M)	L	(H)	M	L
		8			7			7	

TOTAL
22

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	**I II**
Wetland of High Conservation Value	**I**
Bog	**I**
Mature Forest	**I**
Old Growth Forest	**I**
Coastal Lagoon	**I II**
Interdunal	**I II III IV**
None of the above	N/A

Wetland name or number A

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

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

Riverine Wetlands

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

Lake Fringe Wetlands

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

Slope Wetlands

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

Wetland name or number A

HGM Classification of Wetlands in Western Washington

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

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

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

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

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

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

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

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

3. Does the entire wetland unit **meet all** of the following criteria?
   ___The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size,
   ___At least 30% of the open water area is deeper than 6.6 ft (2 m).

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

4. Does the entire wetland unit **meet all** of the following criteria?
   ____The wetland is on a slope (slope can be very gradual),
   ____The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheet flow, or in a swale without distinct banks,
   ____The water leaves the wetland **without being impounded**.

   NO – go to 5 **YES –** The wetland class is **Slope**

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

Wetland name or number A

5. Does the entire wetland unit **meet all** of the following criteria?
   ____The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ____The overbank flooding occurs at least once every 2 years.

   NO – go to 6 **YES** – The wetland class is **Riverine**
   NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

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

   NO – go to 7 **YES** – The wetland class is **Depressional**

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

   NO – go to 8 **YES** – The wetland class is **Depressional**

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

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

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

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

Wetland name or number A

DEPRESSIONAL AND FLATS WETLANDS

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

D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	2
D 1.2. The soil 2 in. below the surface (or duff layer) is true clay or true organic *(use NRCS definitions).* Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed plants > 95% of area points = 5 Wetland has persistent, ungrazed plants > ½ of area points = 3 Wetland has persistent, ungrazed plants ≥ 1/10 of area points = 1 Wetland has persistent, ungrazed plants < 1/10 of area points = 0	5
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is ≥ ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0	2
Total for D 1 Add the points in the boxes above	9

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

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? Source_____ Yes = 1 No = 0	1
Total for D 2 Add the points in the boxes above	3

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

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	1
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? Yes = 1 No = 0	1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? (Answer YES if there is a TMDL in development or in effect for the basin in which the unit is found.) Yes = 2 No = 0	2
Total for D 3 Add the points in the boxes above	4

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

Wetland name or number A

DEPRESSIONAL AND FLATS WETLANDS

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

D 4.0. Does the site have the potential to reduce flooding and erosion?

D 4.1. Characteristics of surface water outflows from the wetland:	
Wetland is a depression or flat depression with no surface water leaving it (no outlet) points = 4	2
Wetland has an intermittently flowing stream/ditch, OR highly constricted permanently flowing outlet points = 2	
Wetland is a flat depression (question 7 on key), whose outlet is a permanently flowing ditch points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 0	
D 4.2. Depth of storage during wet periods: Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.	
Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7	3
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5	
Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3	
The wetland is a "headwater" wetland points = 3	
Wetland is flat but has small depressions on the surface that trap water points = 1	
Marks of ponding less than 0.5 ft (6 in) points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: Estimate the ratio of the area of upstream basin contributing surface water to the area of the wetland unit itself.	
The area of the basin is less than 10 times the area of the unit points = 5	3
The area of the basin is 10 to 100 times the area of the unit points = 3	
The area of the basin is more than 100 times the area of the unit points = 0	
Entire wetland is in the Flats class points = 5	
Total for D 4 Add the points in the boxes above	8

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

D 5.0. Does the landscape have the potential to support hydrologic functions of the site?

D 5.1. Does the wetland receive stormwater discharges? Yes = 1 No = 0	1
D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff? Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)? Yes = 1 No = 0	1
Total for D 5 Add the points in the boxes above	3

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

D 6.0. Are the hydrologic functions provided by the site valuable to society?

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

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

Wetland name or number A

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

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

If the unit has a Forested class, check if:

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

4

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland if the unit is < 2.5 ac, or ¼ ac if the unit is at least 2.5 ac to count (see text for descriptions of hydroperiods).

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

3

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

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

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

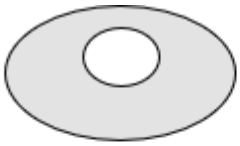
2

H 1.4. Interspersion of habitats

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

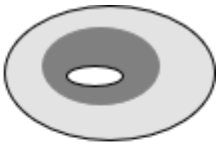


None = 0 points



Low = 1 point



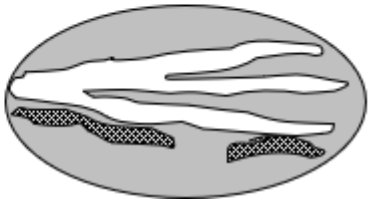


Moderate = 2 points

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







3

Wetland name or number A

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. The number of checks is the number of points. [x] Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft long). [x] Standing snags (dbh > 4 in.) within the wetland [x] Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extend at least 3.3 ft (1 m) over open water or a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) [x] 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) [x] At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (structures for egg-laying by amphibians) [ ] Invasive plants cover less than 25% of the wetland area in every stratum of plants (see H 1.1 above for the list of strata and H 1.5 in the manual for the list of aggressive plant species)	5
Total for H 1 — Add the points in the boxes above	17

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

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

H 2.1. Accessible habitat (include only habitat polygons accessible from the wetland. *Calculate:* % relatively undisturbed habitat 4 + [(% moderate and low intensity land uses)/2] 10.3 = 14 % Total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon — points = 3 20-33% of 1 km Polygon — points = 2 10-19% of 1 km Polygon — points = 1 < 10% of 1 km Polygon — points = 0	1
H 2.2. Total habitat in 1 km Polygon around the wetland. *Calculate:* % relatively undisturbed habitat 4 + [(% moderate and low intensity land uses)/2] 16 = 20 % Total habitat > 50% of Polygon — points = 3 Total habitat 10-50% and in 1-3 patches — points = 2 Total habitat 10-50% and > 3 patches — points = 1 Total habitat < 10% of 1 km Polygon — points = 0	1
H 2.3. Land use intensity in 1 km Polygon: > 50% of 1 km Polygon is high intensity land use — points = (- 2) ≤ 50% of 1 km Polygon is high intensity — points = 0	-2
Total for H 2 — Add the points in the boxes above	0

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

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

H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: — points = 2 [x] It has 3 or more Priority Habitats within 100 m (see next page) [ ] It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) [x] It is mapped as a location for an individual WDFW Priority Species [ ] It is a Wetland of High Conservation Value as determined by the Department of Natural Resources data [ ] It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 Priority Habitats (listed on next page) within 100 m — points = 1 Site does not meet any of the criteria above — points = 0	2

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

Wetland name or number A

WDFW Priority Habitats

See complete descriptions of Priority Habitats listed by WDFW, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008 (current year, as revised). Priority Habitat and Species List.[133] This list was updated for consistency with guidance from WDFW.

This question is independent of the land use between the wetland unit and the Priority Habitat. All vegetated wetlands are by definition a Priority Habitat but are not included in this list because they are addressed by this rating system.

Count how many of the following Priority Habitats are within 330 ft (100 m) of the wetland unit:

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

— **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife. This habitat automatically counts if mapped on the PHS online map within 100m of the wetland. If not mapped, a determination can be made in the field.

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

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

— **Fresh Deepwater:** Lands permanently flooded with freshwater, including environments where surface water is permanent and often deep, so that water, rather than air, is the principal medium within which the dominant organisms live. Substrate does not support emergent vegetation. Do not select if Instream habitat is also present, or if the entire Deepwater feature is included in the wetland unit being rated (such as a pond with a vegetated fringe).

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

x **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. Do not select if Fresh Deepwater habitat is also present.

— **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore.

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

[133] http://wdfw.wa.gov/publications/00165/wdfw00165.pdf

Wetland name or number A

— **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important. For single oaks or oak stands <0.4 ha in urban areas, WDFW's Management Recommendations for Oregon White Oak[134] provides more detail for determining if they are Priority Habitats

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

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

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

— **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie.

[134] https://wdfw.wa.gov/publications/00030/wdfw00030.pdf

Wetland name or number A

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

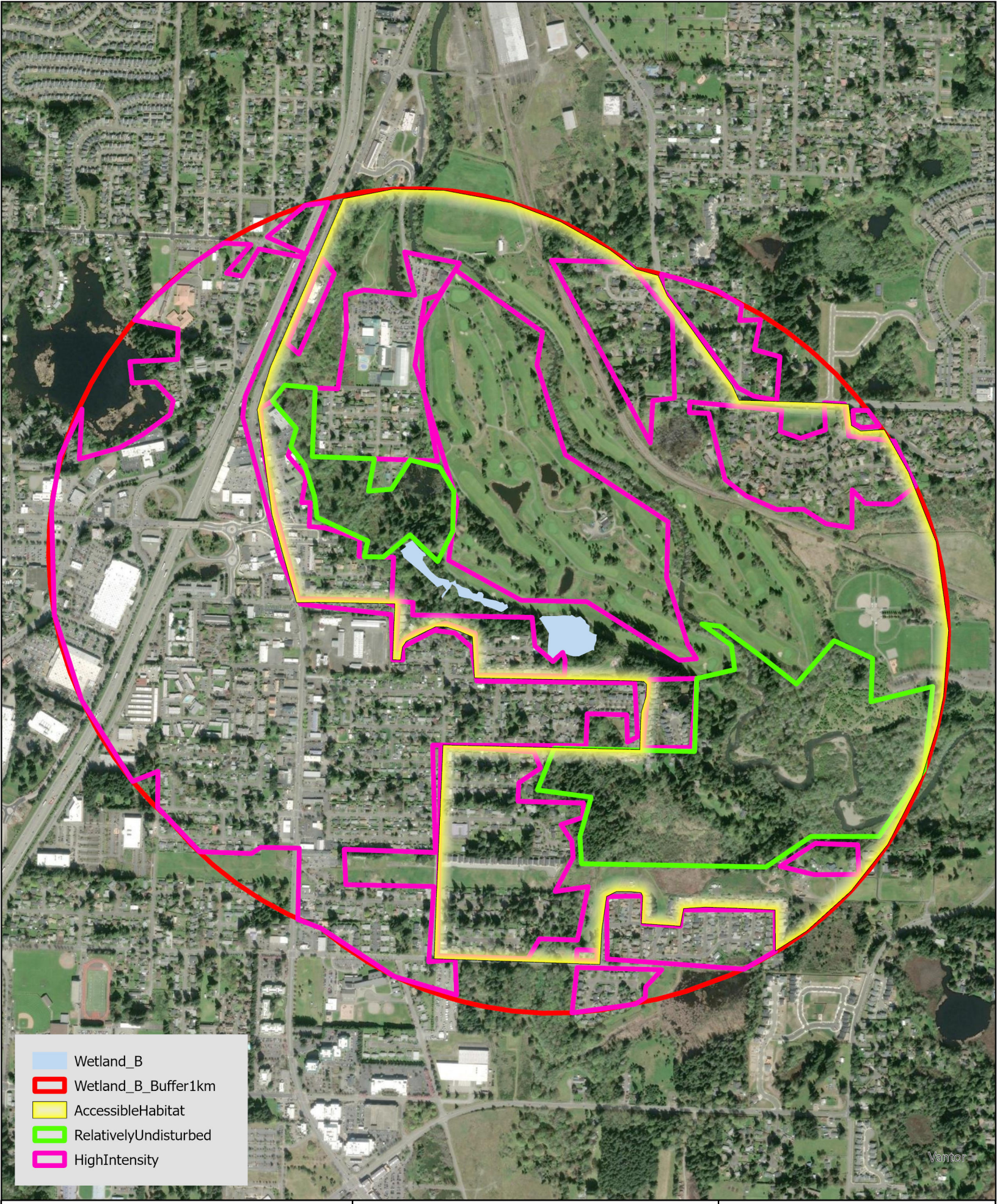
Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt Yes – Go to **SC 1.1** (No) = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? Yes = **Category I** (No) – Go to **SC 1.2**	**Cat. I**
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 10% cover of non-native plant species. If non-native species are *Spartina*, see chapter 4.8 in the manual. — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = **Category I** (No) = **Category II**	**Cat. I** **Cat. II**
SC 2.0. Wetlands of High Conservation Value (WHCV) 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?[135] Yes = **Category I** (No) – Go to **SC 2.2** SC 2.2. Does the wetland have a rare plant species, rare ecosystem (e.g., plant community), or high-quality common ecosystem that may qualify the site as a WHCV? Contact WNHP for resources to help determine the presence of these elements. Yes – Submit data to WA Natural Heritage Program for determination,[136] Go to **SC 2.3** (No) = **Not a WHCV** SC 2.3. Did WNHP review the site within 30 days and determine that it has a rare plant or ecosystem that meets their criteria? Yes = **Category I** (No) = **Not a WHCV**	**Cat. I**
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES, you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in. or more of the first 32 in. of the soil profile? Yes – Go to **SC 3.3** (No) – Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in. deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes – Go to **SC 3.3** (No) = **Not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? Yes = **Category I bog** (No) – Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in. deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? Yes = **Category I bog** (No) = **Not a bog**	**Cat. I**

