Critical Areas Assessment

Tolt Dam Early Warning System Replacement
City of Carnation and King County, Washington

Prepared for:
ADCOMM Engineering LLC
P.O. Box 308
Woodinville, WA 98072-0308

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PBS Project 41747.000

PBS
214 E GALER STREET, SUITE 300
SEATTLE, WA 98102
206.233.9639 MAIN
866.727.0140 FAX
PBSUSA.COM

Table of Contents

SUPPORTING DATA

TABLES

PHOTOGRAPHS

APPENDICES

1 INTRODUCTION

Seattle Public Utilities (SPU) owns and operates the South Fork Tolt Dam and Reservoir as a major asset of the City of Seattle's municipal drinking water supply system. The Tolt Dam Early Warning System (TEWS) is a critical life safety system that alerts residents in and around the City of Carnation of an imminent dam breach or failure at the Tolt Reservoir. The current system is failing, resulting in one false alarm and two missed messages so far. The existing system is outdated, and its components cannot be rehabilitated to provide operational stability and will need to be replaced. Failure to address this emergency could result in a catastrophic loss of life in the event of an actual dam failure.

SPU plans to replace outdated equipment and enhance the resiliency and reliability of the TEWS in two phases. The following sections give an overview of the project purpose, locations, components.

1.1 Project Purpose and Description

The existing warning system was constructed in approximately 1985 and modified several times in the following years. Three recent tests documented failures in the system, specifically:

1. During late morning of Tuesday, July 28, the Tolt Dam Warning System sounded a false alarm that for 38 minutes erroneously messaged the community of Carnation to evacuate. SPU activated the Federal Energy Regulatory Commission (FERC) South Fork Tolt Project Emergency Action Plan (Tolt EAP) and attempted to notify the public and partner agencies of the false alarm. An investigation into the cause of the false alarm was started immediately after the incident and is ongoing. In the days immediately following the false alarm, SPU used the contacts listed in the Tolt EAP, along with intergovernmental and executive contacts, and SPU provided updates regarding the status of the Tolt Dam Failure Warning System to response partners and communities. On August 3, representatives from SPU/Seattle City Light (SCL) and partner agencies participated in a Tolt Dam Warning Siren 32 Community Meeting hosted by the Carnation City Council to discuss the ongoing investigation of the incident, listen to the community impacts due to the false alarm and reports from the public and downstream agencies regarding the operational status of the warning system. On Wednesday, August 5, a subsequent test of the Tolt Dam Failure warning system informed and verified to SPU that repairs were needed for several sirens. Agencies involved in the response included SPU, SCL, Seattle Information Technology, King County Office of Emergency Management (KCOEM), King County Department of Natural Resources, King County Sherriff's Office Communications and Patrol Operations, NORCOM, ESF-R, RVSD, and the City of Carnation.
2. On September 9, 2021, during the weekly scheduled system test the alarm was triggered, but the warning sirens (main alert for the general public) did not go off. On January 13, 2021, the weekly scheduled test of the system resulted in another alarm failure.
3. The false alarm and subsequent failed weekly tests are an indication of wider system failure and existing equipment requires replacement as soon as possible to avoid further failures. The TEWS alerts the residents of the City of Carnation and surrounding unincorporated areas to evacuate in the event of imminent dam failure.

If the system does not function properly there could be a catastrophic loss of life in the event of an actual dam failure. Potential problems and issues identified in the existing system include outdated components no longer supported by the manufacturers and old technology with security vulnerabilities that could result in a system shutdown from a single point of failure.

The purpose of this project is to respond to this emergency by: replacing and update the existing warning system; replacing and adding outdoor mounted sirens, and indoor mounted alerting devices; adding new

highway message signs; upgrading existing radio equipment that supports the warning system; and supplementing, as needed, with additional sites and signage.

This entire process has had significant public engagement including:

- Regular presentations at the Carnation City Council meetings
- Regular public engagement meetings where the project has been explained and the public has had an opportunity to ask questions and make comments
- A project website, mailings to the community, newspaper notices, and public access to the project manager so the public can ask questions and make comments

PBS Engineering and Environmental Inc. (PBS) has prepared this Critical Areas Assessment to document existing conditions at each proposed location and summarize the findings of fieldwork conducted in spring of 2022.

1.2 Project Location

The current system includes several components: detection devices at the dam site, verification cameras, microwave communication links between the site and the remote-control rooms, data network connections to the King County I-Net, outdoor warning sirens downstream along the Tolt River and in Carnation town center, indoor sirens in school and fire station buildings, siren controls in the two SPU control centers, added electronic highway message signs and added street evacuation signs.

The detection devices, cameras, and indoor sirens will be located within existing facilities, and will not require additional land clearing or construction of a building or structure. As a result, these elements will not be further discussed in this assessment. The remaining project elements consist of pole-mounted outdoor warning sirens, highway message signs, radio and microwave relay stations, and evacuation signs.

Project element locations are Shown in Appendix A, Figure 1-1 through 1-18.

1.2.1 Outdoor Warning Sirens (OWS)

The OWS will provide an audible warning in the event of a dam break. Each OWS installation consists of an outdoor warning siren alarm (approximately 5' 5" tall, mounted on top of a pole extending 30' above the ground) with a VHF Yagi antenna and internal VHF radio. Installations include backup batteries where commercial power is not available or feasible, and each installation site will include a concrete pad at the base of the pole to allow for safe access by workers for routine maintenance.

The equipment will be mounted on wooden utility poles extending approximately 30 feet above the ground. The poles will be installed in a drilled hole approximately 7 feet deep with no separate foundation.

Temporary poles will be installed adjacent to the permanent pole sites to test the sirens and communications systems before permanent installation. The temporary poles will be located within developed portions of the rights-of-way (ROW) and will sit on the surface supported by an approximately 5-foot square base. No foundation or bored hole will be required, and a minimum of vegetation clearing and surface leveling will be done to prepare the area. Siren location and work area footprints are provided in the attachments.

1.2.2 Highway Message Signs (HMS)

The reader-board type of HMS will provide a visible warning to drivers on State Route (SR) 203 and several King County roads that connect to SR 203. In the event of a dam failure, the HMS activates with a visible message advising the drivers not to enter the areas anticipated to be flooded by a dam break.

Each HMS installation consists of a digital highway message display and a cabinet that provides control for the sign. Primary power is supplied by a solar panel and battery system. The equipment will be mounted on an 18-foot tall, 12-inch steel post, bolted to a concert foundation approximately 2' 6" in diameter and 10 feet deep. A communications antenna is mounted on the pole, near the top.

1.2.3 Evacuation Route Signage

The added evacuation route signage proposed by King County Emergency Management for public safety will consist of single static signs mounted on standard street sign poles (similar to stop signs and speed limit signs) embedded directly in the ground or bolted to an existing concrete sidewalk or similar structure. These signs will be located within existing developed road ROW within the municipal limits of the Cities of Carnation and Duvall and also locations within Washington State Department of Transportation (WSDOT) and King County road ROW.

Specific locations of proposed work and a brief accompanying site description can be found in the following table.

Table 1. Site Locations and Description

Component	Location	Site Description	Jurisdiction
Outdoor Warning Sirens			
OWS 1	South side of NE 80th Street, approximately 700 feet west of 361st Avenue NE	The proposed location is bordered by rural single-family residences and associated landscaping. A dry ditch runs along the north side of NE 80th Street. The King County zoning for properties outside the ROW is RA-10.	King County
OWS 2	East side of Tolt River Road, approximately 500 feet south of NE 69th Street	The proposed location is bordered by sparse rural single-family residences and associated landscaping. A drainage ditch runs along the west side of Tolt River Road. The King County zoning for properties outside the ROW is RA-10 and Tolt River is approximately 1,500 feet to the east.	King County
OWS 3ex	North side of Tolt River Road, approximately 1,800 feet east of 338th Avenue NE	The existing pole (to be removed) is bordered by sparse rural single-family residences and associated landscaping. A ditch runs along the north side of Tolt River Road and flows northeast with associated culverts running under Tolt River Road and discharging to the south. Tolt River is approximately 500 feet to the south and the King County zoning for properties outside the ROW is RA-10.	King County
OWS 3	East side of Tolt River Road	The proposed location is bordered by sparse rural single-family residences and associated landscaping. A ditch runs along the west side of Tolt River Road flowing south. Tolt River is approximately 1,000 feet to the east and the King County zoning for properties outside the ROW is RA-10.	King County
OWS 4	Approximately 220 feet north of Entwistle Street and 225 feet west of 325th Avenue NE	The Snoqualmie Valley Trail runs north-south and is approximately 75 feet to the west of the proposed location. Single-family residences border the proposed location with a city park (Loutsis Park) on the south side of Entwistle street. The proposed location is within the urban growth area (UGA) of the City of Carnation and on a Puget Sound Energy (PSE) ROW.	City of Carnation
OWS 5	In the gravel parking lot at Tolt Vista House, off Tolt Reservoir Road and NR 6270	The proposed location is on gravel fill, approximately 300 feet west of the South Fork Tolt Reservoir. Gravel access roads lead to the Tolt Vista House, which is owned and utilized by SCL. The King County zoning for this area is F.	King County
OWS 6	South of the regulating basin, in the existing transmission line easement to the south of Tolt River Road SE	The proposed location is relatively undeveloped with the exception of gravel access roads mainly utilized by PSE and SCL employees, and the occasional mountain biker/hiker. Locked gates limit vehicular access to this area. The King County zoning for this area is F.	King County

Component	Location	Site Description	Jurisdiction
OWS 8	South side of Tolt River Road NE, approximately 100 feet west of 334th Avenue NE; within the City of Carnation	The proposed location is bordered by a recently constructed single-family housing development and associated landscaping onto the west. At the time of field work, construction was ongoing. To the north of Tolt River Road are rural single-family residences with associated landscaping. The King County zoning for properties north of Tolt River Road NE is RA-10 and the proposed location is within the UGA.	City of Carnation
OWS 9	Southwest corner of the intersection of NE 60th Street and SR 203	The proposed location is bordered by rural single-family housing on the south side of NE 60th Street and farmland to the north. The King County zoning for properties south of NE 60th Street is UR and within the UGA. For properties to the north, the King County zoning code is A-35.	King County
OWS 10	North side of NE 40th Street, immediately south of the parking lot for Tolt McDonald Park Soccer Field	The proposed location is approximately 800 feet east of Snoqualmie River. A city owned park (Tolt McDonald Park) encircles the location. North of NE 40th Street lies within the UGA. South of NE 40th Street, between Snoqualmie River and SR 203 is zoned as RA-10 for the western half and UR for the eastern half. Additionally, the area zoned UR is within the UGA of King County.	King County
Highway Message Signs			
HMS 1	Southwest corner of the intersection of NE Carnation Farm Road and SR 203	The proposed location is bordered by farmland accompanied by single-family residences. Snoqualmie River is approximately 4,000 feet to the west and the King County zoning for properties outside the ROW is A-35.	King County
HMS 2	East side of SR 203, north of NE 32nd Street	The proposed location is bordered by farmland accompanied by single-family residences south of NE 32nd Street. Tolt River is approximately 200 feet north and an undeveloped riparian corridor occupies the north side of NE 32nd Street. The King County zoning for properties outside the ROW is RA-10 north of NE 32nd Street and A-35 south of NE 32nd Street.	King County
HMS 3	Northeast corner of roundabout where SR 203 meets SR 202	The proposed location is bordered by Snoqualmie river and its riparian corridor approximately 350 feet to the south A city park (Fall City Community Park) is located on the west side of SR 203 and farmland occupies the property to the east. The King County zoning for properties outside the ROW is A-35 to the west of SR 203, and a combination of RA-10, RA-10-P, and A-10 to the east.	King County
HMS 4 (3 poles)	Northeast, northwest, and southwest corners of the intersection of SR 203 and NE 124th Street	The Snoqualmie Valley Trail runs along the west side of SR 203 and is bordered by a mixed canopy forest approximately 150 feet wide. To the west of the trail is occupied by farmland zoned as A-35. Rural single-family residences occupy the area east of SR 203 with dense mixed canopy forest occurring southeast of the intersection. The King County zoning east of SR 203 is RA-10.	King County

Component	Location	Site Description	Jurisdiction
HMS 5	Southeast corner of the intersection of NE tolt Hill Road and West River Road	The proposed location is approximately 450 feet west of Snoqualmie River. The west side of West River Road is occupied by rural single-family residences. To the east is an undeveloped riparian corridor. The King County zoning for properties outside the ROW is RA-10 to the northwest and A-35 to the southeast of the intersection.	King County
HMS 7	Northwest corner of the intersection of SR 203 and NE Stillwater Road	The Snoqualmie Valley Trail and its associated undeveloped vegetation is approximately 750 feet southwest of the proposed location. Stillwater Store and gas station are on the south side of SR 203. Rural single-family residences and associated landscaping occupy the area west of the proposed location. North of the proposed location is occupied by relatively undeveloped land with a mixed canopy forest. South of SR 203, the King County zoning is A-35 and north is a mixture of RA-2.5 and RA-10.	King County
HMS 8	Northeast corner of the intersection of SR 203 and E 24th Street/ Langlois Lake Road	The proposed location is bordered by rural single-family residences and associated landscaping. Snoqualmie River is approximately 1,500 feet west of the proposed location. A wetland lies to the west of the proposed location on the west side of SR 203. The west side of SR 203 and northeast quadrant of the intersection are zoned as A-35. King County zoning for the southeast corner of the intersection is A-10 transitioning to RA-10 further east.	King County
Other Structures			
Passive Antenna	North of Tolt Reservoir Road, north of Tolt Vista House	The proposed location is relatively undeveloped with the exception of gravel access roads mainly utilized by PSE and SCL employees, and the occasional mountain biker/hiker. Locked gates limit vehicular access to this area. There is an existing tower located on a cement pad located at the end of a revegetated, gravel utility access road. The King County zoning for this area is F.	King County
PSERN SWAN	Located on the existing tower at the southeast corner of the intersection of NE North Fork Road and Swan Loop Road	The proposed location is on gravel fill, with access roads leading to the existing tower. Access roads are mainly utilized by PSE and SCL employees and locked gates limit vehicular access to this area. Five stormwater detention ponds are located approximately 150' west of the proposed location. The King County zoning for this area is F.	King County

2 METHODS

The Study Area for this report includes the proposed facility locations and the area extending approximately 300-feet beyond the proposed location. PBS evaluated the Study Areas for the presence of wetlands and streams via an in-office review and an on-site field investigation. The office review included the entire Study Area. The field investigation was confined to the Study Area, and supplemental information for off-site portions of the Study Area was collected from publicly available documents and data. The two methods used for these two evaluations are described in greater detail below.