[135] https://www.dnr.wa.gov/NHPdata

[136] https://www.dnr.wa.gov/Publications/amp_nh_sighting_form.pdf

Wetland name or number A

SC 4.0. Forested Wetlands Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as Priority Habitats? ***If you answer YES, you will still need to rate the wetland based on its functions.*** — **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in. (81 cm) or more. — **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in. (53 cm). Yes = **Category I** (No) = **Not a forested wetland for this section**	**Cat. I**
SC 5.0. Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* — The lagoon retains some of its surface water at low tide during spring tides Yes – Go to **SC 5.1** (NO) = **Not a wetland in a coastal lagoon** SC 5.1. Does the wetland meet all of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species in H 1.5 in the manual). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2) Yes = **Category I** (No) = **Category II**	**Cat. I** **Cat. II**
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer YES, you will still need to rate the wetland based on its habitat functions.*** In practical terms that means the following geographic areas: — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 and Ocean Shores Blvd SW, including lands west of E. Oceans Shores Blvd SW. Yes – Go to **SC 6.1** (No) = **Not an interdunal wetland for rating** SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? Yes = **Category I** (NO) – Go to **SC 6.2** SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? Yes = **Category II** (No) – Go to **SC 6.3** SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? Yes = **Category III** (No) = **Category IV**	**Cat I** **Cat. II** **Cat. III** **Cat. IV**
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	N/A



Land Services Northwest
120 State Avenue NE PMB 190
Olympia, WA 98501

LSNW

Wetland B
1 km
Land Use Intensity Map

0 0.07 0.15 0.3 Miles

Land Use Calculations

	ACRES		%
1KM	1124.5867		
Wetland B	5.82838202		
1KM-Wetland B	1118.75832		100
High Intensity	633.633938	0.566372	56.63725
Relatively Undisturbed	133.769775	0.11957	11.95699
Low Medium Use	351.354604	0.314058	31.40576
Accessible Habitat	686.50604	0.610452	
Wetland B	5.82838202		
Accessible Habitat-Wet B	680.677658	0.608422	
RU	133.769775	0.11957	11.95699
Low/Medium LU	268.603234	0.24138	24.13797
High Intensity	278.304649	0.247473	24.74728