2.1 Office Review

The office review included a variety of online sources and documents to identify previously mapped critical areas or physical conditions that would support the presence of critical areas within the Study Area. Documents reviewed included:

General Site Information

- Current and recent historical aerial photographs (Google Earth, 2022)

Wetland Information

- Climate and precipitation data (US Department of Agriculture National Resources Conservation Service [USDA NRCS] Field Office, 2022a)
- Digital soil data for the project area (USDA NRCS, 2022b)
- Official Soil Series Descriptions (USDA NRCS, 2022c)
- Digital wetland data from the National Wetlands Inventory (U.S. Fish and Wildlife Service [USFWS], 2022a)
- Local critical areas map from King County iMap (King County, 2022)

Stream, Other Waters, And Fish and Wildlife Information

- Endangered Species information (IPaC Information for Planning and Consultation; USFWS, 2022b)
- Priority Habitats and Species Online mapping (WDFW, 2022)
- Salmon and Steelhead Habitat Inventory and Assessment Program Statewide Fish Distribution Map (SWIFD, [The Northwest Indian Fisheries Commission, 2022])

2.2 Field Methods

2.2.1 Wetlands

Formal sample plots were recorded at likely wetland locations using the form from the Regional Supplement, and photographs were recorded to characterize typical site conditions. Data plot locations were flagged in the field using brightly colored flagging or pin flags. These flag locations were recorded with a handheld GPS unit.

2.2.1.1 Vegetation

The existing vegetation was characterized using the scientific names and indicator status from the 2016 National Wetland Plant List (Lichvar et al., 2016). A species indicator status refers to the relative frequency with which the species occurs in jurisdictional wetlands. An area satisfies the hydrophytic vegetation criteria when,

under normal circumstances, more than 50% of the dominant species from each stratum are obligate wetland (OBL), facultative wetland (FACW), or facultative (FAC) species.

2.2.1.2 Soils

The presence of hydric soils was determined using the indicators described in the Western Mountain, Valleys, and Coast (WMVC) Regional Supplement and current regulatory guidance. Soils at the sample plot locations were evaluated based on these indicators.

2.2.1.3 Hydrology

The presence of wetland hydrology is determined by evaluating a variety of direct and indirect field indicators. The field indicators listed in the WMVC Regional Supplement include but are not limited to: visual observation of inundation or saturation, sediment deposition, hydric soil characteristics, watermarks, drift lines, oxidation around living roots and rhizomes, and water-stained leaves. To satisfy the hydrology criterion for wetlands, soils need to be inundated or saturated to the surface for at least 14 consecutive days during the growing season.

2.2.1.4 Growing Season

The growing season beginning and ending dates may be needed to evaluate the presence of certain indicators of the presence of wetlands, such as flooding, ponding, and shallow water tables (US Army Corps of Engineers [USACE], 2010). The Regional Supplement allows growing season dates to be estimated using the closest and best available weather station data with sufficient long-term data to calculate the 50% probability of a temperature of 28° Fahrenheit (°F) or higher (USACE, 2010).

3 RESULTS

The results of the office review and the field investigation are provided below.

3.1 Office Review

3.1.1 Climate

Precipitation measurements for the three months preceding the field visit were evaluated to assess normal conditions and growing seasons limits. Due to the large geographic spread of sites, two weather stations were used in the precipitation analysis: Snoqualmie Falls and Tolt South Fork Dam weather stations. Precipitation data and analysis for this station are shown in the following tables.

Table 2. Precipitation Analysis, WETS Data for 1971–2000, Snoqualmie Falls, WA Station

Month	30% Chance Precip. Less Than	30% Chance Precip. More Than	Monthly Total Rainfall (2022)	Condition	Value	Weight	Total Points[1]
February	5.78	10.04	6.35	Normal	2	3	6
January	6.94	10.52	8.22	Normal	2	2	4
December	6.71	11.36	8.40	Normal	2	1	2
Sum							**12**

Table 3. Precipitation Analysis, WETS Data for 1971–2000, Tolt South Fork Dam, WA Station

Month	30% Chance Precip. Less Than	30% Chance Precip. More Than	Monthly Total Rainfall (2022)	Condition	Value	Weight	Total Points[1]
February	8.58	14.28	8.02	Dry	1	3	3
January	9.28	13.80	16.89	Wet	3	2	6
December	9.68	15.44	13.51	Normal	2	1	2
Sum							**11**

[1] Dry = 6–9 points; Normal = 10–14 points; Wet = 15–18 points.

For this three-month period, precipitation fell within the normal range at both the Snoqualmie Falls and Tolt Dam stations. As a result, it is our professional opinion that indicators of wetland hydrology observed at the site accurately represent the presence of wetlands.

The growing season for the Snoqualmie Falls weather station extends from March 9 to November 17, a total of 253 days. The Tolt South Fork Dam weather station has insufficient data to predict a growing season; we can assume that the growing season parallels that of the Snoqualmie Falls station due to their geographic similarities.

3.1.2 Soils

Soils present in the Study Area are shown in Appendix B, Figures 2-1 through 2-19. A summary of the characteristics of these soils can be found below in Table 4.

Table 4. Soils Present in the Study Area

Symbol	Soil Map Unit Name	Slope	Landform	Parent Material	Drainage Class	Soils Hydric? (Hydric Inclusions?)	Site(s)
53	Edgewick silt loam	0–3	Terraces	Sandy and gravelly glacial outwash	Well drained	No **(5% Oridia, Yes)**	OWS 1 OWS 8 HMS 2 HMS 3
241	Snoqualmie loamy fine sand	0–8	Terraces	Gravelly alluvium	Somewhat excessively drained	No **(2% Riverwash, Yes)**	OWS 1
258	Tokul-Pastik complex	45–90	Hillslopes, Escarpments	Volcanic ash over basal till	Moderately well drained	No (25% Pastik, No)	OWS 1 OWS 2 PSERN
11	Barneston gravelly ashy coarse sandy loam	8–15	Moraines, Eskers, Kames	Volcanic ash mixed with loess over sandy and gravelly glacial outwash	Somewhat excessively drained	No **(5% Norma, Yes)** (5% Nargar, No) (5% Birdsview, No)	OWS 2 HMS 4 HMS 7
187	Pilchuck loamy fine sand	0–3	Flood plains	Alluvium	Somewhat excessively drained	No **(2% Riverwash, Yes)**	OWS 2 OWS 3ex OWS 3 OWS 8 HMS 2
256	Tokul gravelly medial loam	15–30	Till plains, Hillslopes	Volcanic ash mixed with loess over glacial till	Moderately well drained	No (10% Rinker, No) (5% Pastik, No) (5% Vanzandt, No) (5% Barneston, No) **(3% Norma, Yes)** **(2% McKenna, Yes)**	OWS3ex OWS 3
215	Riverwash	n/a	Flood plains	Alluvium	n/a	**Yes**	OWS3ex HMS 2
170	Oridia silt loam	0–2	Flood plains	Alluvium	Poorly drained	**Yes** **(5% Shalcar, Yes)** **(5% Oridia, Yes)**	OWS 4 OWS 10 HMS 1
9	Arents	0–8	Plains, Terraces	Volcanic ash and glacial drift	Well drained	No **(1% Norma, Yes)**	OWS 5

Symbol	Soil Map Unit Name	Slope	Landform	Parent Material	Drainage Class	Soils Hydric? (Hydric Inclusions?)	Site(s)
195	Pits	n/a	n/a	n/a	n/a	No	OWS 5 Passive
10	Barneston gravelly ashy coarse sandy loam	0-8	Moraines, Eskers, Kames	Volcanic ash mixed with loess over sandy and gravelly glacial outwash	Somewhat excessively drained	No **(5% Norma, Yes)** (5% Birdsview, No) (5% Nargar, No)	OWS 6 PSERN
12	Barneston gravelly ashy coarse sandy loam	30-65	Moraines, Eskers, Kames	Volcanic ash mixed with loess over sandy and gravelly glacial outwash	Somewhat excessively drained	No (5% Nargar, No) (5% Birdsview, No) **(5% Norma, Yes)**	OWS 6 PSERN
248	Sultan silt loam	0-2	Terraces	Alluvium	Moderately well drained	No **(3% Puget, Yes)** **(3% Woodinville, Yes)**	OWS 9 HMS 1
202	Puget silty clay loam	0-2	Flood plains	Alluvium	Poorly drained	**Yes** **(5% Puget, Yes)** **(5% Shalcar, Yes)**	HMS 1 HMS 4
174	Pastik loam	0-30	n/a	Volcanic ash and lacustrine deposits	Moderately well drained	No	HMS 4
264	Typic Haplorthods	35-100	Valley sides, Mountain sides	Volcanic ash, glacial drift, and colluvium	Well drained	No	HMS 4
Sk	Seattle muck	n/a	Depressions	Grassy organic material	Very poorly drained	**Yes** **(10% Tukwilla, Yes)** **(10% Shalcar, Yes)** **(3% Bellingham, Yes)** **(2% Norma, Yes)**	HMS 5
EvC	Everett very gravelly sandy loam	8-15	Kames, Eskers, Moraines	Sandy and gravelly glacial outwash	Somewhat excessively drained	No (10% Alderwood, No) (10% Indianola, No)	HMS 5
AkF	Alderwood and Kitsap soils, very steep	n/a	Moraines, Till plains	Basal till with some volcanic ash	Moderately well drained	No (25% Kitsap, No)	HMS 5

Symbol	Soil Map Unit Name	Slope	Landform	Parent Material	Drainage Class	Soils Hydric? (Hydric Inclusions?)	Site(s)
157	Nooksack silt loam	0–2	Terraces, Flood plains	Alluvium	Moderately well drained	No **(3% Oridia, Yes)** **(3% Puget, Yes**)	HMS 4 HMS 7
231	Seattle muck	0–1	Depressions, Valleys, Till plains	Herbaceous organic material and woody organic material	Very poorly drained	**Yes** **(5% Puget, Yes)** **(5% Seattle, Yes)** **(5% Shalcar, Yes)**	HMS 8
205	Ragnar-Lynnwood complex	2–15	Outwash terraces	Glacial outwash	Well drained	No (40% Lynnwood, No) **(2% Norma, Yes)**	HMS 8
237	Skykomish gravelly sandy loam	0–30	Terraces, Escarpments	Volcanic ash and glacial outwash	Somewhat excessively	No	Passive
238	Skykomish gravelly sandy loam	30–65	Terraces, Escarpments	Volcanic ash and glacial outwash	Somewhat excessively	No	Passive

3.1.3 Critical Area Inventories

PBS staff reviewed King County iMap to evaluate the presence of critical areas within each Study Area (King County, 2022). Descriptions of Study Areas containing critical areas can be found in the following sections, and shown in Appendix C, Figures 3-1 through 3-19.

3.1.3.1 OWS 1

The parcel (1225079007) occupying the southern half of the Study Area has a sensitive area notice on title. The Study Area is almost entirely within the Federal Emergency Management Agency (FEMA) 100-year floodplain and the southeastern edge is within the FEMA floodway. The northern quarter of the Study Area is noted as a potential landslide hazard area with potential steep slope hazard areas toward the northern edge.

The proposed work area is on the developed roadway, but is mapped within the FEMA 100-year floodplain.

3.1.3.2 OWS 2

The western quarter of the Study Area is noted as a potential landslide hazard area with accompanying steep slope hazard areas and an additional potential steep slope hazard area running north to south just east of the proposed location. An unnamed tributary of Tolt River runs north to south through the approximate center of the Study Area. The northeastern third of the Study Area is also classified as a moderate to severe channel migration hazard area and is within the FEMA 100-year floodplain. The northern edge of the Study Area encroaches onto Tolt River Natural Area, a King County owned nature refuge.

The proposed work area is on the developed roadway, but is mapped as a moderate channel migration hazard area.

3.1.3.3 OWS 3ex

According to the National Wetland Inventory, a type 4 palustrine forested wetland extends onto the southeastern edge of the Study area (parcels 1425079046 and 1425079043). Two unnamed tributaries intersect in the northwest quadrant of the Study Area and proceed to cross under Tolt River Road NE, flowing northwest to southeast and discharging to Tolt River to the west. The northwest half of the Study Area is listed as a potential landslide hazard area with accompanying buffers and steep slope hazard areas. The southeast half of the Study Area is listed as a severe channel migration hazard area and is located within the FEMA 100-year floodplain. Parcels 1425079011 (to the north) and 1425079043 (to the southeast) have sensitive area notices on their titles and are included in the Study Area.

The existing pole is in an area mapped as a potential landslide hazard buffer, but is within the developed road ROW.

3.1.3.4 OWS 3

The western third of the Study is classified as a potential landslide hazard area with accompanying steep slopes hazard areas, buffers, and erosion hazard. The parcels occupying the western and southeastern portions of the Study Area (parcels 1425079064, 1425079009, and 1425079055) have sensitive area notices on their titles. The eastern half of the Study Area is noted as a channel migration hazard area with most of the area being classified as moderate and more severe hazards reported at the southeast boundary.

The proposed work area is on the developed roadway and has no overlapping critical areas.

3.1.3.5 OWS 4
No critical areas are listed on King County iMap.

3.1.3.6 OWS 5
No critical areas are listed on King County iMap.

3.1.3.7 OWS 6
The southern half of the Study Area is occupied by potential steep slope hazard areas with the majority of the areas located to the west.

The proposed work area is mapped as a potential steep slope hazard area and steep slope buffer, but has been previously disturbed by construction of access roads for the existing utility ROW.

3.1.3.8 OWS 8
The northern edge of the Study Area contains potential steep slope hazard areas with accompanying erosion hazards.

The proposed work area is located on the developed roadway and has no overlapping critical areas.

3.1.3.9 OWS 9
The Study Area is located within the FEMA 100-year floodplain, excluding the northwest edge which is located within the FEMA floodway.

The proposed work area is on the developed roadway, but is mapped within the FEMA 100-year floodplain.

3.1.3.10 OWS 10
The entirety of the Study Area is located within the FEMA floodway.

The proposed work area is located on the developed roadway, but is mapped within the FEMA floodway.

3.1.3.11 HMS 1
The entirety of the Study Area is located within the FEMA floodway. An unnamed water feature originating from Horseshoe Lake crosses the southwest edge of the Study Area, presumably discharging into a Type I Wetland located northwest of the Study Area.

The proposed work area is on the developed roadway, but is mapped within the FEMA floodway.

3.1.3.12 HMS 2
Langlois Creek transects the Study Area flowing east under SR 203 and discharging into a Type II Wetland outside the Study Area. The Study Area is located within a severe channel migration hazard area, excluding the southern edge which is classified as moderate. The Study Area is also within the FEMA floodway.

The proposed work area is located on the developed roadway, but is mapped as a severe channel migration hazard zone for Tolt River.

3.1.3.13 HMS 3

The southwestern edge of the Study area encroaches onto a parcel (no. 1524079001) with a sensitive area notice on the title. The Study Area is also within the FEMA floodway.

The proposed work area is on the developed roadway and has no overlapping critical areas.

3.1.3.14 HMS 4

The southeast quarter of the Study Area is occupied by potential steep slope hazard areas. Additionally, the northeast quarter of the Study Area is classified as a potential landslide hazard area with an accompanying buffer. According to the King County Wetlands Inventory, a Type II Wetland occupies the southwest quarter of the Study Area. The Study Area encroaches onto parcel 2526069091 to the east, which has a sensitive area notice on the title. The western half of the Study Area is located within the FEMA 100-year floodplain with the western edge located within the FEMA floodway.

The proposed work area is located on the developed roadway, but is mapped within the FEMA 100-year floodplain.

3.1.3.15 HMS 5

The majority of the Study Area in the southwest is classified as a potential landslide hazard area with an accompanying buffer and scattered steep slope hazard areas. The remaining southwest portion is occupied by a Type II Wetland identified by the King County Wetlands Inventory. The Study Area encroaches onto three parcels to the north with sensitive area notices on their titles (2025079051, 2025079050, and 2025079004). The southwestern half of the Study Area is located within the FEMA 100-year floodplain which transitions to the FEMA floodway moving east. An unnamed water feature connected to Snoqualmie River intersects the southeast edge of the Study Area on parcel no. 2025079028.

The proposed work area is located on the developed roadway, but is mapped as a potential landslide and erosion hazard area.

3.1.3.16 HMS 7

The southwest half of the Study Area is identified as a potential landslide hazard area and an accompanying buffer; additionally, the northeast quarter contains potential steep slope hazard areas and erosion hazard areas. Four parcels with sensitive area notices on their titles occupy approximately half of the Study Area (8016100095, 0425079008, 0425079008, and 0425079048). The southeast edge of the Study Area is located within the FEMA 100-year floodplain. An unnamed water feature connecting Lake Marcel and Harris Creek transects the Study Area north to south.

The proposed work area is on the developed roadway, but is mapped as a potential landslide hazard area and accompanying 50-foot buffer.

3.1.3.17 HMS 8

According to the King County Wetlands Inventory, a Type II Wetland occupies the western quarter of the Study Area. Additionally, the western edge of the Study Area is located within the FEMA 100-year floodplain.

The proposed work area is located on the developed roadway with no overlapping critical areas.

3.1.3.18 Passive Antenna

No critical areas are listed on King County iMap.

3.1.3.19 PSERN SWAN

The southeastern half of the Study Area is identified as a potential landslide and erosion hazard area with an accompanying buffer and potential steep slope hazard areas.

The proposed work area has been substantially developed and the work will be a modification of the current infrastructure in place. The area is mapped as a potential landslide hazard area.

3.1.4 Streams and Fish and Wildlife Habitat

The project is located within the Snohomish Water Resource Inventory Area 7. PBS staff reviewed maps and electronic data for the project Study Areas from a variety of sources for indicators of the presence of waters, fish, and wildlife habitats. PBS also reviewed endangered species data from the US Fish and Wildlife Service's (USFWS) Information for Planning and Consultation (IPaC) website (USFWS, 2022b).

The following endangered or sensitive species were identified as potentially affected by activities at each site:

- Gray wolf (*Canis lupus*)[1] – Endangered
- Marbled murrelet (*Brachyramphus marmoratus*) – Threatened
- Yellow-billed cuckoo (*Coccyzus americanus*) – Threatened
- Bull trout (*Salvelinus confluentus*) – Threatened
- Monarch butterfly (*Danaus plexippus*) – Candidate

Marbled murrelet and streaked horned lark have highly specialized habitat needs that are not present in any of the Study Areas. More specifically, the Study Areas are too far from any marine environments or old growth forests to be considered suitable marbled murrelet habitat. Additionally, they do not contain enough sparsely vegetated land to support streaked horned lark foraging and nesting. No species of milkweed (*Asclepias spp.*) were observed within the Study Areas so it can be assumed that monarch butterfly foraging is not supported. The presence of riparian habitat suggests that yellow-billed cuckoos could be present within the Study Areas of: OWS 2, HMS 2, 3, 5, 8, and PSERN. Of these Study Areas, HMS 2, 5, and PSERN provide the least disturbed and therefore most suitable riparian habitat for yellow-billed cuckoos. According to the Washington Department of Fish and Wildlife (WDFW) annual report documenting the status, distribution, and management of wolves, there are no known wolf pack or single territories at any proposed locations (WDFW, Confederated Tribes of the Colville Reservation, Spokane Tribe of Indians, United States Department of Agriculture-Animal Plant Health Inspection Service (USDA-APHIS) Wildlife Services, and the USFWS, 2022).

Habitat mapping from the Northwest Indian Fisheries Commission (NWIFC) indicates bull trout presence in the HMS 2, HMS 4, and HMS 7 Study Areas. See table 5 for a complete list of fish presence.

[1] Potentially present at OWS 1, 2, 3ex, 3, 5, 6, 8, PSERN, and Passive Antenna

Table 5. NWIFC Fish Presence

Site	Species Listed	
	Langlois Creek	**Tolt River**
HMS 2	Fall chum (*Oncorhynchus keta*) – Gradient access present; Fall chinook (*Oncorhynchus tshawytscha*) – Gradient access present; Coho (*Oncorhynchus kisutch*) – Documented presence; Pink odd year (*Oncorhynchus gorbuscha*) – Gradient access present; Winter steelhead – Gradient access present; Bull trout (*Salvelinus confluentus*) – Gradient access present	Fall chum – Documented presence; Fall chinook – Documented spawning; Coho – Documented rearing; Pink odd year – Documented spawning; Summer Steelhead (*Oncorhynchus mykiss*) – Documented rearing; Winter steelhead – Documented spawning; Coastal cutthroat (*Oncorhynchus clarkia*) – Documented presence; Bull trout – Documented rearing
HMS 4	Fall chinook – Presumed presence; Coho – Documented presence; Pink odd year – Presumed presence; Bull trout – Presumed presence	
HMS 7	Fall chum – Gradient access present; Fall chinook – Gradient access present; Coho – Documented spawning; Pink odd year – Gradient access present; Winter steelhead – Gradient access present; Coastal cutthroat – Documented presence; Bull trout – Presumed presence	

Yellow highlight = Salmonid species managed by National Oceanic and Atmospheric Administration Fisheries.

Priority habitats or species (PHS) identified at each site by WDFW are summarized below (Table 6). The same 300-foot buffer used to identify critical areas was used in identifying PHS to provide a conservative estimate at each site. This buffer extends well past the anticipated impacts of the proposed work.

Table 6. PHS Findings by Site

Site	PHS Identified
OWS 1	**None**
OWS 2	*Oncorhynchus kisutch; Salvelinus malma/Salvelinus confluentus*
OWS 3ex	*Oncorhynchus gorbuscha; O. kisutch; Oncorhynchus keta; Oncorhynchus mykiss; Oncorhynchus tshawytscha; S. malma/S. confluentus*
OWS 3	**None**
OWS 4	**None**
OWS 5	*Aquila chrysaetos; Strix occidentalis*
OWS 6	*Odocoileus hemionus columbianus*
OWS 8	**None**
OWS 9	**None**
OWS 10	**None**
HMS 1	*Cygnus buccinator;* Aquatic Habitat (palustrine forested/scrub-shrub wetland)
HMS 2	*O. keta; O. mykiss; S. malma/S. confluentus; Oncorhynchus clarki; O. kisutch; O. tshawytscha; O. gorbuscha*
HMS 3	Aquatic Habitat (palustrine emergent wetland); *Canis lupus*
HMS 4	Aquatic Habitat (palustrine emergent wetland)
HMS 5	Aquatic Habitat (palustrine forested/scrub-shrub wetland)
HMS 6	**None**
HMS 7	*O. kisutch; O. clarki; S. malma/S. confluentus*
HMS 8	Aquatic Habitat (wetlands)
Passive Antenna	*A. chrysaetos; S. occidentalis*
PSERN SWAN	*O. hemionus columbianus*

3.1.5 Topography

The topography at the project sites ranges from approximately 100 feet above sea level (ASL) at HMS 3 in Fall City, to just under 2,000 feet ASL near the Tolt Reservoir at OWS 5. The sites within and around the City of Carnation are at elevations ranging from 200 to 250 feet ASL. Site topography is shown in Appendix C, Figures 3-1 to 3-19.

3.2 Field Investigation

Patrick Togher (Professional Wetland Scientist) and Mallory Phillips (Field Biologist) conducted site visits of each Study Areas throughout the course of 5 field days in March 2022 (March 3, 11, 16, 22, and 25) and a follow up field visit for the relocation of HMS 4NW on August 22. 2022.

3.2.1 Wetlands

Where property was owned by SPU, a formal delineation was conducted. For locations where the warning sirens and signs are located on the developed roadway prism, nearby wetlands were assessed visually assessed based on the presence of hydrophytic vegetation and visual indicators of wetland hydrology (e.g., subsurface ponding, stream water levels less than a foot below the surrounding land, etc.). Data plots were collected in or adjoining the work area to document site conditions in addition to those collected at formally delineated wetlands.