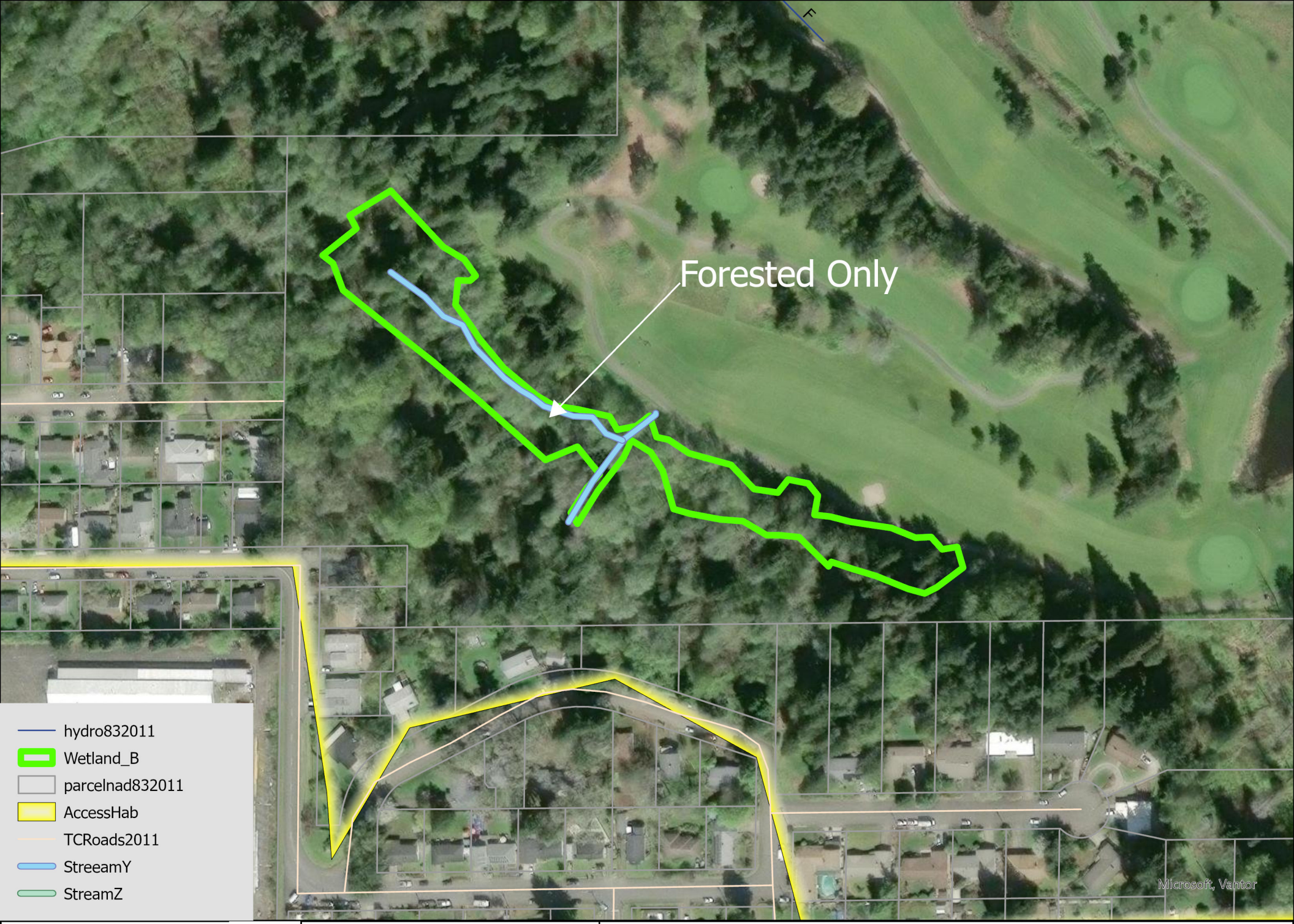


Land Services Northwest
120 State Avenue NE PMB 190
Olympia, WA 98501

LSNW

Wetland B
150 ft
Pollution Generating Land Use

0 0.02 0.04 0.09 Mi

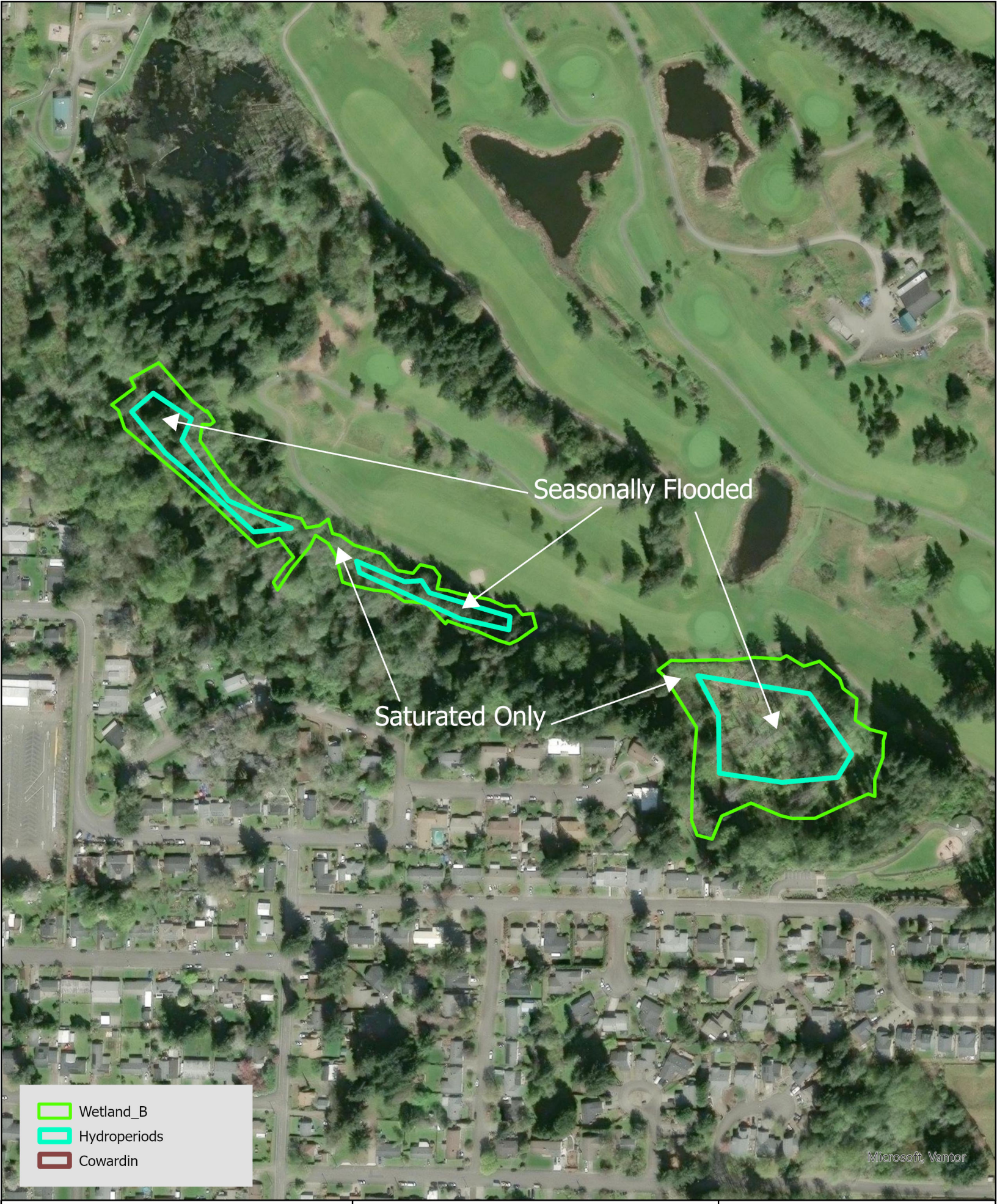


Land Services Northwest
120 State Avenue NE PMB 190
Olympia, WA 98501

LSNW

Cowardin Classification Map

0 250 500 1,000 Feet



Land Services Northwest
120 State Avenue NE PMB 190
Olympia, WA 98501

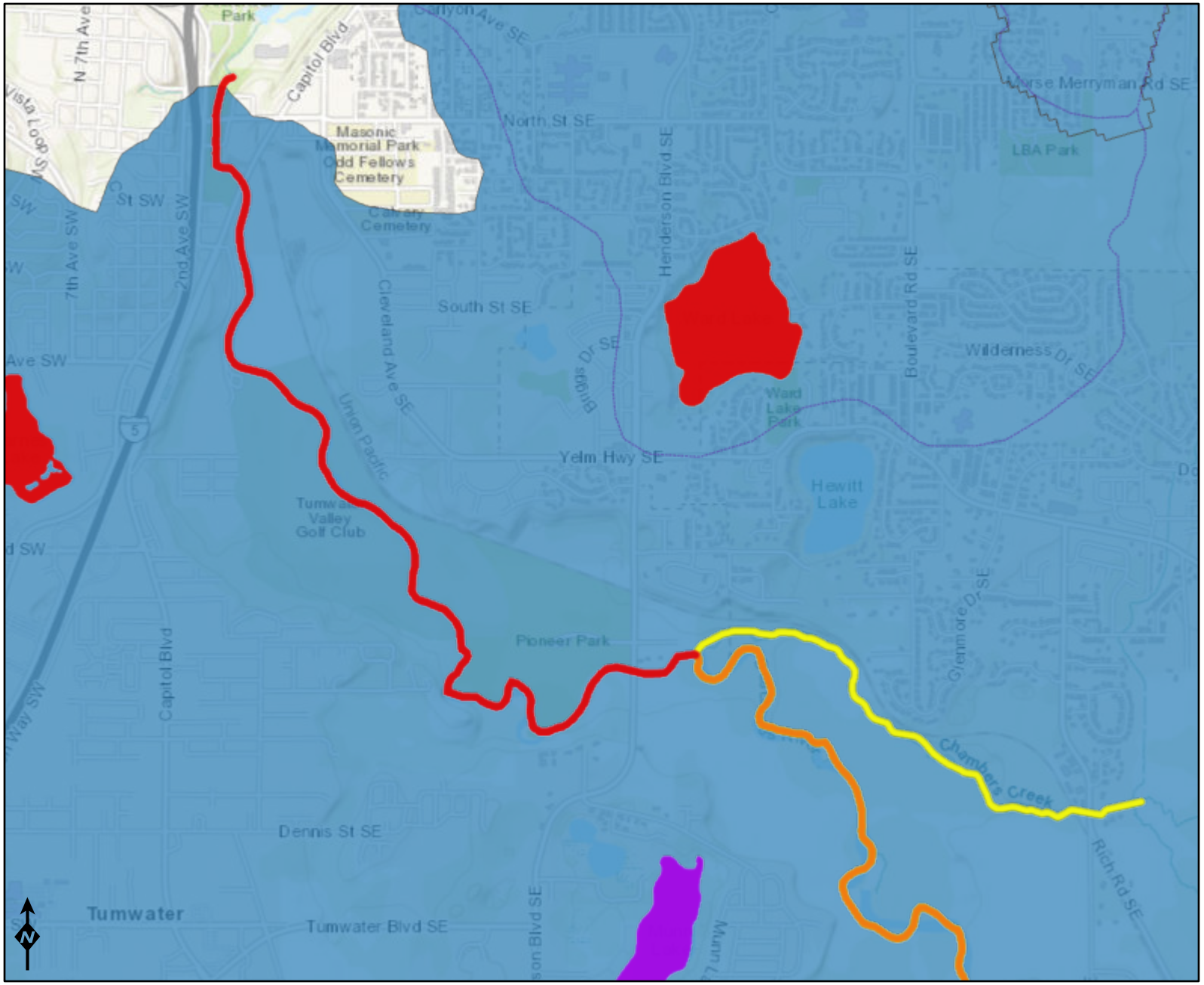
LSNW

Wetland B
Hydroperiod Classification Map

0 0.02 0.04 0.09 Miles

March 6, 2026

303d and TMDL



City of Olympia, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS

Assessed Water/Sediment

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

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

WQ Improvement Projects
- TMDL - Approved
- 4B - Approved
- STI - Approved
- ARP - Approved
- TMDL - In Development
- STI - In Development
- ARP - In Development

Parcels
- Parcel boundary

Subbasins (12 digit HUCs)
- HUC boundary

Wetland name or number B

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland B Date of site visit: Feb 18, 2026

Rated by Alex Callender Trained by Ecology? X Yes ___No Date of training 12.2013

HGM Class used for rating Slope Wetland has multiple HGM classes? ___Y x N

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

Source of base aerial photo/map 2024 ESRI

OVERALL WETLAND 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

FUNCTION	Improving Water Quality			Hydrologic			Habitat			
	Circle the appropriate ratings									
Site Potential	H	M	(L)	H	M	(L)	H	(M)	L	
Landscape Potential	H	M	(L)	H	M	(L)	H	(M)	L	
Value	(H)	M	L	H	(M)	L	(H)	M	L	**TOTAL**
	5			4			7			16

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	**I** **II**
Wetland of High Conservation Value	**I**
Bog	**I**
Mature Forest	**I**
Old Growth Forest	**I**
Coastal Lagoon	**I** **II**
Interdunal	**I** **II** **III** **IV**
None of the above	N/A

Wetland name or number B

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

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

Riverine Wetlands

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

Lake Fringe Wetlands

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

Slope Wetlands

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

Wetland name or number B

HGM Classification of Wetlands in Western Washington

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

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

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

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

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

   NO – Saltwater Tidal Fringe (Estuarine) **YES – Freshwater Tidal Fringe**

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

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

   NO – go to 3 **YES** – The wetland class is **Flats**

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

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

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

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

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

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

   x___The wetland is on a slope (slope can be very gradual),

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

   x___The water leaves the wetland **without being impounded**.

   NO – go to 5 **YES –** The wetland class is **Slope**

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

Wetland name or number B

5. Does the entire wetland unit **meet all** of the following criteria?
   ____The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ____The overbank flooding occurs at least once every 2 years.

   NO – go to 6 **YES** – The wetland class is **Riverine**
   NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

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

   NO – go to 7 **YES** – The wetland class is **Depressional**

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

   NO – go to 8 **YES** – The wetland class is **Depressional**

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

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

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

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

Wetland name or number B

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. Characteristics of the average slope of the wetland: (A 1% slope has a 1 ft vertical change in elevation for every 100 ft of horizontal distance.) 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	3
S 1.2. The soil 2 in. below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)*: Yes = 3 No = 0	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed, and plants are higher than 6 in. Dense, uncut, herbaceous plants > 90% of the wetland area points = 6 Dense, uncut, herbaceous plants > ½ of area points = 3 Dense, woody, plants > ½ of area points = 2 Dense, uncut, herbaceous plants > ¼ of area points = 1 Does not meet any of the criteria above for plants points = 0	1
Total for S 1 Add the points in the boxes above	4

Rating of Site Potential If score is: __**12 = 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 150 ft on the uphill side of the wetland in land uses that generate pollutants? Yes = 1 No = 0	0
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other sources _____ Yes = 1 No = 0	0
Total for S 2 Add the points in the boxes above	0

Rating of Landscape Potential If score is: __**1-2 = M** __x**0 = L** *Record the rating on the first page*

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 = 1 No = 0	1
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? (At least one aquatic resource in the basin is on the 303(d) list.) Yes = 1 No = 0	1
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? (Answer YES if there is a TMDL in development or in effect for the basin in which unit is found.) Yes = 2 No = 0	2
Total for S 3 Add the points in the boxes above	4

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

Wetland name or number B

SLOPE WETLANDS

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

S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. Stems of plants should be thick enough (usually > $^1/_8$ in), or dense enough, to remain erect during surface flows. Dense, uncut, **rigid** plants cover > 90% of the area of the wetland points = 1 All other conditions points = 0	0

Rating of Site Potential If score is: **__1 = M** **_x_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 = 1 No = 0	0

Rating of Landscape Potential If score is: **__1 = M** **_x_0 = L** *Record the rating on the first page*

S 6.0. Are the hydrologic functions provided by the site valuable to society?	
S 6.1. Distance to the nearest areas downstream that have flooding problems: The sub-basin immediately downgradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2 Surface flooding problems are in a sub-basin farther downgradient points = 1 No flooding problems anywhere downstream points = 0	1
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	0
Total for S 6 Add the points in the boxes above	1

Rating of Value If score is: **__2-4 = H** **_x_1 = M** **___0 = L** *Record the rating on the first page*

NOTES and FIELD OBSERVATIONS:

Wetland name or number B

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

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

If the unit has a Forested class, check if:

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

1

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland if the unit is < 2.5 ac, or ¼ ac if the unit is at least 2.5 ac to count (see text for descriptions of hydroperiods).

___	Permanently flooded or inundated	4 or more types present: points = 3
x	Seasonally flooded or inundated	3 types present: points = 2
___	Occasionally flooded or inundated	2 types present: points = 1
___	Saturated only	1 type present: points = 0
___	Permanently flowing stream or river in, or adjacent to, the wetland	
x	Intermittently or seasonally flowing stream in, or adjacent to, the wetland	
___	**Lake Fringe wetland**	**2 points**
___	**Freshwater tidal wetland**	**2 points**

1

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

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

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

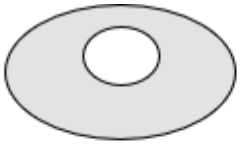
1

H 1.4. Interspersion of habitats

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



None = 0 points

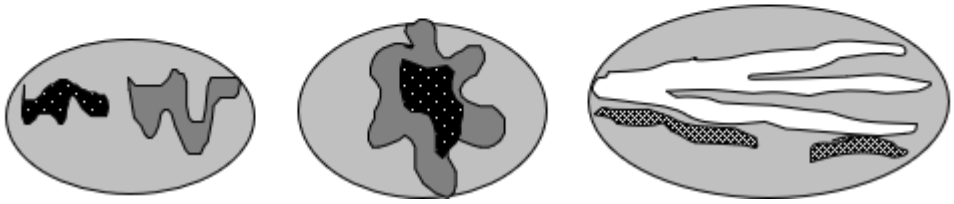


Low = 1 point



Moderate = 2 points

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



2

Wetland name or number B

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. The number of checks is the number of points. [x] Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft long). [x] Standing snags (dbh > 4 in.) within the wetland [ ] Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extend at least 3.3 ft (1 m) over open water or a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) [ ] Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet weathered where wood is exposed) [x] At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (structures for egg-laying by amphibians) [ ] Invasive plants cover less than 25% of the wetland area in every stratum of plants (see H 1.1 above for the list of strata and H 1.5 in the manual for the list of aggressive plant species)	3
Total for H 1 — Add the points in the boxes above	8

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

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

H 2.1. Accessible habitat (include only habitat polygons accessible from the wetland. *Calculate:* % relatively undisturbed habitat 11 + [(% moderate and low intensity land uses)/2] 12 = 23 % Total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon — points = 3 20-33% of 1 km Polygon — points = 2 10-19% of 1 km Polygon — points = 1 < 10% of 1 km Polygon — points = 0	2
H 2.2. Total habitat in 1 km Polygon around the wetland. *Calculate:* % relatively undisturbed habitat 11 + [(% moderate and low intensity land uses)/2] 15 = 26 % Total habitat > 50% of Polygon — points = 3 Total habitat 10-50% and in 1-3 patches — points = 2 Total habitat 10-50% and > 3 patches — points = 1 Total habitat < 10% of 1 km Polygon — points = 0	1
H 2.3. Land use intensity in 1 km Polygon: > 50% of 1 km Polygon is high intensity land use — points = (- 2) ≤ 50% of 1 km Polygon is high intensity — points = 0	-2
Total for H 2 — Add the points in the boxes above	1

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

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

H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: — points = 2 [x] It has 3 or more Priority Habitats within 100 m (see next page) [ ] It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) [ ] It is mapped as a location for an individual WDFW Priority Species [ ] It is a Wetland of High Conservation Value as determined by the Department of Natural Resources data [ ] It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 Priority Habitats (listed on next page) within 100 m — points = 1 Site does not meet any of the criteria above — points = 0	2

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

Wetland name or number B

WDFW Priority Habitats

See complete descriptions of Priority Habitats listed by WDFW, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008 (current year, as revised). Priority Habitat and Species List.[133] This list was updated for consistency with guidance from WDFW.

This question is independent of the land use between the wetland unit and the Priority Habitat. All vegetated wetlands are by definition a Priority Habitat but are not included in this list because they are addressed by this rating system.

Count how many of the following Priority Habitats are within 330 ft (100 m) of the wetland unit:

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

— **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife. This habitat automatically counts if mapped on the PHS online map within 100m of the wetland. If not mapped, a determination can be made in the field.

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

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

— **Fresh Deepwater:** Lands permanently flooded with freshwater, including environments where surface water is permanent and often deep, so that water, rather than air, is the principal medium within which the dominant organisms live. Substrate does not support emergent vegetation. Do not select if Instream habitat is also present, or if the entire Deepwater feature is included in the wetland unit being rated (such as a pond with a vegetated fringe).

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

x **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. Do not select if Fresh Deepwater habitat is also present.

— **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore.

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

[133] http://wdfw.wa.gov/publications/00165/wdfw00165.pdf

Wetland name or number _____B

___ **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important. For single oaks or oak stands <0.4 ha in urban areas, WDFW's Management Recommendations for Oregon White Oak[134] provides more detail for determining if they are Priority Habitats

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

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

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

___ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie.

[134] https://wdfw.wa.gov/publications/00030/wdfw00030.pdf

Wetland name or number _B

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt Yes – Go to **SC 1.1** (No= **Not an estuarine wetland**)	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? Yes = **Category I** (No) – Go to **SC 1.2**	**Cat. I**
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 10% cover of non-native plant species. If non-native species are *Spartina*, see chapter 4.8 in the manual. — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = **Category I** (No) = **Category II**	**Cat. I** **Cat. II**
SC 2.0. Wetlands of High Conservation Value (WHCV) 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?[135] Yes = **Category I** (No – Go to **SC 2.2**) SC 2.2. Does the wetland have a rare plant species, rare ecosystem (e.g., plant community), or high-quality common ecosystem that may qualify the site as a WHCV? Contact WNHP for resources to help determine the presence of these elements. Yes – Submit data to WA Natural Heritage Program for determination,[136] Go to **SC 2.3** (No = **Not a WHCV**) SC 2.3. Did WNHP review the site within 30 days and determine that it has a rare plant or ecosystem that meets their criteria? Yes = **Category I** (No = **Not a WHCV**)	**Cat. I**
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES, you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in. or more of the first 32 in. of the soil profile? Yes – Go to **SC 3.3** (No – Go to **SC 3.2**) SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in. deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes – Go to **SC 3.3** (No = **Not a bog**) SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? Yes = **Category I bog** (No) – Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in. deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? Yes = **Category I bog** (No = **Not a bog**)	**Cat. I**

[135] https://www.dnr.wa.gov/NHPdata

[136] https://www.dnr.wa.gov/Publications/amp_nh_sighting_form.pdf

Wetland name or number B

SC 4.0. Forested Wetlands

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

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

Yes = **Category I** | No = **Not a forested wetland for this section** → **Cat. I**

SC 5.0. Wetlands in Coastal Lagoons

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

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

Yes – Go to **SC 5.1** | No = **Not a wetland in a coastal lagoon** → **Cat. I**

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

- The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species in H 1.5 in the manual).
- At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.
- The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

Yes = **Category I** | No = **Category II** → **Cat. II**

SC 6.0. Interdunal Wetlands

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

In practical terms that means the following geographic areas:

- Long Beach Peninsula: Lands west of SR 103
- Grayland-Westport: Lands west of SR 105
- Ocean Shores-Copalis: Lands west of SR 115 and SR 109 and Ocean Shores Blvd SW, including lands west of E. Oceans Shores Blvd SW.

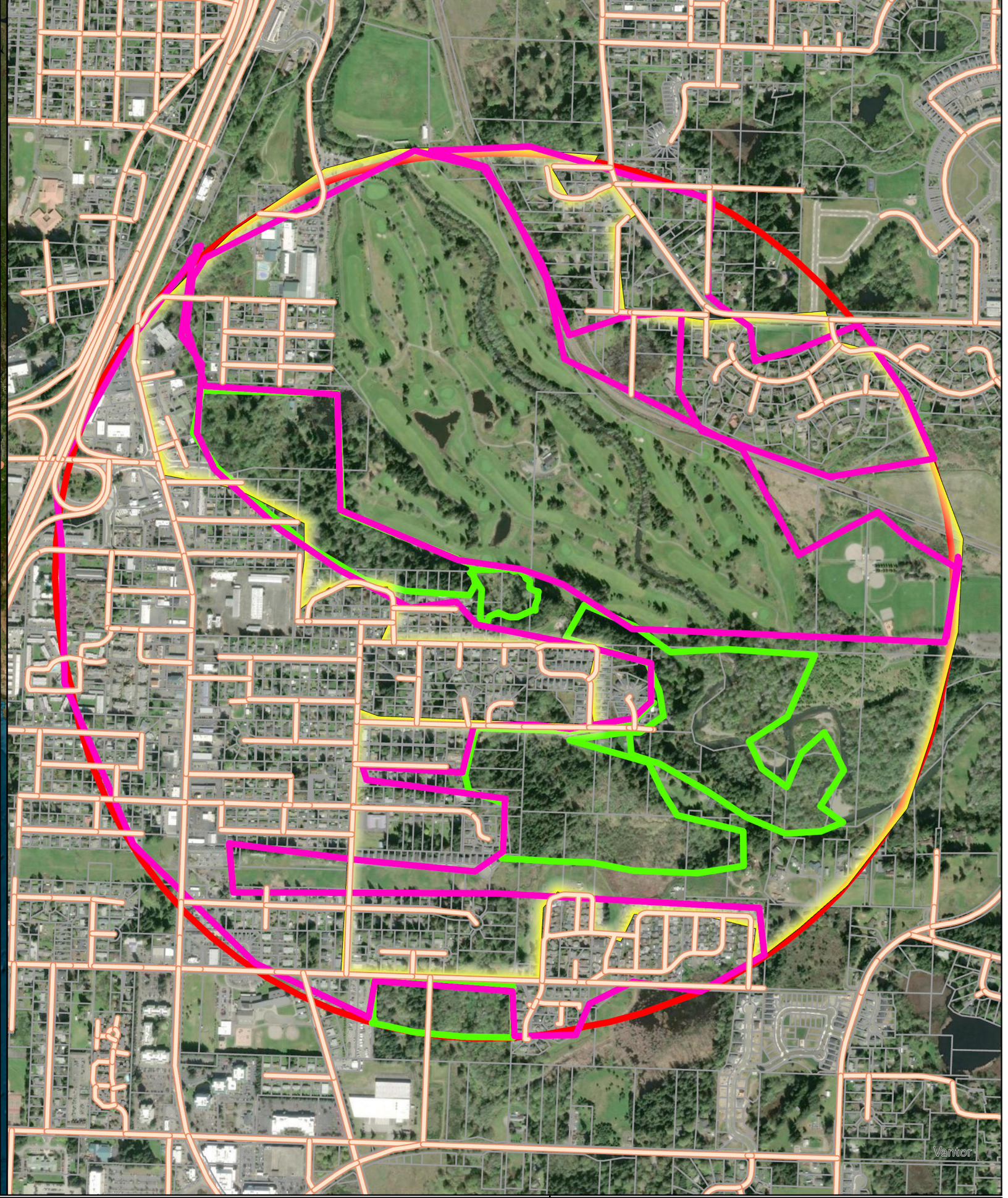
Yes – Go to **SC 6.1** | No = **Not an interdunal wetland for rating** → **Cat I**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? Yes = **Category I** | No – Go to **SC 6.2** → **Cat. II**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? Yes = **Category II** | No – Go to **SC 6.3** → **Cat. III**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? Yes = **Category III** | No = **Category IV** → **Cat. IV**

Category of wetland based on Special Characteristics
If you answered No for all types, enter "Not Applicable" on Summary Form → NA



Land Services Northwest
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Olympia, WA 98501

N

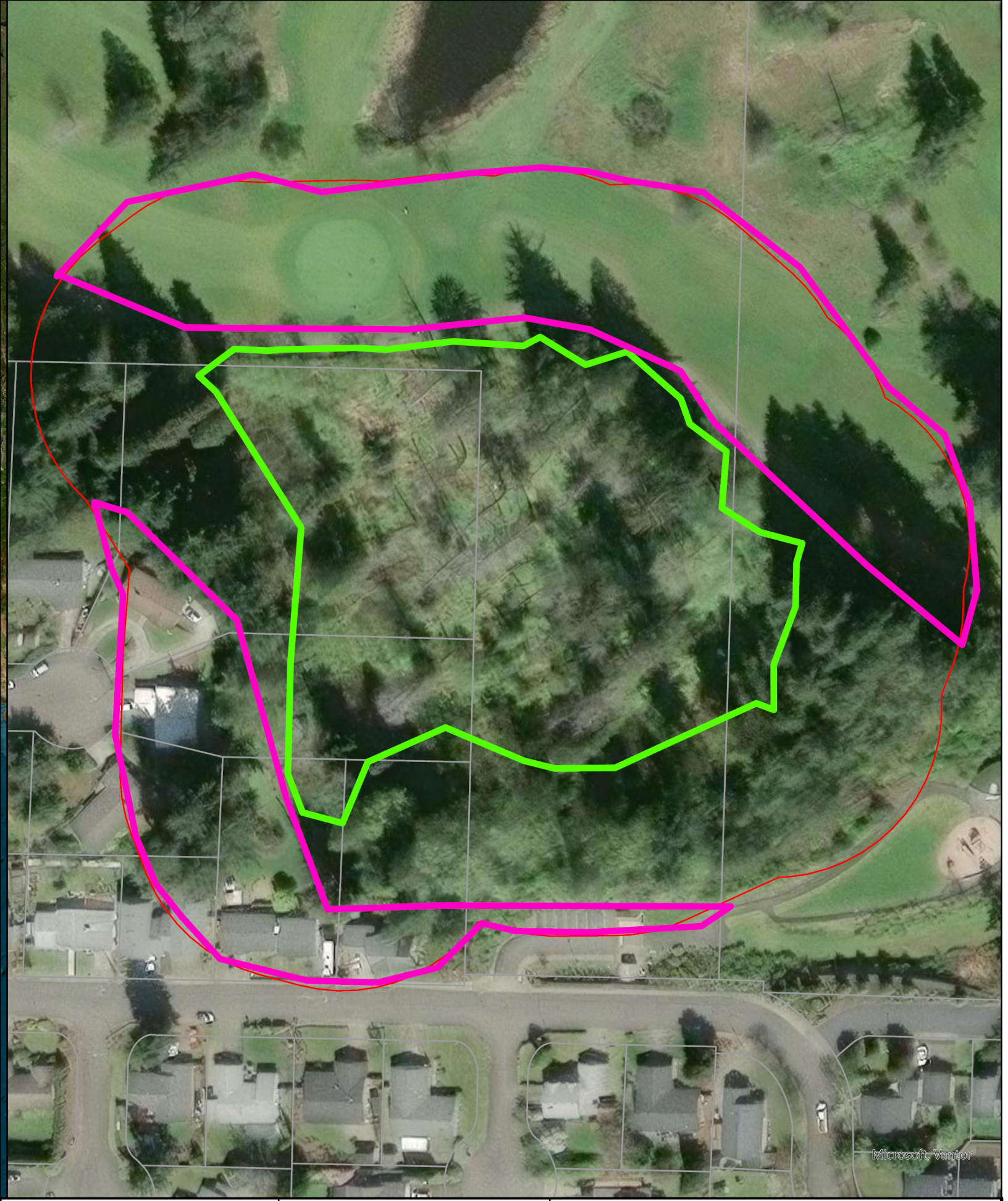
LSNW

Wetland C
1 KM Land Use Map

0 927,083.45 1,854,166.79 3,708,333.58 Feet

Land Use Calculations

	ACRES		%
1KM	1328.4926		
Wetland C	3.52		
1KM-Wetland C	1324.9726		100
High Intensity	626	0.472463	47.24626
Relatively Undisturbed	118.385258	0.089349	8.934921
Low Medium Use	580.587342	0.438188	43.81882
Accessible Habitat	623.468567	0.469305	
Wetland C	3.52		
Accessible Habitat-Wet C	619.948567	0.467895	
RU	0	0	0
Low/Medium LU	312.948567	0.236806	23.68064
High Intensity	307	0.231089	23.1089