The results of the field studies are presented below. Site photographs are provided at the end of this report, and wetland boundaries are shown in Appendix C, Figure 3-1 to 3-19. Wetland Data forms are provided in Appendix D, and complete wetland rating forms for delineated wetland are provided in Appendix E.

PBS prepared wetland ratings for delineated wetlands using the Washington State Wetland Rating System for Western Washington (Hruby, 2014). The rating system assesses wetlands for water quality, hydrologic, and habitat functions based on the wetland's hydrogeomorphic class. Wetlands are scored as High, Medium, or Low functioning for Site Potential, Landscape Potential, and Value in each functional category, and a wetland rating of I to IV is assigned based on these scores. Table 7 shows the preliminary scores obtained for Wetlands A through D (OWS 5 and 6) and the resulting wetland rating category; the rating forms are provided in Appendix E.

Table 7. Washington State Wetland Rating System for Western Washington Scores and Wetland Classification

Location	Wetland	HGM Class	Water Quality	Hydrologic	Habitat	Total Score	Wetland Category
OWS 5	5-1(D)	Slope	5	3	7	15	IV
OWS 6	6-1 (A)	Depressional	7	3	7	17	III
OWS 6	6-2 (B)	Depressional	7	4	7	18	III
OWS 6	6-3 (C)	Slope	6	3	7	16	III

3.2.1.1 OWS 1

No wetlands were present in the OWS 1 work area, and no wetlands were identified within the Study Area.

3.2.1.2 OWS 2

No wetlands were present in the OWS 2 work area, and no wetlands were confirmed within the Study Area.

3.2.1.3 OWS 3

No wetlands were present in the OWS 3 work area, but two wetlands were identified within the Study Area. Wetland OWS 3-1 is a palustrine scrub-shrub, depressional wetland located along the northwestern edge of Tolt River Road NE. Wetland. It has a canopy comprised of western red cedar and bigleaf maple. Wetland OWS 3-1 extends onto parcel 145079064.

Wetland OWS 3-2, is also a palustrine scrub shrub, depressional wetland located along the southwestern edge of Tolt River Road NE. The wetland was inundated at the time of the field visit, and the dominant vegetation is comprised of salmonberry and red-osier dogwood. Despite its proximity to the roadside ditch (described in the following section), Wetland OWS 3-2 has no direct connection to the ditch. Wetland OWS 3-2 abuts the road edge and extends onto parcel 1425079009.

3.2.1.4 OWS 3ex

No wetlands were present in the OWS 3ex work area, but one wetland was identified just the northeast of the Study Area. Wetland OWS 3ex-1 is a palustrine emergent, slope wetland located northeast of the Study Area. The wetland abuts the northern edge of Tolt River Road NE. It abuts the road prism, extending onto parcel 1425079011 and there is no apparent connection from the wetland to the roadside ditch.

3.2.1.5 OWS 4

No wetlands were present in the OWS 4 work area, and no wetlands were identified within the Study Area.

3.2.1.6 OWS 5

No wetlands were present in the OWS 5 work area, but one wetland (Wetland OWS 5-1 [D]) was identified in the study area. Since Wetland OWS 5-1 is located on SPU property, a formal delineation was conducted. Wetland OWS 5-1 is a palustrine forested slope wetland approximately 0.3 acre ins size, and is separated from the work area by the gravel paved parking lot.

The dominant species present in the Wetland OWS 5-1 sample plot include black cottonwood (*Populus balsamifera)*, pacific willow (*Salix lasiandra*), creeping bentgrass, and reed canary grass. Red alder (*Alnus rubra*) and an unknown moss species were also present in the sample plot. The dominant species in the data plot satisfy the hydrophytic vegetation criterion.

Soil observed in Wetland OWS 5-1 is described in Appendix D (Plot 54) and excavation depth was restricted due to the presence of fill gravel and cobbles—particularly at a depth of 7 inches bgs. The soil consists of very dark grayish brown (10YR 3/2) gravelly sand loam with no redox features. Soil in this plot does not clearly satisfy the hydric soil criterion but was saturated to inundated, and thus difficult to color correctly. We have assumed the presence of wetland conditions for this location due to the presence of wetland vegetation and wetland hydrology. Wetland hydrology criterion was satisfied by meeting the high water table (A2) and saturation (A3) indicators.

Adjoining vegetated upland areas are dominated by upland forest with a canopy of Douglas fir (*Pseudotsuga menziesii*) and western hemlock (*Tsuga heterophylla*), and a subcanopy of salmonberry (*Rubus spectabilis*), Oregon grape (*Mahonia nervosa*), and s western sword fern (*Polystichum munitum*). No indicators of hydric soil or wetland hydrology were observed.

Buffers

King County establishes buffer widths based on the wetland category and habitat score. Wetland OWS 5-1 is classified as category IV with a habitat score of 7 (Appendix E). According to KCC 21A.24.325, given the low impact land use adjacent to Wetland OWS 5-1, a buffer of 25 feet is appropriate.

3.2.1.7 OWS 6

Three wetlands (6-1, 6-2, and 6-3) were identified of OWS 6. Since all three wetlands area located on SPU property, formal delineations were conducted.

Wetland OWS 6-1 (A)

Wetland OWS 6-1 (A) is a small (0.01 acre) palustrine emergent depressional wetland located to the north of the access road for OWS 6. An existing utility pole and spall/gravel road are present immediately to the south of Wetland OWS 6-1.

The dominant species present in the Wetland OWS 6-1 sample plot include creeping bentgrass (*Agrostis stolonifera*), and salmonberry. The dominant species in the data plot satisfy the hydrophytic vegetation criterion.

Soil observed in Wetland OWS 6-1 is described in Appendix D (Plot WL A). The observed A horizon consists of dark grayish brown (10YR 4/2) sandy clay loam with approximately 5% distinct dark yellowish brown (10YR 4/4) redox features 5mm in size. The A horizon extends down 16 inches below ground surface (bgs). The underlying layer consists of the same dark grayish brown (10YR 4/2) sandy clay loam but with 5% distinct dark yellowish brown (10YR 4/4) redox features slightly larger at 10-20mm. This horizon extends 16 to 20 inches bgs. The soil observed satisfies the Hydrogen Sulfide (A4) and Depleted Matrix (F3) indicators therefore satisfying the hydric soils criterion.

Sample pits in Wetland OWS 6-1 had surface water (A1), saturation (A3), and a high water table (A2) present. The presence of these primary indicators satisfies the wetland hydrology criterion.

Adjoining upland areas are characterized in plot UPL A (see Appendix D). The dominant species present in the corresponding upland plot includes western hemlock, evergreen huckleberry (*Vaccinium ovatum*), western sword fern, and salmonberry.

The upland soil consisted of a single horizon that did not satisfy hydric soil indicators, and indicators of wetland hydrology were not present.

Buffers
King County establishes buffer widths based on the wetland category and habitat score. Wetland OWS 6-1 is classified as category III with a habitat score of 7 (Appendix E). According to King County Code (KCC) 21A.24.325, given the low-impact land use adjacent to Wetland OWS 6-1, a buffer of 75 feet is appropriate.

Wetland OWS 6-2 (B)
Wetland OWS 6-2 (B) is a small (0.10 acre) palustrine forested depressional wetland located to the east of the access road end at OWS 6. An existing spall/gravel access area and utility poles and located immediately to the west of Wetland OWS 6-1 and separate it from the proposed OWS 6 pole location.

The dominant species present in the Wetland OWS 6-2 sample plot include western hemlock, slough sedge (*Carex obnupta*), and salmonberry. Addition species growing on hummocks within the wetland include salal (*Gaultheria shallon*), western sword fern, and trailing blackberry (*Rubus ursinus*). The dominant species in the data plot satisfy the hydrophytic vegetation criterion.

Soil observed in Wetland OWS 6-2 is described in Appendix D (Plot WL B). The observed A horizon consists of black (10YR 2/1) peaty loam and extends 2 inches BGS. The underlaying layer consists of the same black (10YR 2/1) peaty loam, however 3% faint very dark grayish brown (10YR 3/2) redox features are present as concentrations in the matrix. Organic matter is also present in this horizon extending 2 to 6 inches bgs. The third horizon extends 6 to 18 inches bgs and consists of grayish brown (10YR 5/2) silty clay loam with 7% faint brown (10YR 4/3) redox features present as concentrations in the matrix. The final horizon extends 18 to 20 inches bgs and consists of a less saturated gray (10YR 5/1) gravelly silty clay loam with 10% distinct dark yellowish brown (10YR 4/4) redox features present as concentrations in the matrix. The soil observed satisfies the Hydrogen Sulfide (A4), Depleted Matrix (F3), and Depleted Below Dark Surface (A11) indicators therefore satisfying the hydric soil criterion.

Sample pits in Wetland OWS 6-2 had surface water (A1), saturation (A3), and a high water table (A2) present. The presence of these primary indicators satisfies the wetland hydrology criterion.

Adjoining upland areas are characterized in the plot UPL B (see Appendix D). The dominant species present in the corresponding upland plot includes western hemlock, vine maple (*Acer circinatum*), salal, western sword fern, and trailing blackberry. Evergreen huckleberry and deer fern (*Blechnum spicant*) are also present in the plot.

The upland soil consisted of very dark grayish brown (10YR 3/2) gravelly silt loam split into two horizons. The first extending 2 inches BGS and the second 8 to 20 inches bgs. The B horizon contained 1% faint dark brown (10YR 3/3) redox features 2 to 5 millimeters in size; no hydric soil indicators were satisfied. Indicators of wetland hydrology were also not present.

Buffers
King County establishes buffer widths based on the wetland category and habitat score. Wetland OWS 6-2 is classified as category III with a habitat score of 7 (Appendix E). According to KCC 21A.24.325, given the low-impact land use adjacent to Wetland OWS 6-2, a buffer of 75 feet is appropriate.

Weland 6-3 (C)
Wetland OWS 6-3 (C) is a small (0.14 acre) palustrine scrub-shrub slope wetland located to the south of OWS 6. The area shows evidence of prior grading and slope failure, and may be located on an abandoned access road.

The dominant species present in the Wetland OWS 6-3 sample plot include bitter cherry (*Prunus emarginata*), reed canary grass (*Phalaris arundinacea*), soft rush (*Juncus effusus*), salmonberry, and trailing blackberry; western sword fern is present on hummocks within the wetland. The dominant species in the data plot satisfy the hydrophytic vegetation criterion.

Soil observed in Wetland OWS 6-3 is described in Appendix D (Plot WL C) and only consists of a single horizon Dark grayish brown (10YR 4/2) gravelly silty clay loam with 3% distinct yellowish brown (10YR 5/4) redox features extends 20 inches BGS. The soil observed satisfies the Hydrogen Sulfide (A4) and Depleted Matrix (F3) indicators therefore satisfying the hydric soil criterion.

Sample pits in Wetland OWS 6-3 had a high water table (A2) and saturation (A3) present. The presence of these primary indicators satisfies the wetland hydrology criterion.

Adjoining upland areas are characterized in the plot UPL C (see Appendix D). The dominant species present in the corresponding upland plot include oceanspray (*Holodiscus discolor*), creeping bentgrass, and trailing blackberry. Soft rush, western sword fern, coastal strawberry (*Fragaria chiloensis*), and tall fescue (*Schedonorous arundinaceous*) are also present in the plot. The upland soil does not meet any hydric soil indicators and therefore does not satisfy the hydric soil criterion; wetland hydrology criteria was also not satisfied.

<u>Buffers</u>
King County establishes buffer widths based on the wetland category and habitat score. Wetland OWS 6-3 is classified as category III with a habitat score of 7 (Appendix E). According to KCC 21A.24.325, given the low impact land use adjacent to Wetland OWS 6-3, a buffer of 75 feet is appropriate.

3.2.1.8 OWS 8

No wetlands were identified in the vicinity of OWS 8.

3.2.1.9 OWS 9

No wetlands were identified in the work area for OWS 9, but one wetland was located on the opposite side of the intersection from OWS 9. Wetland OWS 9-1 is a palustrine emergent, depressional wetland located northeast of the NE 60th Street and SR 203 intersection. The wetland is dominated by reed canarygrass along the road edge and extends into agricultural pasture grasses to the northeast. At the time of the site visit, there was standing water extending to the toe of the road. Wetland OWS 9-1 is located almost entirely on parcel 0925079020.

3.2.1.10 OWS 10

No wetlands were present in the OWS 10 work area, and no wetlands were identified within the Study Area.

3.2.1.11 HMS 1

No wetlands were identified in the HMS 1 work area, but two wetlands exist within the Study Area. Wetland HMS 1-1 is located at the western edge of the Study Area along, south of NE Carnation Farm Road. It is a palustrine emergent, depressional wetland dominated by reed canarygrass with Himalayan blackberry on the margins. Wetland HMS 1-1 extends onto parcel 0925079020.

The second wetland, Wetland HMS 1-2, is also depressional and dominated by reed canarygrass with scattered willows; it is located almost entirely in the ROW but extends onto parcel 0925079020.