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N
LSNW

Wetland C
1 KM Land Use Map

0 927,083.42 1,854,166.79 3,708,333.58 Feet

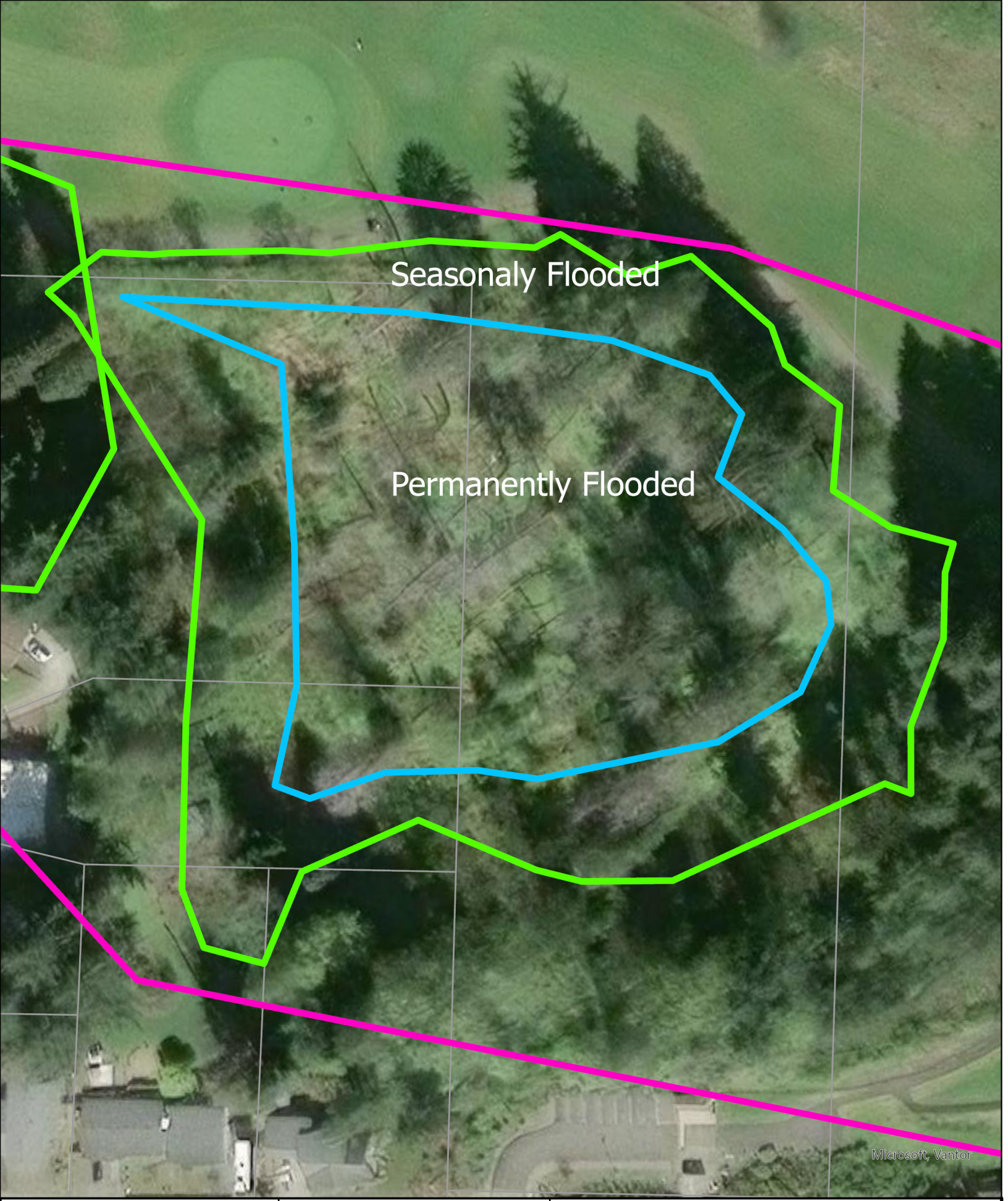


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LSNW

Wetland C
Cowardin Classification Map

0 25 50 100 Feet



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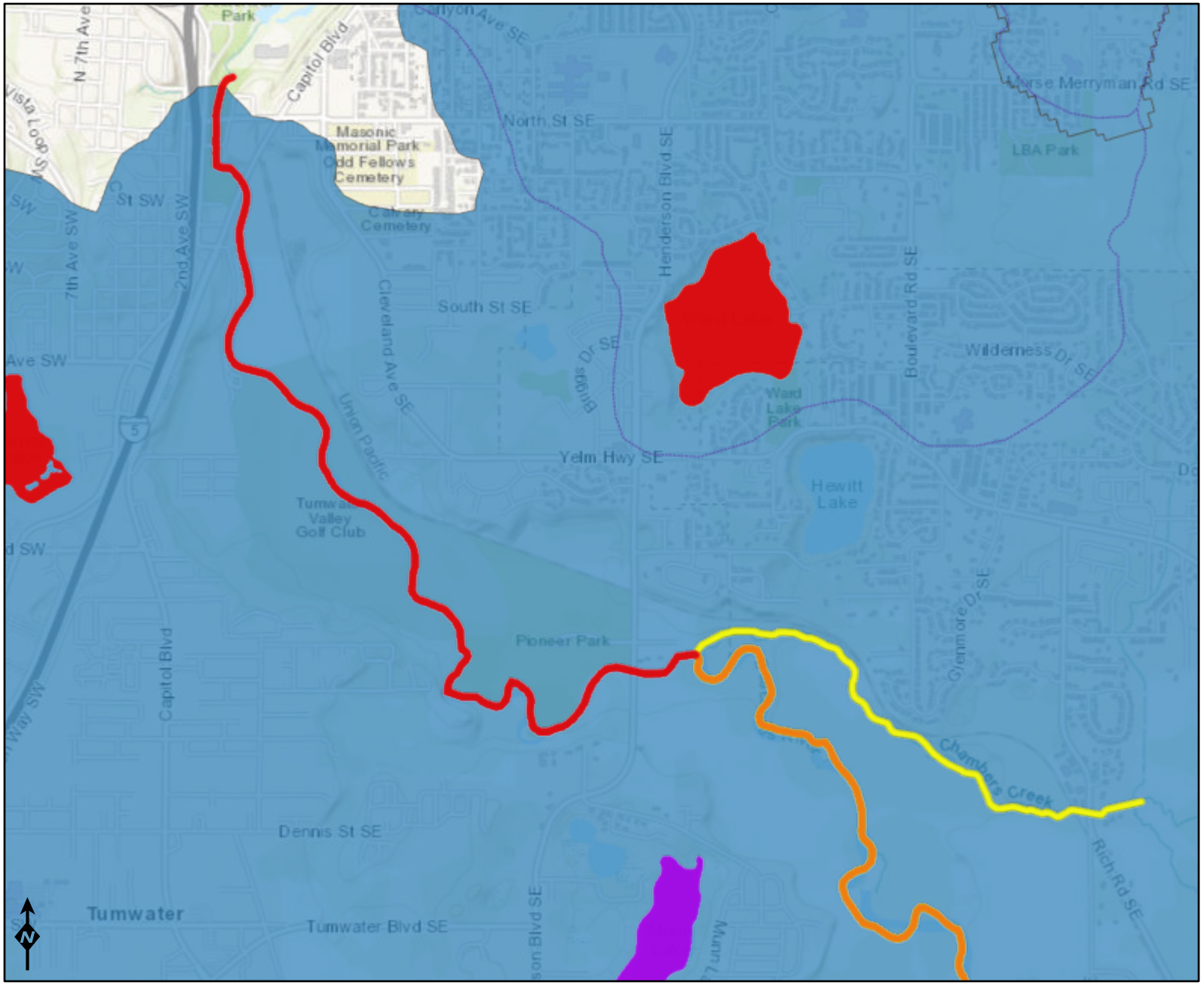
LSNW

Wetland C
Hydroperiod Classification
Map

0 25 50 100 Feet

March 6, 2026

303d and TMDL



City of Olympia, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS

Assessed Water/Sediment

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

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

WQ Improvement Projects
- TMDL - Approved
- 4B - Approved
- STI - Approved
- ARP - Approved
- TMDL - In Development
- STI - In Development
- ARP - In Development

Parcels
- Parcel boundary

Subbasins (12 digit HUCs)
- HUC boundary

Wetland name or number Wetland C

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland C Date of site visit: 2/23/26

Rated by Alexander Callender Trained by Ecology? X Yes ___ No Date of training 12/2013

HGM Class used for rating Depressional Wetland has multiple HGM classes? ___ Y x N

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

Source of base aerial photo/map ESRI 2024

OVERALL WETLAND CATEGORY II (based on functions x or special characteristics __)

1. Category of wetland based on FUNCTIONS

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

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

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

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

Site Potential	(H)	M	L	H	(M)	L	H	(M)	L	
Landscape Potential	H	(M)	L	H	(M)	L	H	(M)	L	
Value	(H)	M	L	(H)	M	L	H	(M)	L	**TOTAL**
	8			7			6			21

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	**I II**
Wetland of High Conservation Value	**I**
Bog	**I**
Mature Forest	**I**
Old Growth Forest	**I**
Coastal Lagoon	**I II**
Interdunal	**I II III IV**
None of the above	N/A

Wetland name or number C

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

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

Riverine Wetlands

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

Lake Fringe Wetlands

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

Slope Wetlands

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

Wetland name or number C

HGM Classification of Wetlands in Western Washington

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

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

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

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

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

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

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

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

3. Does the entire wetland unit **meet all** of the following criteria?
   ___The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size,
   ___At least 30% of the open water area is deeper than 6.6 ft (2 m).

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

4. Does the entire wetland unit **meet all** of the following criteria?
   ____The wetland is on a slope (slope can be very gradual),
   ____The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheet flow, or in a swale without distinct banks,
   ____The water leaves the wetland **without being impounded**.

   NO – go to 5 **YES –** The wetland class is **Slope**

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

Wetland name or number C

5. Does the entire wetland unit **meet all** of the following criteria?
   ____The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ____The overbank flooding occurs at least once every 2 years.

   NO – go to 6 **YES** – The wetland class is **Riverine**
   NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

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

   NO – go to 7 **YES** – The wetland class is **Depressional**

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

   NO – go to 8 **YES** – The wetland class is **Depressional**

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

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

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

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

Wetland name or number C

DEPRESSIONAL AND FLATS WETLANDS

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

D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	3
D 1.2. The soil 2 in. below the surface (or duff layer) is true clay or true organic *(use NRCS definitions).* Yes = 4 No = 0	4
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed plants > 95% of area points = 5 Wetland has persistent, ungrazed plants > ½ of area points = 3 Wetland has persistent, ungrazed plants ≥ 1/10 of area points = 1 Wetland has persistent, ungrazed plants < 1/10 of area points = 0	5
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is ≥ ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0	2
Total for D 1 Add the points in the boxes above	14

Rating of Site Potential If score is: **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. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0	0
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? Source_____ Yes = 1 No = 0	0
Total for D 2 Add the points in the boxes above	1

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

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

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

Wetland name or number C

DEPRESSIONAL AND FLATS WETLANDS

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

D 4.0. Does the site have the potential to reduce flooding and erosion?

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

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

D 5.0. Does the landscape have the potential to support hydrologic functions of the site?

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

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

D 6.0. Are the hydrologic functions provided by the site valuable to society?