3.2.1.12 HMS 2

Wetland HMS 2-1 is a palustrine forested, riverine wetland that runs parallel to Tolt River, extending north and south along the edges of Langlois Creek. A mix of recently planted saplings are in the western portion of the wetland with wetland delineation flagging scattered throughout the entire area. The eastern portion of Wetland HMS 2-1 has an overstory dominated by black cottonwood with red-osier dogwood, Himalayan blackberry, and reed canarygrass below. To the west of SR 203, the wetland buts up against the roadside slope with Himalayan blackberry extending toward the edge of the road prism. Red alder, red-osier dogwood, and reed canarygrass are present as well. In the adjacent upland, bigleaf maple, Himalayan blackberry, and western sword fern are the dominant vegetation.

3.2.1.13 HMS 3

Wetland HMS 3-1 is a palustrine depressional wetland located in the eastern half of the Study Area. It is entirely within the ROW off the northern third of the roundabout. The vegetation is dominated by black cottonwood, western red cedar, scotch broom (*Cytisus scoparius*), and mixed grasses.

3.2.1.14 HMS 4

The HMS 4 Study Area consists of three wetlands. Wetland HMS 4-1 is a palustrine emergent, depressional wetland located on parcel 2526069008, in the northwest portion of the Study Area. The wetland is bordered by red alder, bigleaf maple, snowberry, Himalayan blackberry, and oso berry with mixed grasses in the interior.

Located in the southwest corner of the intersection is Wetland HMS 4-2—a palustrine emergent, depressional wetland. Reed canarygrass is dominant with willows, red-osier dogwood, Nootka rose (*Rosa nutkana*), Himalayan blackberry, and black cottonwood along the edges. Wetland HMS 4-2 is located on parcel 2526069016.

Wetland HMS 4-3 abuts the northeastern corner of the roundabout. It is a palustrine scrub shrub, slope wetland dominated by willows and western red cedar. The wetland contains substantial amounts of sediment

deposition resulting from either natural flood events, upstream erosion, or a combination of the two. Wetland HMS 4-3 is located within the ROW and encroaches onto parcel 2526069108.

3.2.1.15 HMS 5

Wetland HMS 5-1 is a riverine wetland that abuts the west side of Snoqualmie River. The wetland is palustrine emergent toward the center and transitions into palustrine forested at its edges. It is located on parcels 2025079028, 2025079041, and the ROW. The center of the wetland is dominated by broadleaf cattail, skunk cabbage (*Lysichiton americanus*), and reed canarygrass. Red alder and willows dominate the wetland edges with black cottonwood along the slopes. There is spotty inundation and an irregular channel winding through the wetland going toward Snoqualmie River. Formal delineation of the wetland was conducted for the Tolt Bridge Replacement.

3.2.1.16 HMS 7

No wetlands were present in the HMS 7 work area, and no wetlands were identified within the Study Area.

3.2.1.17 HMS 8

Wetland HMS 8-1 encroaches onto the western edge of the Study Area. It is a palustrine emergent/forested, slope wetland dominated by broadleaf cattail, red alder, black cottonwood, and reed canarygrass. Wetland HMS 8-1 is located on parcels 2825079035 and 2125079025.

3.2.1.18 PSERN SWWAN

No wetlands were present in the PSERN SWAN work area, and no wetlands were identified within the Study Area.

3.2.1.19 Passive Antenna

No wetlands were present in the Passive Antenna work area, and no wetlands were identified within the Study Area.

3.2.2 Streams and other Water Features

The following table describes the streams and other water features occurring within Study Areas.

Table 8. Descriptions of Water Features

Location	Feature Type	Description
OWS 1	Ditch	Intersects the Study Area east-west along the northern edge of NE 80th Street.
OWS 2	Unnamed tributary **Type S**	Intersects the Study Area north-southeast. Originates from Tolt River at the Tolt River Natural Area and outlets into Tolt River downstream. Located on parcels 1125079033 and 1125079015.
OWS 3	Ditch	Intersects the Study Area north-south along the western edge of Tolt River Road NE.
OWS 3ex	Unnamed tributary **Type S**	Two branches originating from the north and northwest edge of the Study Area flowing south. Crosses under Tolt River Road NE through an 18-inch concrete culvert and connecting to Tolt River downstream. Located on parcels 1425079011, 1425079046, and the ROW.

Location	Feature Type	Description
	Ditch	Intersects the approximate center of the Study Area along the north side of Tolt River Road NE. Does not extend the entire length of the Study Area.
OWS 9	Unnamed tributary **Type S** *Within UGA*	Intersects the western half of the Study Area along the southern edge of NE 60th Street. Additionally, runs north-south through parcels 8656300006 and 8656300015.
OWS 10	Ditch	Intersects the approximate center of the Study Area along the northern edge of NE 40th Street.
HMS 1	Unnamed stream **Type S**	Intersects the southwest edge of the Study Area. Originating from Horseshoe Lake and presumably discharging into a wetland northwest of the Study Area. Located on parcel 0925079020.
HMS 2	Langlois Creek **Type F/S**	Intersects the Study Area west to east. Originates from Snoqualmie River just south of the Tolt River/Snoqualmie River confluence. Presumably discharges into a wetland east of the Study Area. Located on parcels 2125079006, 8657100240, and the ROW.
	Tolt River **Type F/S**	Intersects the Study Area at the northern edge flowing west toward the Tolt River/Snoqualmie River confluence. Located on parcels 212507HYDR and 222507HYDR.
HMS 3	Ditch	Runs along the southern edge of Neal Road SE, north of the Fall City Floating parking lot.
HMS 4	Unnamed tributary **Type S**	Intersects the Study Area east-west with no apparent connection to Snoqualmie River. Located on parcels 2526069090 and the ROW.
HMS 5	Unnamed tributary **Type S**	Intersects the Study Area along the southeast edge. Connects to Snoqualmie River south of the Tolt River/Snoqualmie River confluence. Located on parcels 2025079028 and 2025079041.
	Ditch	Located on the northern edge of NE Tolt Hill Road, west of the intersection.
	Ditch	Located on the northern edge of W River Road, north of the intersection.
HMS 7	Unnamed stream **Type F**	Originating from Lake Marcel and flowing south through the center of the Study Area. Crosses under SR 203 via culvert connecting to Harris Creek to the south. Located on parcels 8016100095, 8016100075, 8016100076, 8016100040, 0425079022, and the ROW.
HMS 8	Ditch	Located on the western edge of SR 203, broken into three distinct sections to accommodate driveways.
	Ditch	Located on the eastern edge of SR 203, north of the intersection of Langlois Lake Road.

Location	Feature Type	Description
	Ditch	Located on the southern edge of Langlois Lake Road, broken into two distinct sections to accommodate driveways and extending south along the edge of SR 203.

3.2.2.1 Buffers

King County establishes stream buffer widths based on the stream class (KCC 21A.24.358). For type S or F aquatic areas within the Urban Growth Area (UGA), aquatic buffers are 115 feet; outside the UGA, the buffer for a type S or F stream is 165 feet. It is important to note that all buffers, regardless of size, do not extend onto the King County ROW/road prism.

3.2.3 Other Habitat and Site Descriptions

3.2.3.1 OWS 1

A dry ditch runs along the north side of N 80th Street with scattered patches of reed canary grass. North of N 80th Street, the landscape is dominated by mowed grass with several planted western red cedars and scattered dandelion (*Taraxacum officinale*), hairy cat's ear (*Hypochaeris radicata*), and creeping buttercup (*Ranunculus repens*). Snowberry (*Symphoricarpos albus*), planted apple and cherry trees, and a few big leaf maple (*Acer macrophyllum*) occur along the eastern roadside. South of N 80th Street, the landscape is dominated by western red cedar and big leaf maple with an understory of snowberry, mixed grasses, and piggyback plant (*Tolmiea menziesii*), and creeping buttercup. Southeast of the proposed location, Douglas fir (*Pseudotsuga menziesii*) and vine maple dominate with an understory of snowberry, western sword fern, and mixed grasses with scattered creeping buttercup closer to the road edge.

3.2.3.2 OWS 2

A dry ditch runs north to south through the Study Area along the west edge of Tolt River Road NE. The northwest quadrant is dominated by big leaf maple, black cottonwood, and western red cedar (*Thuja plicata*). The understory consists of salmonberry, snowberry, and pacific bleeding heart (*Dicentra Formosa*). Transitioning south, Himalayan blackberry dominates the sub-canopy with scattered willows (*Salix sp.*) and a patch of bamboo. Bracken fern (*Pteridium aquilinum)* and orchard grass (*Dactylis glomerata*) are prominent in the understory. In the southwest quadrant is residential landscaping with mixed grasses, fruit trees, English Ivy (*Hedera helix*) and a patch of willows at the southern edge of the Study Area. East of the willow patch is an excavated pond with rock boundaries to the west and steep sided slopes. The landscape around the pond is dominated by English holly (*Ilex aquifolium)*, red alders, ornamental vines, and pampas grass (*Cortaderia selloana)*. North of the pond, the landscape is dominated by big leaf maple, Himalayan blackberry, and creeping buttercup. A stream runs through the Study Area from the northern edge to the southeastern edge; the slope above the stream is vegetated with western red cedar, big leaf maple, oso berry (*Oemleria cerasiformis*), salmonberry, snowberry, and western sword fern. Further north, on a terrace above the stream, salmonberry, piggyback plant, big leaf maple, and red alder are dominant.

3.2.3.3 OWS 3ex

Two streams intersect the Study Area, meeting northwest of the existing pole and flowing under Tolt River Road NE through two culverts west and east of the existing pole—36 inches wide and 18 inches wide respectively. A drainage ditch flows east along the north side of Tolt River Road NE with patches of piggyback plant on the slope. At the west edge of the Study Area, the canopy is dominated by big leaf maple and western red cedar with big leaf maple saplings, Himalayan blackberry, salmonberry, western sword fern, and English holly in the understory. Moving south, the landscape is vegetated with red alder, Douglas fir, western red cedar, and big leaf maple on the margin. The sub-canopy is dominated by snowberry and salmonberry with reed canary grass in the understory. The drainage ditch flows east into a palustrine emergent wetland located just outside the Study Area. The eastern half of the slope above the ditch is vegetated with reed canary grass, creeping buttercup, stinging nettle (*Urtica dioica*), Robert's geranium (*Geranium robertainum)*, and western sword fern. South of Tolt River Road NE, the canopy is dominated by western red cedar and big leaf maple with oso berry and Himalayan blackberry in the understory.

3.2.3.4 OWS 3

A well-defined dry ditch runs along the west side of Tolt River Road NE. The ditch is vegetated with creeping buttercup, salmonberry, and mixed grasses. At the southern edge of the Study Area, west of Tolt River Road NE is a palustrine scrub shrub, depressional wetland. At the time of the site visit it was inundated and vegetated with salmonberry and red-osier dogwood (*Cornus sericia)*. There is no direct connection to the roadside ditch. On the northern edge of the Study Area, west of Tolt River Road NE is a narrow slope wetland, saturated from surface runoff. The northwest quadrant of the Study Area is dominated by western red cedar and big leaf maple. Moving south, the same canopy dominates with the addition of black cottonwood. Vine maple, salmonberry, and oso berry make up the sub-canopy; creeping buttercup, piggyback plant, and coltsfoot (*Tussilago farfara*) dominate the understory. To the east, the canopy is dominated by big leaf maple and western red cedar with vine maple, salmonberry, and trailing blackberry in the sub-canopy. Western sword fern and bracken fern dominate the understory. The landscape to the south is comprised of the same vegetation with the addition of black cottonwood in the canopy, and oso berry and salmonberry in the sub-canopy.

3.2.3.5 OWS 4

The majority of the Study Area is occupied by residential lawns with mixed, mowed grasses. The Snoqualmie Valley Trail is west of the proposed location. The trail has a canopy dominated by big leaf maple with scattered black cottonwood. Himalayan blackberry dominates the understory. The northern portion of the trail also contains creeping buttercup along the edges.

3.2.3.6 OWS 5

The northeastern portion of the Study Area is occupied by a mixed, mowed grass lawn extending to the South Fork Tolt Reservoir. The southern half of the Study Area is occupied by dense, upland forest. The canopy is dominated by western hemlock and Douglas fir. Western sword fern dominates the understory with scattered patches of dull Oregon grape (*Mahonia nervosa*) and salmonberry. The northwest portion of the Study Area is occupied by significantly less dense upland vegetation. Wetland 5-1 is also located in this area. In the upland areas, Douglas fir dominates. Wetland D is comprised of black cottonwood, pacific willow, and red alder. The understory is dominated by creeping bentgrass and reed canary grass.