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

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

Wetland name or number C

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

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

If the unit has a Forested class, check if:

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

2

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland if the unit is < 2.5 ac, or ¼ ac if the unit is at least 2.5 ac to count (see text for descriptions of hydroperiods).

x	Permanently flooded or inundated	4 or more types present: points = 3
x	Seasonally flooded or inundated	3 types present: points = 2
___	Occasionally flooded or inundated	2 types present: points = 1
x	Saturated only	1 type present: points = 0
___	Permanently flowing stream or river in, or adjacent to, the wetland	
___	Intermittently or seasonally flowing stream in, or adjacent to, the wetland	
___	**Lake Fringe wetland**	**2 points**
___	**Freshwater tidal wetland**	**2 points**

2

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

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

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

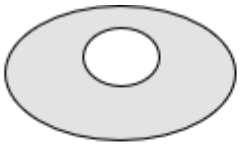
1

H 1.4. Interspersion of habitats

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



None = 0 points



Low = 1 point



Moderate = 2 points

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



2

Wetland name or number C

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. The number of checks is the number of points. [x] Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft long). [x] Standing snags (dbh > 4 in.) within the wetland [ ] Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extend at least 3.3 ft (1 m) over open water or a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) [ ] Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet weathered where wood is exposed) [x] At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (structures for egg-laying by amphibians) [ ] Invasive plants cover less than 25% of the wetland area in every stratum of plants (see H 1.1 above for the list of strata and H 1.5 in the manual for the list of aggressive plant species)	3
Total for H 1 — Add the points in the boxes above	10

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

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

H 2.1. Accessible habitat (include only habitat polygons accessible from the wetland. *Calculate:* % relatively undisturbed habitat 9 **+** [(% moderate and low intensity land uses)/2] 22 **=** 31 % Total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon — points = 3 20-33% of 1 km Polygon — points = 2 10-19% of 1 km Polygon — points = 1 < 10% of 1 km Polygon — points = 0	2
H 2.2. Total habitat in 1 km Polygon around the wetland. *Calculate:* % relatively undisturbed habitat 011 **+** [(% moderate and low intensity land uses)/2] 12 **=** 12 % Total habitat > 50% of Polygon — points = 3 Total habitat 10-50% and in 1-3 patches — points = 2 Total habitat 10-50% and > 3 patches — points = 1 Total habitat < 10% of 1 km Polygon — points = 0	1
H 2.3. Land use intensity in 1 km Polygon: > 50% of 1 km Polygon is high intensity land use — points = (- 2) ≤ 50% of 1 km Polygon is high intensity — points = 0	-2
Total for H 2 — Add the points in the boxes above	1

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

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

H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: — points = 2 [ ] It has 3 or more Priority Habitats within 100 m (see next page) [ ] It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) [ ] It is mapped as a location for an individual WDFW Priority Species [ ] It is a Wetland of High Conservation Value as determined by the Department of Natural Resources data [ ] It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 Priority Habitats (listed on next page) within 100 m — points = 1 Site does not meet any of the criteria above — points = 0	1

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

Wetland name or number C

WDFW Priority Habitats

See complete descriptions of Priority Habitats listed by WDFW, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008 (current year, as revised). Priority Habitat and Species List.[133] This list was updated for consistency with guidance from WDFW.

This question is independent of the land use between the wetland unit and the Priority Habitat. All vegetated wetlands are by definition a Priority Habitat but are not included in this list because they are addressed by this rating system.

Count how many of the following Priority Habitats are within 330 ft (100 m) of the wetland unit:

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

— **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife. This habitat automatically counts if mapped on the PHS online map within 100m of the wetland. If not mapped, a determination can be made in the field.

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

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

— **Fresh Deepwater:** Lands permanently flooded with freshwater, including environments where surface water is permanent and often deep, so that water, rather than air, is the principal medium within which the dominant organisms live. Substrate does not support emergent vegetation. Do not select if Instream habitat is also present, or if the entire Deepwater feature is included in the wetland unit being rated (such as a pond with a vegetated fringe).

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

— **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. Do not select if Fresh Deepwater habitat is also present.

— **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore.

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

[133] http://wdfw.wa.gov/publications/00165/wdfw00165.pdf

Wetland name or number C

— **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important. For single oaks or oak stands <0.4 ha in urban areas, WDFW's Management Recommendations for Oregon White Oak[134] provides more detail for determining if they are Priority Habitats

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

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

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

— **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie.

[134] https://wdfw.wa.gov/publications/00030/wdfw00030.pdf

Wetland name or number C

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt Yes **–** Go to **SC 1.1** (No)= **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? Yes = **Category I** (No) – Go to **SC 1.2**	**Cat. I**
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 10% cover of non-native plant species. If non-native species are *Spartina*, see chapter 4.8 in the manual. — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = **Category I** (No) = **Category II**	**Cat. I** **Cat. II**
SC 2.0. Wetlands of High Conservation Value (WHCV) 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?[135] Yes **=** **Category I** (No) – Go to **SC 2.2** SC 2.2. Does the wetland have a rare plant species, rare ecosystem (e.g., plant community), or high-quality common ecosystem that may qualify the site as a WHCV? Contact WNHP for resources to help determine the presence of these elements. Yes – Submit data to WA Natural Heritage Program for determination,[136] Go to **SC 2.3** (No) **= Not a WHCV** SC 2.3. Did WNHP review the site within 30 days and determine that it has a rare plant or ecosystem that meets their criteria? Yes **=** **Category I** (No)**= Not a WHCV**	**Cat. I**
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES, you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in. or more of the first 32 in. of the soil profile? Yes – Go to **SC 3.3** (No) – Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in. deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes – Go to **SC 3.3** (No)= **Not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? Yes = **Category I bog** (No) – Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in. deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? Yes = **Category I bog** (No) **= Not a bog**	**Cat. I**

[135] https://www.dnr.wa.gov/NHPdata

[136] https://www.dnr.wa.gov/Publications/amp_nh_sighting_form.pdf

Wetland name or number C

SC 4.0. Forested Wetlands Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as Priority Habitats? ***If you answer YES, you will still need to rate the wetland based on its functions.*** — **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in. (81 cm) or more. — **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in. (53 cm). Yes = **Category I** (No) = **Not a forested wetland for this section**	**Cat. I**
SC 5.0. Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* — The lagoon retains some of its surface water at low tide during spring tides Yes – Go to **SC 5.1** (NO) = **Not a wetland in a coastal lagoon** SC 5.1. Does the wetland meet all of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species in H 1.5 in the manual). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2) Yes = **Category I** (No) = **Category II**	**Cat. I** **Cat. II**
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer YES, you will still need to rate the wetland based on its habitat functions.*** In practical terms that means the following geographic areas: — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 and Ocean Shores Blvd SW, including lands west of E. Oceans Shores Blvd SW. Yes – Go to **SC 6.1** (No) = **Not an interdunal wetland for rating** SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? Yes = **Category I** (NO) – Go to **SC 6.2** SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? Yes = **Category II** (No) – Go to **SC 6.3** SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? Yes = **Category III** (No) = **Category IV**	**Cat I** **Cat. II** **Cat. III** **Cat. IV**
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	N/A

Appendix M – WETLAND BUFFER IMPACTS DESCHUTES VALLEY TRAIL – (SEGMENT C)



N

0 150 300

SCALE IN FEET

LEGEND

- EDGE OF PAVEMENT
- GRAVEL SHOULDER
- EDGE OF FAIRWAY
- SHEET FLOW
- STREAM
- WL — WETLAND DELINEATION
- WLB — WETLAND BUFFER
- LIMIT OF MAINTAINED AREAS
- EX CART PATH (WETLAND BUFFER WEST OF PATH)
- REHABILITATED IMPACT AREAS
- ENHANCED IMPACT AREAS

SUMMARY OF WETLAND BUFFER IMPACT AREAS

	WETALND REHABILITATION AREAS	WETLAND ENHANCEMENT AREA
WETLAND A	10,661 SF	8,238 SF
WETLAND B	3,603 SF	6,631 SF
WETLAND C	2,836 SF	1,675 SF

GENERAL NOTE:

WETLAND INFORMATION SHOWN IS FROM THE WETLAND AND STREAM DELINEATION COMPLETED BY LAND SERVICES NORTHWEST. WETLAND RECONNAISSANCE PERFORMED 2/18/2026.

CITY OF TUMWATER DETERMINED THAT WETLAND BUFFER IMPACTS ARE FOR ANY IMPROVEMENTS MADE TO THE WEST OF THE EXISTING CART PATH.

THE LIMIT OF THE MAINTAINED AREAS WEST OF THE GOLF COURSE ARE BUILT OFF AERIAL IMAGERY AND ARE APPROXIMATE.

SCJ ALLIANCE
CONSULTING SERVICES
8730 TALLON LANE NE, SUITE 200, LACEY, WA 98516
P: 360.352.1465
SCJALLIANCE.COM

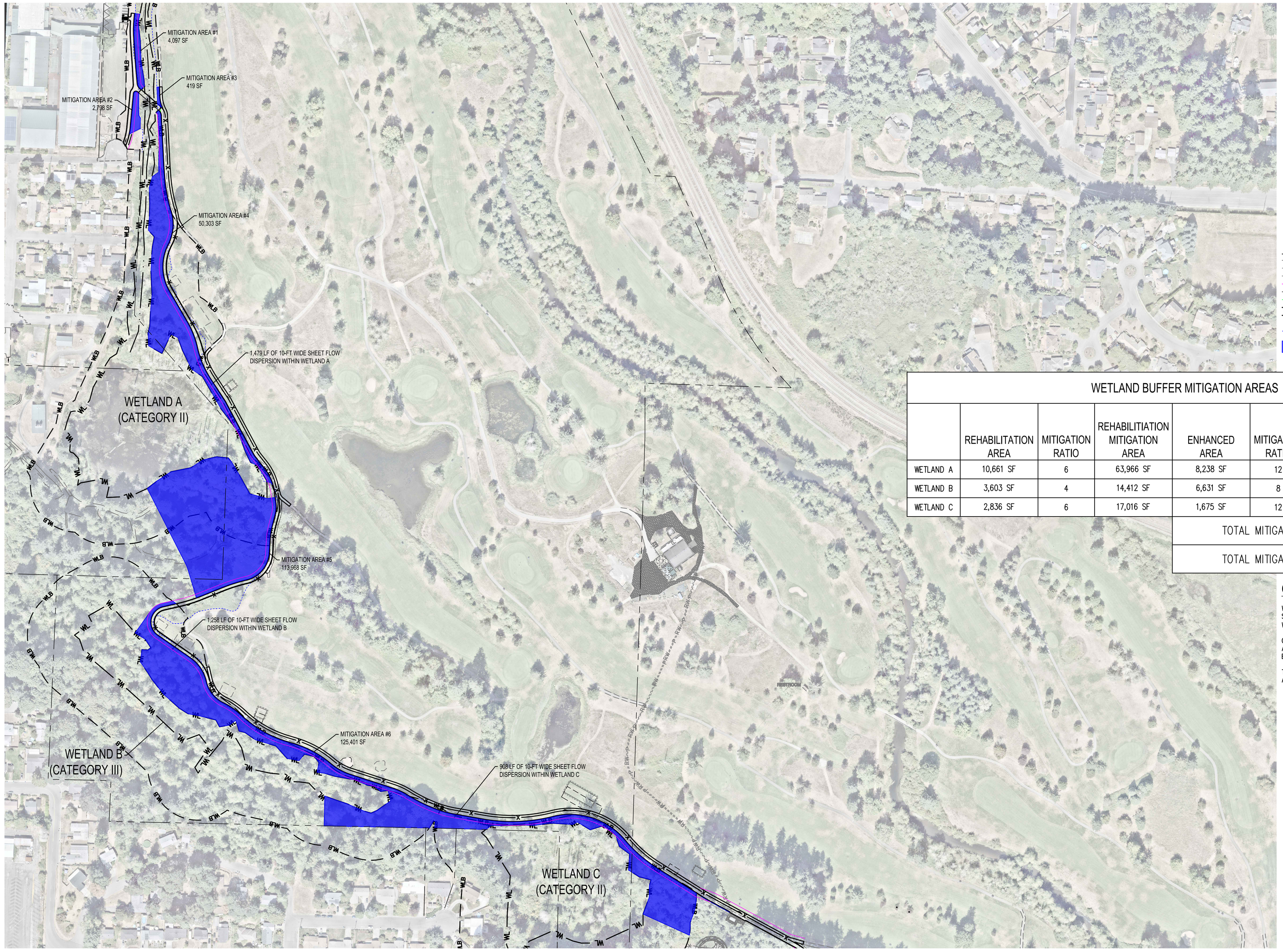
HORIZONTAL SCALE: AS SHOWN
DATE: MAY 2026
JOB No.: SCJ #25-000313
DRAWING FILE No.: -

WETLAND BUFFER IMPACTS
DESCHUTES VALLEY TRAIL - SEGMENT C

EXHIBIT No: **EX-02**
SHEET No: **02**

May 20, 2026 8:04:26am - User rikki.martinez
N:\PROJECTS\0625 CITY OF TUMWATER\25-000313 TUMWATER DESCHUTES VALLEY TRAIL\CADD\EXHIBITS\SEG C WETLANDS_25-000313-WETLAND_EXHIBIT.DWG

Appendix N – WETLAND BUFFER IMPACTS MITIGATION AREAS DESCHUTES VALLEY TRAIL – (SEGMENT C)



WETLAND BUFFER MITIGATION AREAS

	REHABILITATION AREA	MITIGATION RATIO	REHABILITIATION MITIGATION AREA	ENHANCED AREA	MITIGATION RATIO	ENHANCED MITIGATION AREA	REQUIRED MITIGATION PER TMC TABLE 16.28.220(6)
WETLAND A	10,661 SF	6	63,966 SF	8,238 SF	12	98,856 SF	162,822 SF
WETLAND B	3,603 SF	4	14,412 SF	6,631 SF	8	53,048 SF	67,460 SF
WETLAND C	2,836 SF	6	17,016 SF	1,675 SF	12	20,100 SF	37,116 SF
					TOTAL MITIGATION AREA REQUIRED		267,398 SF
					TOTAL MITIGATION AREA PROVIDED		296,986 SF

GENERAL NOTE:

WETLAND INFORMATION SHOWN IS FROM THE WETLAND AND STREAM DELINEATION COMPLETED BY LAND SERVICES NORTHWEST. WETLAND RECONNAISSANCE PERFORMED 2/18/2026.