3.2.3.7 OWS 6

The Study Area is dominated by dense upland forest except for three wetlands and accompanied vegetation (Wetland OWS 6-1, Wetland OWS 6-2, and Wetland OWS 6-3). An access road runs through the Study Area northwest to southeast and is bordered by salmonberry, piggyback plant, and western sword fern. The upland areas have a mixed canopy of western hemlock, big leaf maple, and Douglas fir. Evergreen huckleberry, western sword fern, salal, deer fern, oceanspray, and creeping bentgrass are also present in the understory. The wetland vegetation is comprised of salmonberry, slough sedge, soft rush, and reed canary grass.

3.2.3.8 OWS 8

The southern half of the Study Area is occupied by recently constructed single-family housing and associated landscape. Planted natives, western red cedar, snowberry, western sword fern, and big leaf maple can be found in the landscaped areas with unknown conifers along the sidewalks. To the north, the canopy is dominated by black cottonwood, big leaf maple, and red alder. Red-osier dogwood, Himalayan blackberry, snowberry, oso berry, and trailing blackberry make up the sub-canopy. The understory is comprised of white clover (*Trifolium repens*), common dandelion, and dove's foot geranium (*Geranium mole)*. The landscaped yards on the northern edge of Tolt River Road NE also have scattered fruit trees—specifically apple and cherry species.

3.2.3.9 OWS 9

The north side of NE 60th Street is occupied by agricultural land, the south side by rural single-family residences and accompanying landscaping. In the northeast corner of the intersection, there is standing water extending to the toe of the road vegetated with reed canary grass. The landscaping to the south mainly consists of mowed grasses, Himalayan blackberry, and Douglas fir based on what was visible from the roadsides.

3.2.3.10 OWS 10

The northern half of the Study Area is occupied by fields of mowed grasses and mixed forbs. Lombardy poplar (*Populus nigra*) line the parking lot on the north side of NE 40th Street. The south side of NE 40th Street contains mowed grass as well with dove's foot geranium, common dandelion, tall fescue (*Festuca arundinacea*), and creeping buttercup mixed in. The western edge of the Study Area also contains scattered western red cedar, red alder, roses (*Rosa multiflora*), creeping buttercup, and reed canary grass.

3.2.3.11 HMS 1

The northern half of the Study Area is occupied by wet pasture with saturation that extends to the road edge. It is vegetated with mixed grasses and reed canarygrass and Himalayan blackberry at the road edge. The southern side of NE Carnation Farm Road is occupied by reed canary grass and Himalayan blackberry extending to the road edge. South of the intersection, along the western edge of SR 203, an inundated drainage ditch extends to the toe of the slope at the road edge with reed canary grass and knot weed (*Polygonum cuspidatum*) growing in the ditch. The southeast quarter of the Study Area is vegetated with black cottonwoods, reed canary grass, and a patch of willows extending east from the road edge (*Salix sp.*). The willows may be indicative of a wetland, though no hydric soils are mapped in the Study Area; right of entry needed to dig soil plots on private land.

3.2.3.12 HMS 2

In the northwest quarter of the Study Area is occupied by what appears to be a wetland spanning from the edge of the Tolt Riverbank to the toe of the roadside slope; the canopy is dominated by red alders with red-osier dogwood in the sub-canopy and reed canary grass below. There are also scattered native saplings that appear to have been recently planted in a restoration or mitigation effort. The northwest edge of NE 32nd Street is vegetated with big leaf maple, Himalayan blackberry, and western sword fern. The apparent wetland continues into the northeast quarter of the Study Area and wetland delineation flagging is visible from the roadside. The canopy is comprised of black cottonwood with red-osier dogwood, Himalayan blackberry, and reed canary grass below. The Study Area intersects Tolt River at the northern edge. The southwest quarter is occupied by rural residences with mowed grasses, cherry trees, and red oak (*Quercus rubra*). Southeast of the intersection is a pasture with two noticeable topographic depressions. A roadside ditch runs along the south side of NE 32nd Street and is vegetated with cutleaf blackberry (*Rubus laciniatus*), Himalayan blackberry, snowberry, and creeping buttercup.

3.2.3.13 HMS 3

The west side of SR 203 is occupied by mixed grasses—mainly tall fescue and reed canary grass—with curly dock (*Rumex crispus)*, mustard plant (*Sisymbrium sp.)*, poison hemlock (*Conium maculatum*), and little western bittercress (*Cardamine hirsuta L.)* intermixed. West of the roundabout, black cottonwoods, red alders, western red cedars, and Himalayan blackberry dominate the landscape. South of the roundabout is a dense patch of vegetation with a canopy mainly comprised of black cottonwoods with few western red cedars; mowed grasses, scotch broom, and Himalayan blackberry extend to the road edge.

3.2.3.14 HMS 4

The landscape west of the roundabout is occupied by wet pasture bordered by wetland that extends to the toe of the road slope; at the time of the site visit, frog calls were audible. The vegetation is dominated by reed canary grass and Himalayan blackberry with scattered snowberry, willows (*Salix sp.),* red-osier dogwood, black cottonwood, and a few planted Douglas firs and western red cedars. The Snoqualmie Valley Trail intersects the Study Area north to south. Vegetation along the trail includes Oregon grape (*Mahonia aquifolium*), red alder, maple, snowberry, Himalayan blackberry, and oso berry. Northeast of the roundabout is a palustrine scrub-shrub wetland that appears to have been altered with fill. The canopy is comprised of willows (*Salix sp.*), and western red cedars. A roadside ditch runs along the east side of SR 203 and NE 124th Street. The slope above the ditch is vegetated with big leaf maple, western sword fern, and snowberry. Further north along NE 124th Street, the vegetation also includes beaked hazelnut (*Corylus cornuta*), salmonberry, oso berry, and Douglas fir. Reed canary grass, common dandelion, and creeping buttercup are the primary vegetation along the roadside.

3.2.3.15 HMS 5

A previously delineated wetland is located south of the intersection below the road prism. The wetland is palustrine emergent in the east and palustrine forested in the west. The canopy consists of red alder, and willow (*Salix sp.*). An irregular channel connects the wetland to Snoqualmie River. Additional vegetation in the wetland includes western skunk cabbage, broadleaf cattail (*Typha latifolia.*), and reed canary grass. The slope along the south side of West River Road is vegetated with red alder, black cottonwood, Himalayan blackberry, and few scattered big leaf maple saplings. The western edge of the Study Area between NE Tolt Hill Road and West River Road has a big leaf maple canopy with beaked hazelnut, snowberry, Himalayan blackberry, and mixed grasses in the understory. The northwest quarter of the Study Area is dominated by Douglas fir, big leaf maple, beaked hazelnut, and Himalayan blackberry. A drainage ditch runs along the north side of NE Tolt Hill Road with scattered scotch broom. To the east, mixed grasses are prominent—mainly orchard grass—with scattered creeping bentgrass, tall fescue, dove's foot geranium, and hairy cat's ear.

3.2.3.16 HMS 7

The southern edge of the Study Area is occupied by mowed grass with a canopy of big leaf maple, black cottonwood, and red alder. Himalayan blackberry is dominant with a few patches of knotweed and common mullein (*Verbascum Thapsus*). Northwest of the intersection, landscaped yards occupy the majority of the area with scattered apple trees, big leaf maple, and knotweed. Just west of the intersection, a stream runs under SR 203 into Essency Creek. The landscape to the east between NE Stillwater Hill Road and SR 203 is dominated by big leaf maple, Himalayan blackberry, oso berry, and snowberry. A dry ditch runs along the north side of NE Stillwater Hill Road with a canopy of black cottonwood and scattered maples. The understory is comprised of oso berry, Himalayan blackberry, and western sword fern.

3.2.3.17 HMS 8

An 18-inch drainage ditch runs along the west side of SR 203 and a palustrine forested/emergent wetland occupies the western edge of the Study Area. The wetland is vegetated with broadleaf cattails, red alder, cottonwood, and reed canary grass. South of the intersection, purple deadnettle (*Lamium purpureum*) is scattered along the roadside and pasture with mowed grasses extends west. Another 18-inch drainage ditch vegetated with reed canary grass runs along the east side of SR 203. Landscaped yards occupy the area north of the intersection. The vegetation is dominated by western red cedar, ornamental conifers, relic native trees, and a few Douglas fir saplings. There are dense patches of Himalayan blackberry on the roadside slopes with scattered English ivy and cherry laurel (*Prunus laurocerasus)*. South of the intersection, an 18-inch drainage ditch runs along the east side of SR 203 vegetated with reed canary grass and scotch broom on the slope. The landscaped yard south of the intersection contains Lombardy poplar, bracken fern, scotch broom, and western red cedars.

3.2.3.18 Passive Antenna

Tolt Reservoir Road intersects the Study Area to the southeast. The Study Area is occupied by dense upland vegetation with a mixed canopy comprised of western hemlock and Douglas fir. The understory is relatively bare; however, lots of downed large woody debris occupies the forest floor covered by a variety of lichens and mosses. Few scattered western sword ferns are also present, mainly growing on hummocks. The soils top layer is comprised of detritus—mainly decaying needles.

3.2.3.19 PSERN SWAN

The eastern half of the Study Area is occupied by dense upland vegetation. The canopy is comprised of red alder, big leaf maple, western hemlock, and Douglas fir. The understory is dominated by creeping bentgrass, western sword fern, tall fescue, Himalayan blackberry, and salal. The western half of the Study Area contains concrete lined stormwater ponds and a gravel access road crossing the northern edge. Red-osier dogwood, mixed grasses, and salal line the edges of the access road.

3.2.4 Steep Slopes, Erosion Hazard, and Landslide Hazard

King County regulates steep slopes under zoning code 21A.24. The County defines steep slopes as areas with a slope over 40 percent grade and greater than 10 feet high. PBS evaluated the presence of steep slopes and their buffers using data from the King County GIS dataset. As a result, this evaluation should be considered preliminary. A licensed geotechnical engineer must be consulted to determine whether the preliminarily identified areas fall within the King County definitions for Steep Slopes and landslide prone areas.

This evaluation identified steep slopes within the following Study Areas:

- OWS 1 – Regulated steep slopes are present within study area but are not within 50 feet of proposed work area. The proposed work will not affect steep slopes or their buffers.
- OWS 2 – Regulated steep slopes are present within study area, and the proposed work is within 50 feet of steep slope areas (and therefore within steep slope buffers), but all work activity will be located above the top of slope in an existing developed roadway and will result in minimal grading or loss of vegetation.
- OWS 3ex – Steep slopes are present in the work area, but no clearing or grading activities are proposed. The existing pole will be cut level with the ground surface and the base left in place. Any disturbed area will be replanted with a suitable erosion control seed mix. As a result, the proposed work in this location will not affect steep slopes or their buffers.

- OWS 3 – Regulated steep slopes are present within study area, however, these areas are more than 90 feet from the proposed work area and on the opposite side of roadway. As a result, the proposed work in this location will not affect steep slopes or their buffers.
- OWS 6 – Regulated steep slopes are present within study area and within 50 feet of the new pole location. The proposed work will include approximately 1,010 square feet of clearing and grading in steep slope buffer. The affected area has already been modified by previous work activities in the utility easement and will be restored to a stable grade and replanted or repaved with gravel to ensure the area surrounding the pole and access is stable is not subject to erosion.
- OWS 8 – Regulated steep slopes are present within study area, however, however these areas are more than 200 feet from the proposed pole location and on the opposite side of Tolt River Road SE. As a result, the proposed work in this location will not affect steep slopes or their buffers.
- HMS 4 – Regulated steep slopes are present within study area and are within 50 feet of the proposed message sign location at the NE corner of the intersection. However proposed message sign is on the opposite side of NE 124th Street from the steep slope. As a result, the proposed work in this location will not affect steep slopes or their buffers.
- HMS 5 – Regulated steep slopes are present within study area, and within 50 feet of the proposed message sign location. However, the proposed message sign will be placed within an existing developed gravel parking area. Work activities will not result in clearing of vegetation, and the area will be restored to pre-existing grades and repaved with gravel. As a result, the proposed work in this location will not affect steep slopes or their buffers.
- HMS 7 – Regulated steep slopes are present within study area but are over 50 feet of the proposed message sign location. As a result, the proposed work in this location will not affect steep slopes or their buffers.
- PSERN SWAN – Regulated steep slopes are present within study area but are over 50 feet of the proposed improvements. All work in this location will be within the existing developed tower footprint and access area. As a result, the proposed work in this location will not affect steep slopes or their buffers.

3.2.5 Areas of Special Flood Hazard

King County regulates development within Areas of Special Flood Hazard under King County Code 21A.24 sections 21A.24.230 through 21A.24.272. The following sites are subject to regulation:

- HMS 1 – FEMA floodway
- HMS 3 – FEMA floodway
- HMS 4 – FEMA 100-year floodplain
- OWS 1 – FEMA 100-year floodplain
- OWS 9 – FEMA 100-year floodplain
- OWS 10 – FEMA floodway

3.2.5.1 Regulatory Constraints

King County allows for development within the floodplain so long as development and alterations shall not reduce the effective base flood storage volume of the floodplain. The proposed project effects should not alter the floodway as the poles are less than 18 inches in diameter and located within existing developed road prisms.

4 SUMMARY OF REGULATORY CONSTRAINTS

The following table identifies the pole or structure installation, the extend of work, relevant critical areas, and any regulatory constraints.

Table 9. Impacts by Critical Area

Facility	Jurisdiction	WSDOT ROW?	Area of Disturbance (Square Feet)	Volume of Fill (Cubic Yards)	Affected Areas				
					Shorelines	Wetland	Streams	Steep Slopes	Floodplain*
Outdoor Warning Sirens									
OWS 1	*King County*	No	~100	3.23	Exempt (Conservancy) ~100 SF 3.23 CY	-	-	-	FEMA Zone AE ~100 SF 3.23 CY
OWS 2	*King County*	No	~100	~1.8	-	-	-	-	-
OWS 3 Ex	*King County*	No	~100	~1.8	-	-	-	-	-
OWS 3 New	*King County*	No	~100	~1.8	-	-	-	-	-
OWS 4	*Carnation*	No	~100	~1.8	-	-	-	-	-
OWS 5	*King County*	No	-	-	-	-	-	-	-
OWS 6	*King County*	No	1,500	~1.8	-	-	-	1,500 SF (Buffer)	-
OWS 8	*City of Carnation*	No	~100	~1.8	-	-	-	-	-
OWS 9	*King County*	No	~100	0.20	Residential ~100 SF 0.20 CY	-	-	-	FEMA Zone AE ~100 SF 0.20 CY
OWS 10	*King County*	No	~100	1.74	Conservancy ~100 SF 1.74 CY	-	-	-	FEMA Floodway ~100 SF 1.74 CY

Facility	Jurisdiction	WSDOT ROW?	Area of Disturbance (Square Feet)	Volume of Fill (Cubic Yards)	Affected Areas				
					Shorelines	Wetlands	Streams	Steep Slopes	Floodplain*
Highway Message Signs									
HMS 1	*King County*	No	~100	0.28	Resource ~100 SF 0.28 CY	-	-	-	FEMA Floodway ~100 SF 0.28 CY
HMS 2	*King County*	Yes	~100	~1.8	Conservancy ~100 SF ~1.8 CY	-	-	-	-
HMS 3	*King County*	Yes	~100	1.07	Resource ~100 SF 1.07 CY	-	-	-	FEMA Floodway ~100 SF 1.07 CY
HMS 4 (3 signs)	*King County*	Yes	~1,000	5.72 (all 3 signs)	Conservancy, Resource ~1,000 SF 5.72 CY	-	-	-	FEMA Zone AE Sign 4NW ~800 SF 2.12 CY
HMS 5	*King County*	No	~100	~1.8	-	-	-	-	-
HMS 7	*King County*	Yes	~55	~1.8	-	-	-	-	-
HMS 8	*King County*	Yes	~170	~1.8	-	-	-	-	-
Other Facilities									
Queen Anne Hill	*Seattle*	No	-	-	-	-	-	-	-
Passive Antenna	*King County*	No	-	-	-	-	-	-	-
PSERN SWAN	*King County*	No	-	-	-	-	-	-	-
									-

Facility	Jurisdiction	WSDOT ROW?	Area of Disturbance (Square Feet)	Volume of Fill (Cubic Yards)	Affected Areas				
					Shorelines	Wetlands	Streams	Steep Slopes	Floodplain*
Evacuation Route Signage									
Various locations	*King County, Carnation, Duvall*	Yes	-	-	-	-	-	-	-
Total			**3,925**	**30.24**					1,100 SF 8.64 CY

* Floodplain fill volume includes volume of pole above ground surface and below 100 year flood surface elevation.

King County Code (KCC) 21A.24.045 allows for all alterations to erosion hazard areas, flood hazard areas, landslide hazard areas, and steep slope hazard areas as long as they comply with the development standards, impact avoidance, mitigation requirements, and other applicable requirements established. Specifically, the code allows construction of new utility corridor or utility facility and maintenance, repair or replacement of utility corridor or utility facility if the following conditions is met:

> *32. Allowed in an existing roadway if conducted consistent with the regional road maintenance guidelines.*

The proposed work within existing roadways will be consistent with the regional road maintenance guidelines.

> *33. Allowed outside the roadway if:*
> *a. the alterations will not subject the critical area to an increased risk of landslide or erosion;*
> *b. vegetation removal is the minimum necessary to locate the utility or construct the corridor; and*
> *c. significant risk of personal injury is eliminated or minimized in the landslide hazard area.*

The proposed work outside existing roadways:
Is minor in nature and will not increase risk or landslide or erosion;
Will remove the minimum vegetation necessary for pole installation and maintenance; and
Doe to the location of the facility, will eliminate or minimize the risk of *significant risk of personal injury in the landslide area.*

> *34. Limited to the pipelines, cables, wires and support structures of utility facilities within utility corridors if:*
> *a. there is no alternative location with less adverse impact on the critical area and critical area buffer;*
> *b. new utility corridors meet the all of the following to the maximum extent practical:*
> *(1) are not located over habitat used for salmonid rearing or spawning or by a species listed as endangered or threatened by the state or federal government unless the department determines that there is no other feasible crossing site;*
> *(2) the mean annual flow rate is less than twenty cubic feet per second; and*
> *(3) paralleling the channel or following a down-valley route near the channel is avoided;*
> *c. to the maximum extent practical utility corridors are located so that:*
> *(1) the width is the minimized;*
> *(2) the removal of trees greater than twelve inches diameter at breast height is minimized;*
> *(3) an additional, contiguous and undisturbed critical area buffer, equal in area to the disturbed critical area buffer area including any allowed maintenance roads, is provided to protect the critical area;*
> *d. to the maximum extent practical, access for maintenance is at limited access points into the critical area buffer rather than by a parallel maintenance road. If a parallel maintenance road is necessary the following standards are met:*
> *(1) to the maximum extent practical the width of the maintenance road is minimized and in no event greater than fifteen feet; and*

(2) the location of the maintenance road is contiguous to the utility corridor on the side of the utility corridor farthest from the critical area;
e. the utility corridor or facility will not adversely impact the overall critical area hydrology or diminish flood storage capacity;
f. the construction occurs during approved periods for instream work;
g. the utility corridor serves multiple purposes and properties to the maximum extent practical;
h. bridges or other construction techniques that do not disturb the critical areas are used to the maximum extent practical;
i. bored, drilled or other trenchless crossing is laterally constructed at least four feet below the maximum depth of scour for the base flood;
j. bridge piers or abutments for bridge crossing are not placed within the FEMA floodway or the ordinary high water mark;
k. open trenching is only used during low flow periods or only within aquatic areas when they are dry. The department may approve open trenching of type S or F aquatic areas only if there is not a feasible alternative and equivalent or greater environmental protection can be achieved; and

34a, Flexibility in pole location is limited by the need to allow for radio access to the poles (line-of-sight) to convey the flood warning to resident and motorists. The facilities have been sited to minimize impact while achieving these goals.

34b. The proposed work does not create a new utility corridor, but pole will not be located in or over salmonid or other ESA habitat, will avoid area of >20 CFS flow and paralleling stream channels to the maximum extent possible.

34c. The proposed work does not create a new utility corridor, but pole:
The installations will minimize the width of potential impacts.
Tree removal will be avoided or minimized; and
Buffer impacts will be minimized to the maximum extend practical.

34d. Access to the poles will limit impact to critical areas and buffers, and no parallel maintenance road will be required.

36. Allowed for onsite private individual utility service connections or private or public utilities if the disturbed area is not expanded and no hazardous substances, pesticides or fertilizers are applied.

36. Maintenance or replacement activities will not expand disturbance activities in wetland buffers or severe channel hazard migration zones. No hazardous substances, pesticides or fertilizers will be applied.

5 DISCLAIMER

This report is based on observations of vegetation, soils, and hydrology at the time of the study. Changing environmental conditions or human activities may alter those parameters, which may change the conclusions presented in this report. The conclusions in this report represent the investigator's interpretation of the specified technical manuals and best available science and may not correspond with observations or conclusions of others, including government agencies.

This report was prepared to meet current local, state, and federal regulations. PBS is not responsible for changes made to regulations and reporting requirements after the report has been completed. Final authority regarding jurisdiction and permitting requirements rests with the appropriate agencies.

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Photographs

Photo 1. OWS 1 proposed location

Photo 2. OWS 2 proposed location.

Photo 3. OWS 3 existing pole to be replaced.

Photo 4. OWS 3 proposed location.

Photo 5. OWS 4 proposed location

Photo 6. South Fork Tolt Reservoir from the mowed grasses north of the Tolt Vista House (OWS 5).

Photo 7. OWS 6 proposed location.

Photo 8. New housing development near OWS 8 proposed location.

Photo 9. OWS 9 proposed location.

Photo 10. Tolt-MacDonald Park parking lot near OWS 10 proposed location.

Photo 11. Drainage ditch near HMS 1 proposed location.

Photo 12. HMS 2 proposed location.

Photo 13. HMS 3 proposed location.

Photo 14. HMS 4SW proposed location.

Photo 15. HMS 4NW proposed location.

Photo 16. HMS 4NE proposed location.

Photo 17. HMS 5 proposed location.

Photo 18. NE Stillwater Hill Road/SR 203 intersection (HMS 7 proposed location).

Photo 19. NE 24th Street/SR 203 intersection (HMS 8 proposed location).

Photo 20. Existing PSERN SWAN antenna site.

Photo 21. Flagging tape and hummocks in Wetland A.

Photo 22. Flagging tape in Wetland B.

Photo 23. Wetland C.

Photo 24. Wetland D.

Appendix A

Project Location Maps (Figures 1-1 to 1-18)