CITY OF TUMWATER DETERMINED THAT WETLAND BUFFER IMPACTS ARE FOR ANY IMPROVEMENTS MADE TO THE WEST OF THE EXISTING CART PATH.

THE LIMIT OF THE MAINTAINED AREAS WEST OF THE GOLF COURSE ARE BUILT OFF AERIAL IMAGERY AND ARE APPROXIMATE.

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HORIZONTAL SCALE: AS SHOWN
DATE: MAY 2026
JOB No.: SCJ #25-000313
DRAWING FILE No.: -

WETLAND MITIGATION AREA
DESCHUTES VALLEY TRAIL - SEGMENT C

EXHIBIT No: **EX-02**
SHEET No: **02**

May 26, 2026 3:02:04pm – User: nikki.martinez
N:\PROJECTS\0625 CITY OF TUMWATER\25-000313 TUMWATER DESCHUTES VALLEY TRAIL\CADD\EXHIBITS\SEG C WETLANDS_25-000313-WETLAND_EXHIBIT_RESTORATION.DWG

Appendix O - Invasive Species Removal Recommendations



Photo: WA STATE NOXIOUS WEED BOARD

Himalayan and Cutleaf Blackberry Control Methods

Himalayan blackberry (Rubus aremeniacus and Cutleaf blackberry Rubus laciniatus are two very common noxious weeds. They are particularly persistent due to the large root crown that stores the plant's energy.

Typically, blackberries like sunny disturbed areas and grow right up to the edge of wetlands, ponds and streams outcompeting beneficial native plants that have better root systems for preventing erosion and shading functions.

The vectors are typically birds and other animals that spread the seeds to other areas so the plant seemingly spreads to other areas overnight.

Control

Cutting the canes can from the top is one method of weakening this large root system, but it takes persistence 3-5 years and is not the most effective method, unless one is in an

open field that is infested. Typically, nativ*e species interwoven in the area of infestation and care must be taken to prevent removing existing beneficial vegetation*. The dried canes are effective at preventing other species from establishing, and if they can be removed that it best.

Machetes, Claw mattocks, Hedge trimmers, and Line trimmers with metal blades are effective tools for cutting the canes down to the root crown and digging the remaining roots.

If revisiting the site is not optimum, it is recommended that one removes the root crown. This is the most effective method of removal, and it is also the most labor intensive. Mcleods, picks, shovels and weed wrenches are the most effective tools for this method of removal. Once the root crown is removed, it is important to restabilize the area by grading flat and recompacting the area that was disturbed. Best management practices require replanting the area with native species to outcompete any remaining unsprouted seeds that may occupy the newly disturbed area. Salmonberry and native roses like Nootka rose or Clustered rose can be a good replacement as they favor similar habitat.

Chemical removal

Chemical removal is effective but has its own issues as blackberry removal products typically will kill non-target woody species and require safety procedures be followed to prevent accidental exposure. Also work near aquatic systems makes it a sub-optimal.

Popular herbicides are Trichlorpyr, imazapyr, or glyphosate.

It is recommended that if herbicides are applied for blackberries, that they be applied in the late summer, and fall as the root systems are bringing nutrients back into the roots for the winter. During the spring and early summer, the plant is pushing nutrients to grow and fruit in the spring and early summer. The herbicides may impact the leaves, but they typically resprout quickly leaving the plant mostly unharmed.

Targeted application to the root crown after removal of the upper part of the plant is the most effective application method. Care should be taken to apply the herbicide at a time where the product can breakdown before the winter rains wash the product into nearby aquatic systems. In Western Washington that would be late July. so it has approximately 3 - 4 months to breakdown.



Photo: WA STATE NOXIOUS WEED BOARD

Reed Canarygrass Removal

Reed canarygrass is another *persistent invasive species. It is rated as a Class III noxious weed which means it is widespread enough that landowners are not required to control it, but for the park, the native species enhancement plan will not work with it growing in the areas we would like to exhibit native species for the park therefore, we are recommending treatment of this weed before undertaking planting of trees shrubs and herbs.*

This grass is highly ryzomatous and crowds and chokes out all but the most aggressive native species. It typically creates a thick monoculture and outcompetes through shading and chocking out native species. It is tall and grows vigorously in the spring and can get several feet tall. Mowing can knock it down to a point where the roots may not be as formidable. Then people have tried smothering with cardboard and other methods, but ultimately chemical treatment appears to be the most effective

The National Park Service has found that Imazapyr is the most effective herbicide to treat large infestations.

The NRCS has the following recommendations:

Herbicide: broad spectrum (i.e. glyphosate, imazapyr)

Apply In late summer for maximum translocation to roots •

As an initial herbicide treatment on monotypic stands of RCG • If RCG height precludes use of other herbicides • In early spring or late fall, when RCG is live, but other plants dormant •

On wet sites, with a surfactant approved for aquatic use •

On sites with desirable native plants actively growing

• Soon after mowing/burning • When amphibians are on site (unless using Rodeo + a surfactant approved for aquatic use, as Roundup formulation can have negative effects on amphibians) •

Should be part of a continued control strategy, where natives are later introduced • Multiple treatments may be necessary • May need a permit for application on wetlands

• Rhizome translocation less effective if temperature >70°F

• Other treatments may influence herbicide effectiveness • Add ammonium sulfate to tank mix if water is hard Herbicide: grass- specific (i.e. sethoxydim or fluazifop)

• Suppresses growth of most grasses •

Releases native plant community (except for grasses) • On sites with desirable, native, non-grass species • When active growth resumes aftermowing, when RCG is 6-12" tall

• Following other herbicide treatments to control residual or re-emerging RCG • For immediate eradication

• If standing water is present • On sites with desirable grasses • When RCG is >12" tall • Apply with surfactant/crop oil.

Appendix P– Maintenance and Monitoring Form

Mitigation Monitoring for Deschutes Valley Trail Project

A copy of this form should be made and used to record planting plan performance and document management actions and contingencies use to maintain a successful planting area. This form with pictures should be delivered to the City of Tumwater Planning/SEPA Official upon completion of the monitoring and after follow up with the management actions.

Deschutes Valley Trail has a mitigation areas that were designed to maintain wetland functions and values and restore wetland buffer functions as outlined in the report.

During the construction of the trail wetland buffers were reduced to allow trail expansion. These impacts were mitigated using six different planting areas.

Enhancement areas were designed to reduce invasive species using mechanical and other means and planting native plants in the areas between the wetland and the trail to increase the density and shade out aggressive noxious weeds like scotchbroom and blackberries. These weeds crowd out natives and make a monoculture of their own that severely reduces habitat.

Guidance from the joint agency document "Wetland Mitigation in Washington State Parts 1 and 2 is accepted as mitigation BAS (ECY, 2023) and requires a 1:1 enhancement mitigation to maintain no net loss of wetland ecological functions for buffer functions, however, we have provided mitigation with ratios from ECY Guidance that meet BAS at nearly 12:1 enhancement mitigation to invasive species and buffer impacts for Category II wetlands and 8:1 for Category III wetland buffer impacts.

In addition to the enhancement areas, other areas that had very little native plants and were typically managed as grassy potions of the golf course or adjacent rough with invasive weeds. These areas were rehabilitated these areas by removing invasive species and replanting native species after removal of the invasive species. These ratios were

In order to insure the success of the plantings and maintain a mitigation area free of invasive species it was determined that the mitigation should be monitored for 10 years and maintained using performance standards to evaluate the success of the mitigation found in the Deschutes Valley Trail Wetland /Stream Delineation and Mitigation Plan. This monitoring will be performed in the fall with maintenance and management actions in the winter and a follow up in the spring.

Pretreatment

Mark off treatment areas (Areas to be Planted) and determine appropriate treatments (Imazapyr) at recommended application rates. Treat Reed canary grass at least 2 months before planting.

Invasive species will mowed or line trimmed f in the early summer before installation of the planting plan. Invasive species currently consists of Scotch broom (Cytisis.scoparius), Himalayan and evergreen blackberries (Rubus.armeniacus.and.Rubus.Lacianitus) and Reed canary grass (Phalaris.arundanacea) although we want to use the least invasive method, experience has shown that reed canary grass should be sprayed. The National Park Service has been very successful using imazapyr with Hasten EA. This should be conducted in the summer of 2026. Others have had success using mowing, spraying, and after a period of time (2 months) planting and sheet mulch in order to shade out remaining reed canary grass. Spray treatment may be done in early June for planting in the fall.

English holly (Ilex aquilfolium), One seeded Hawthorne (Crataegus.monogyna) should be girdle and leave in place or cut down and removed.

Himalayan blackberry (Rubus.armeniacus) and Evergreen blackberry (Rubus.lacianatus) Cut with trimmers equipped with metal blades dig up roots. Immediately plant with substitute natives plants in place.

The applicant will plant the mitigation and provide an as built map of the project. The project will be successful if the planting plan is installed as outlined in the report.

As built Year Zero

The following is the expected plant inventory to be installed.

Wetland A Enhancement Area (98,856 sq. ft.)

Common Name	Scientific Name	Size	Spacing	Quantity	Installed
Pacific willow	Salix.lassiandra	5 Gallon	15 ft. oc	100	
Sitka spuce	Picea.sitchensis	1 Gallon	15 ft. oc	200	
Western hemlock	Tsuga.heterophylla	1 Gallon	15 ft oc	139	
Nootka rose	ranunculus.occidentalis	1 Gallon	5 ft. oc	250	
Pacific ninebark	Physocarpus.capitatus	1 Gallon	8 ft oc	250	

Douglas hawthorne	Crataegus.douglasii	1 Gallon	8 ft. oc	250	
Osoberry	Oemleria.cerasiformis	1 Gallon	8 ft oc	106	
Slough sedge	Carex obnupta	1 Gallon	5 ft oc	250	
Total					

Wetland B Enhancement Area (53,048 sq. ft.)

Common Name	**Scientific Name**	**Size**	**Spacing**	**Quantity**	**Installed**
Western red cedar	Thuja.plicata	5 gal	15 ft oc	**50**	
Scoulers willow	Salix.scouleriana	1 gal	10 ft oc	50	
Oregon ash	Fraxinus.latifolia	5 gal	15 ft oc	136	
Twinberry	Lonicera.involucrata	1 Gallon	8 ft. oc	100	
Salmonberry	Rubus.spectabilis	1 Gallon	5 ft oc	100	
Scoulers willow	Salix.scouleri	1 Gallon	8 ft. oc	100	
Red osier dogwood	Cornus.sericea	1 Gallon	8 ft. oc	100	
Pacific rhododendron	Rhododendron. macrophyllum	1 Gallon	5 ft oc	100	
Red elderberry	Sambuca.racemosa	1 Gallon	8 ft oc	100	
Total					

Wetland C Enhancement Area (20,100 sq. ft.)

Common Name	Scientific Name	Size	Spacing	Quantity	Installed
Sitka spruce	Picea.sitchensis	1 Gallon	15 ft oc	49	
Western red cedar	Thuja.plicata	1 Gallon	15 ft oc	40	
Snowberry	Symphoricarpus. alba	1 Gallon	5 ft. oc	50	
Salmonberry	Rubus.spectabilis	1 Gallon	5 ft. oc	50	
Red elderberry	Sambuca. racemosa	1 Gallon	5 ft. oc	50	
Red flowering currant	Ribes. sanguineum	1 Gallon	8 ft. oc	50	
Oceanspray	Holodiscus. discolor	1 Gallon	8 ft. O.C.	25	
Total					

Wetland A – Rehabilitation (63,966 sq ft)

Common Name	Scientific Name	Size	Spacing	Quantity	Installed
Sitka spruce	Picea sitchensis	1 Gallon	15 ft oc	100	
Bitter cherry	Prunus emarginata	1 Gallon	15 ft oc	100	
Black cottonwood	Populus balsamifera	1 Gallon	15 ft oc	100	
Vine maple	Acer circinatum	1 Gallon	8 ft oc	1000	
Pacific crabapple	Malus.fusca	1 Gallon	5 ft. O.C.	100	
Salmonberry	Rubus.spectabilis	1 Gallon	5 ft. O.C.	200	
Red elderberry	Sambuca.racemosa	1 Gallon	5 ft. O.C.	116	
Mock orange	Philadelphus.lewisii	1 Gallon	8 ft. O.C.	100	
Oceanspray	Holodiscus.discolor	1 Gallon	8 ft. O.C.	100	
Total					

Wetland B – Rehabilitation Planting (14,412 sq ft)

Common Name	Scientific Name	Size	Spacing	Quantity	Installed
Western red cedar	Thuja plicata	1 Gallon	15 ft oc	40	
Sitka willow	Salix. sitchensis	1 Gallon	10 ft. oc	24	
Salmonberry	Rubus. spectabilis	1 Gallon	5 ft. oc	40	
Pacific crab	Malus fusca	1 Gallon	8 ft oc	40	

Blue elderberry	Sambuca. negra	1 Gallon	5 ft. oc	40	
Douglas hawthorne	Crataegus. douglasii	1 Gallon	8 ft. oc	20	
Oceanspray	Holodiscus. discolor	1 Gallon	8 ft. oc	20	
Total					

Wetland C – Rehabilitation Planting (17,016 sq ft)

Common Name	Scientific Name	Size	Spacing	Quantity	Installed
Western hemlock	Picea sitchensis	1 Gallon	15 ft oc	40	
Pacific willow	Salix lassiandra	1 Gallon	15 ft oc	20	
Vine maple	Acer macrophyllum	1 Gallon	15 ft oc	16	
Snowberry	Symphoricarpus.alba	1 Gallon	5 ft. O.C.	50	
Osoberry	Oemleria.cerasiformus	1 Gallon	5 ft. O.C.	50	
Red elderberry	Sambuca.racemosa	1 Gallon	5 ft. O.C.	40	
Mock orange	Philadelphus.lewisii	1 Gallon	8 ft. O.C.	25	
Oceanspray	Holodiscus.discolor	1 Gallon	8 ft. O.C.	25	
Total					

APPLICATION OF IMMAZAPYR_____

1MONTH SPRAY OF REED CANARY GRASS SUCCESSFUL

2 MONTH SPRAY OF REED CANARY GRASS SUCCESSFUL

NOTES AND RECOMMENDATIONS

_____

_____

Plant Installation Substitutions/ Replacements

_____

_____

_____

Irrigation Installed_____ Irrigation Frequency_____

Mulch Installed_____

After Planting of the indicated species, Photo points will be established in each of the Mitigation Areas in order to provide a baseline condition for the planting plan and document onsite conditions at the time of the as-built. Five photo points will be taken in four cardinal directions and a stake will be installed to allow for easy establishment of photo points in the monitoring reports for each monitoring year.

Photo Points with rebar for each Mitigation Area

Enhancement Mitigation Wetland A

1. Lat Long

2. Lat Long

3. Lat Lon

4. Lat Long

Enhancement Mitigation Wetland B

1. Lat Long

2. Lat Long

3. Lat Lon

4. Lat Long

Enhancement Mitigation Wetland C

1. Lat Long

2. Lat Long

3. Lat Lon

4. Lat Long

Rehabilitation Wetland A

1. Lat Long

2. Lat Long

3. Lat Lon

4. Lat Long

5. Lat Long

Rehabilitation Wetland B

1. Lat Long

2. Lat Long

3. Lat Lon

4. Lat Long

5. Lat Long

Rehabilitation Wetland C

1. Lat Long

2. Lat Long

3. Lat Lon

4. Lat Long

5. Lat Long

The plantings will be installed after the invasive species treatment in the spring summer in the fall of 2026 or in the fall of the year in which the invasive species treatment is conducted.

Percent cover of invasive species in Planting Area and Recommendations

_____

_____

_____

Additional Recommendations

Performance Standards

The performance standards are as follows:

Year 0 - an inventory of plants and photo points will be established for monitoring during the monitoring period within 1 month of the installation. Year 1-2 will have 100% survival of installed plants. Noxious weeds will be less than 10% aerial coverage.

Volunteer trees or shrubs may account for up to 10% of the overall count of surviving plants. Dead plants will be replaced in kind unless a volunteer is a replacement.

Year 2 -10 will have a survival rate of 80 % of the original count. Volunteers can account for 10% of the total, if present. Noxious weeds such as Himalayan blackberry, Scotch broom, reed canary grass, and other invasives will not have more than 10% aerial coverage of the planting area.

Japanese knotweed, yellow flag iris, and hogweed will have a zero percent tolerance and will be removed or sprayed using an appropriate herbicide approved for aquatic use by a licensed applicator.

The aerial coverage will be 50% by Year 5, 70% by Year 7, and 80% by Year 10. If these coverage measures are not met and it does not appear that they will meet performance standards because of **neglect**, more plants may required to be planted to make up the difference.

If the area meets the Year 10 survival and aerial coverage performance measures in Year 5, the applicant can be given approval to end monitoring.

Failure to meet standards by Year 10 will require an additional year of monitoring with contingencies to meet goals worked out with the city authority.

Year _____Monitoring Report Fill Out for Years 1, 2, 3, 5, 7, 9, 10

Wetland A Enhancement Area (98,856 sq. ft.)

Common Name	Scientific Name	Size	Spacing	Quantity	Replace
Pacific willow	*Salix lassiandra*	5 Gallon	15 ft. oc	100	
Sitka spuce	*Picea sitchensis*	1 Gallon	15 ft. oc	200	
Western hemlock	*Tsuga heterophylla*	1 Gallon	15 ft oc	139	
Nootka rose	*ranunculus occidentalis*	1 Gallon	5 ft. oc	250	
Pacific ninebark	*Physocarpus capitatus*	1 Gallon	8 ft oc	250	
Douglas hawthorne	*Crataegus douglasii*	1 Gallon	8 ft. oc	250	
Osoberry	*Oemleria cerasiformis*	1 Gallon	8 ft oc	106	
Slough sedge	Carex obnupta	1 Gallon	5 ft oc	250	
Total					

Wetland B Enhancement Area (53,048 sq. ft.)

Common Name	Scientific Name	Size	Spacing	Quantity	Replaced
Western red cedar	Thuja.plicata	5 gal	15 ft oc	**100**	
Oregon ash	Fraxinus.latifolia	5 gal	15 ft oc	**50**	
Twinberry	Lonicera.involucrata	1 Gallon	8 ft. oc	100	
Salmonberry	Rubus.spectabilis	1 gal	5 ft oc	100	
Scoulers willow	Salix.scouleri	1 Gallon	8 ft. oc	50	
Red osier dogwood	Cornus.sericea	1 Gallon	8 ft. oc	100	
Pacific rhododendron	Rhododendron.macrophyllum	1 Gallon	5 ft oc	50	
Red elderberry	Sambuca.racemosa	1 Gallon	8 ft oc	100	
Total					

Wetland C Enhancement Area (20,100 sq. ft.)

Common Name	Scientific Name	Size	Spacing	Quantity	Installed
Sitka spruce	*Picea sitchensis*	1 Gallon	15 ft oc	**40**	
Western red cedar	*Thuja plicata*	1 Gallon	15 ft oc	**40**	
Snowberry	*Symphoricarpus alba*	1 Gallon	5 ft. oc	50	
Salmonberry	*Rubus spectabilis*	1 Gallon	5 ft. oc	50	
Red elderberry	*Sambuca racemosa*	1 Gallon	5 ft. oc	50	
Red flowering currant	*Ribes sanguineum*	1 Gallon	8 ft. oc	50	
Oceanspray	*Holodiscus discolor*	1 Gallon	8 ft. O.C.	50	
Total					

Wetland A – Rehabilitation (63,966 sq ft)

Common Name	Scientific Name	Size	Spacing	Quantity	Installed
Sitka spruce	Picea sitchensis	1 Gallon	15 ft oc	100	
Bitter cherry	Prunus emarginata	1 Gallon	15 ft oc	50	
Vine maple	Acer circinatum	1 Gallon	8 ft oc	50	
Pacific crabapple	*Malus fusca*	1 Gallon	5 ft. O.C.	50	
Salmonberry	*Rubus spectabilis*	1 Gallon	5 ft. O.C.	100	
Red elderberry	*Sambuca racemosa*	1 Gallon	5 ft. O.C.	50	
Mock orange	*Philadelphus lewisii*	1 Gallon	8 ft. O.C.	100	
Oceanspray	*Holodiscus discolor*	1 Gallon	8 ft. O.C.	100	
Total					

Wetland B – Rehabilitation (14,412 sq ft)

Common Name	Scientific Name	Size	Spacing	Quantity	Installed
Western red cedar	Thuja plicata	1 Gallon	15 ft oc	40	
Sitka willow	*Salix sitchensis*	1 Gallon	5 ft. O.C.	20	
Salmonberry	*Rubus spectabilis*	1 Gallon	5 ft. O.C.	40	
Blue elderberry	*Sambuca negra*	1 Gallon	5 ft. O.C.	20	
Douglas hawthorne	*Crataegus douglasii*	1 Gallon	8 ft. O.C.	20	
Oceanspray	*Holodiscus discolor*	1 Gallon	8 ft. O.C.	20	
Total					

Table 9– Wetland C – Rehabilitation (17,016 sq ft)

Common Name	Scientific Name	Size	Spacing	Quantity	Installed
Western hemlock	Picea sitchensis	1 Gallon	15 ft oc	40	
Pacific willow	Salix lassiandra	1 Gallon	15 ft oc	20	
Vine maple	Acer macrophyllum		15 ft oc	20	
Snowberry	*Symphoricarpus alba*	1 Gallon	5 ft. O.C.	20	
Osoberry	*Oemleria cerasiformus*	1 Gallon	5 ft. O.C.	20	
Red elderberry	*Sambuca racemosa*	1 Gallon	5 ft. O.C.	25	
Mock orange	*Philadelphus lewisii*	1 Gallon	8 ft. O.C.	25	
Oceanspray	*Holodiscus discolor*	1 Gallon	8 ft. O.C.	25	
Total					

Management.Actions.In.Year.(((((((((((

Substitutions/ Replacements Comtingencies

_____

_____

_____

Irrigation Installed_____Irrigation Removed_____

Aerial Coverage of Plants_____Meets Standard?_____

Volunteer Coverage_____

Coverage of Invasive Species_____

Management Actions Previous Year

_____

_____

_____

_____

Management Actions Current Year

_____

_____

_____

_____

Success/Failure/Contingencies

_____

_____

_____

_

Photo Points Mitigation Enhancement Area Wetland A

Photo Points Mitigation Enhancement Area Wetland B

Photo Points Mitigation Enhancement Area Wetland C

Photo Points Buffer Rehab Wetland A

Photo Points Buffer Rehab Wetland B

Photo Points Buffer Rehab Wetland C