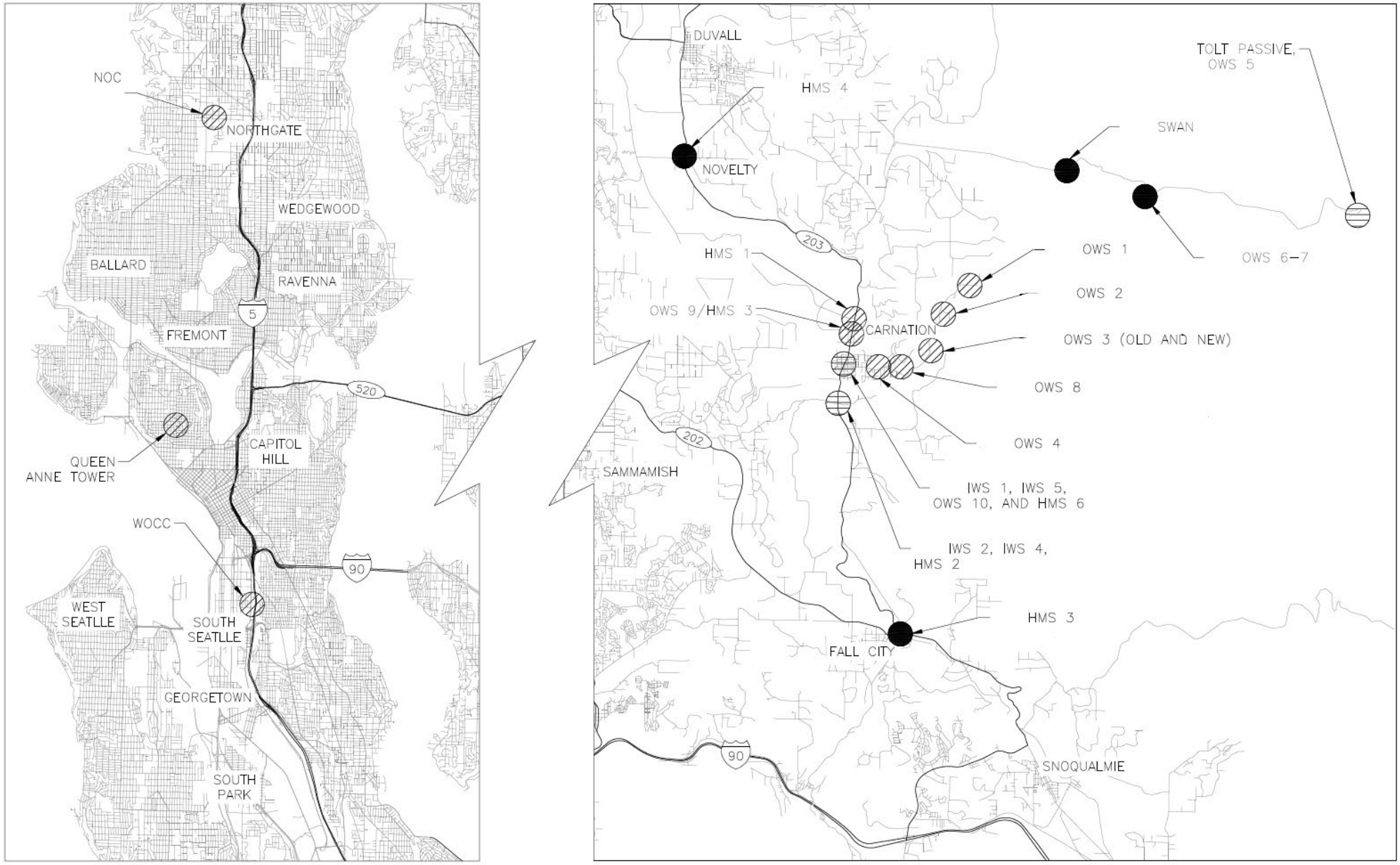
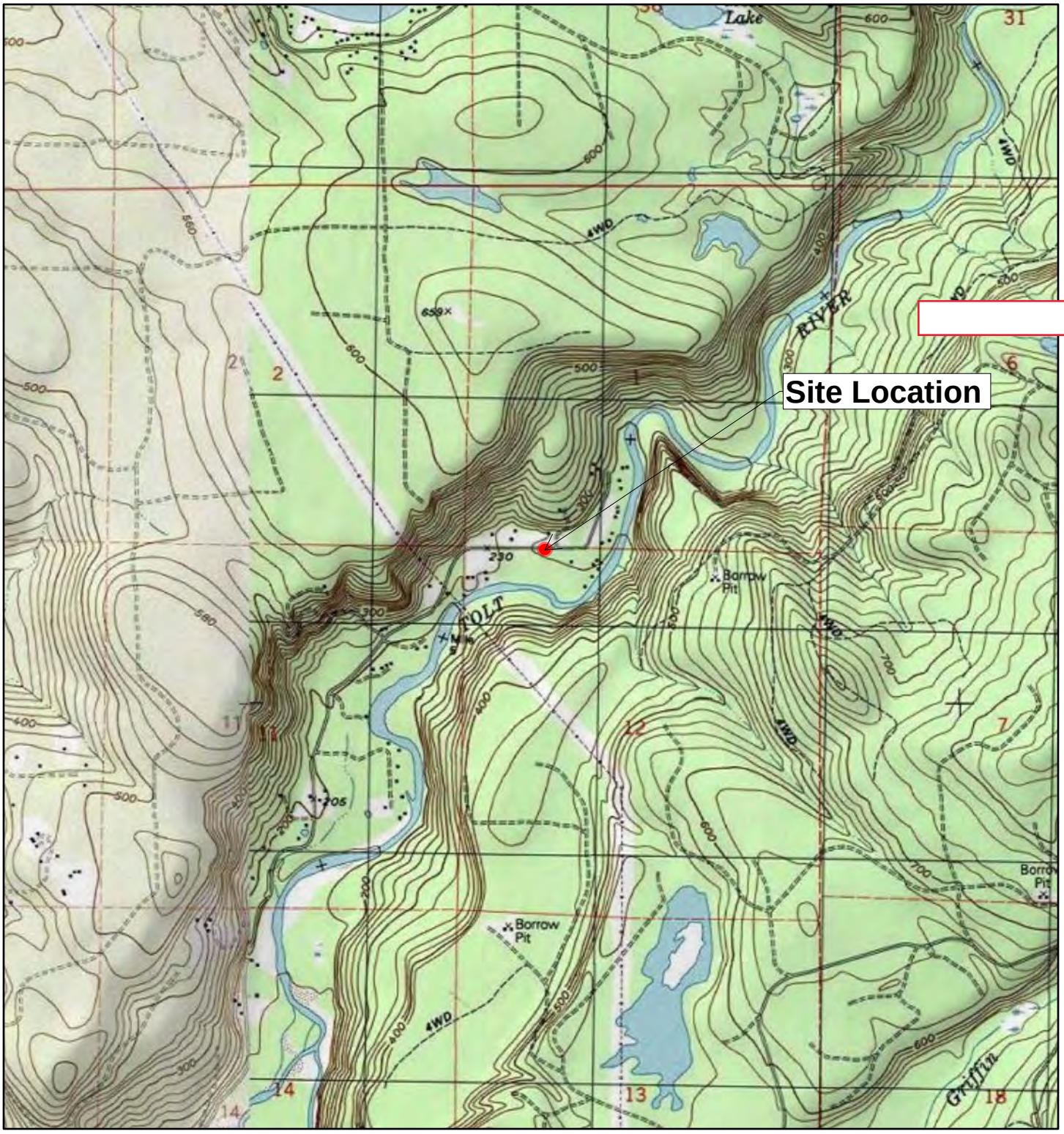


Figure 1-1. Overview of project locations for Seattle Public Utilities' South Fork Tolt Early Warning System Project (C115120).

Figure 1-2. Vicinity Map - OWS 1



NW1/4 of Section 12, T.25N., R.07E.

1:36,112

0 0.2 0.4 0.8 mi

0 0.33 0.65 1.3 km

USGS
2021 USGS

Figure 1-3. Vicinity Map - OWS 2

SE1/4 of Section 11, T.25N., R.07E.

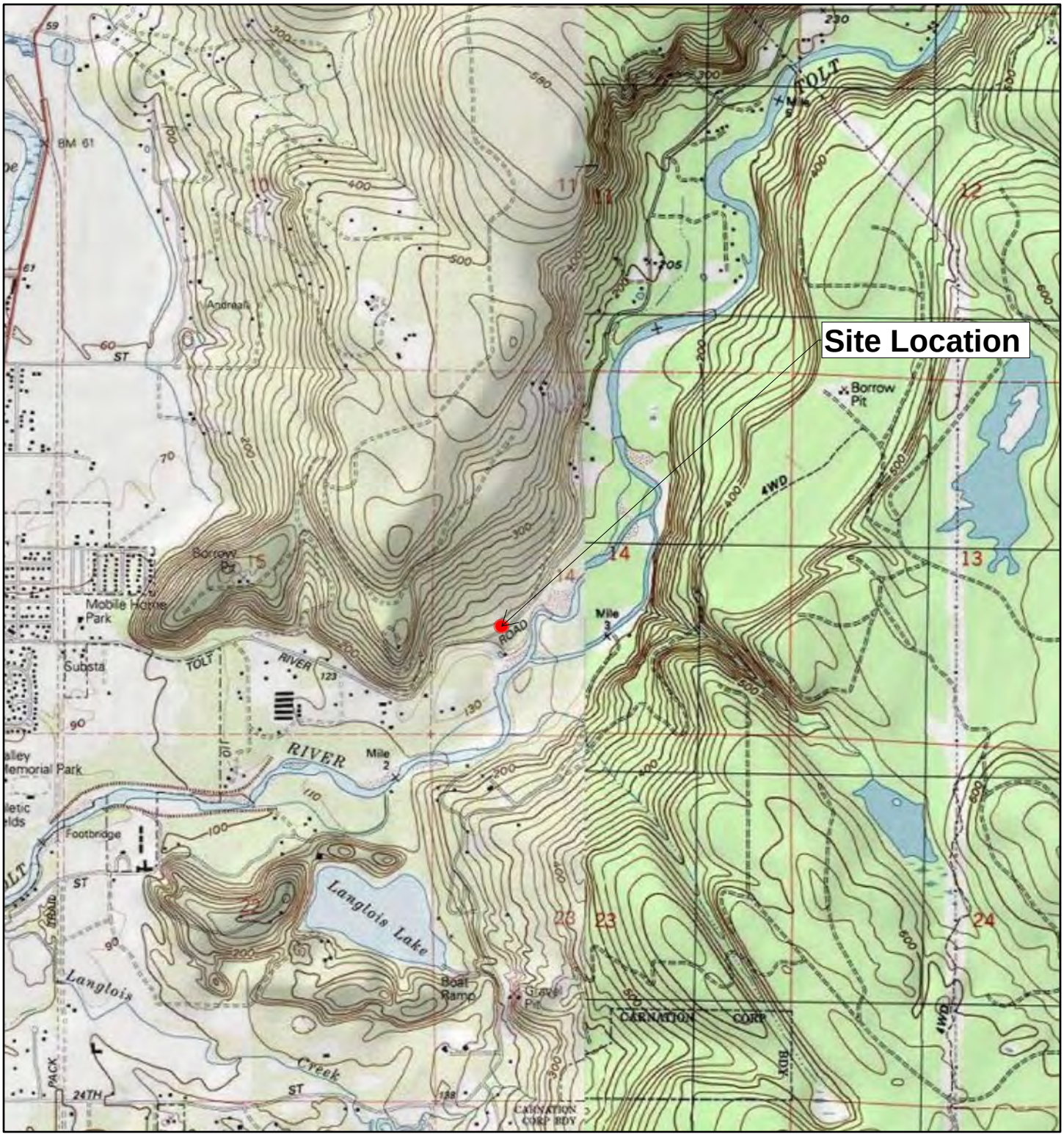
1:36,112

0 0.2 0.4 0.8 mi

0 0.33 0.65 1.3 km

USGS
2021 USGS

Figure 1-4. Vicinity Map - OWS 3 (OLD)



SW1/4 of Section 14, T.25N., R.07E.

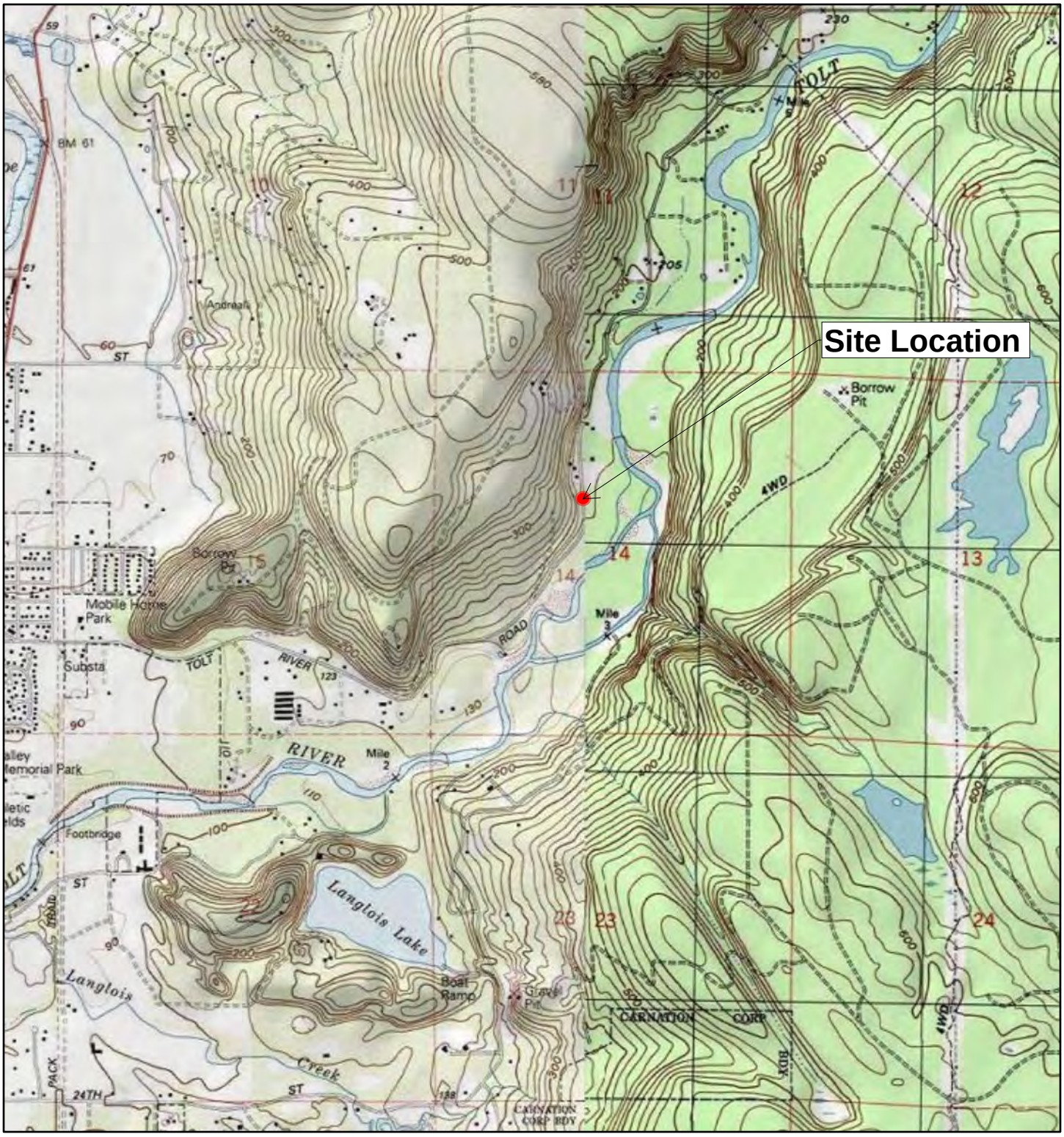
1:36,112

0 0.2 0.4 0.8 mi

0 0.33 0.65 1.3 km

USGS
2021 USGS

Figure 1-5. Vicinity Map - OWS 3 (NEW)



NW1/4 of Section 14, T.25N., R.07E.

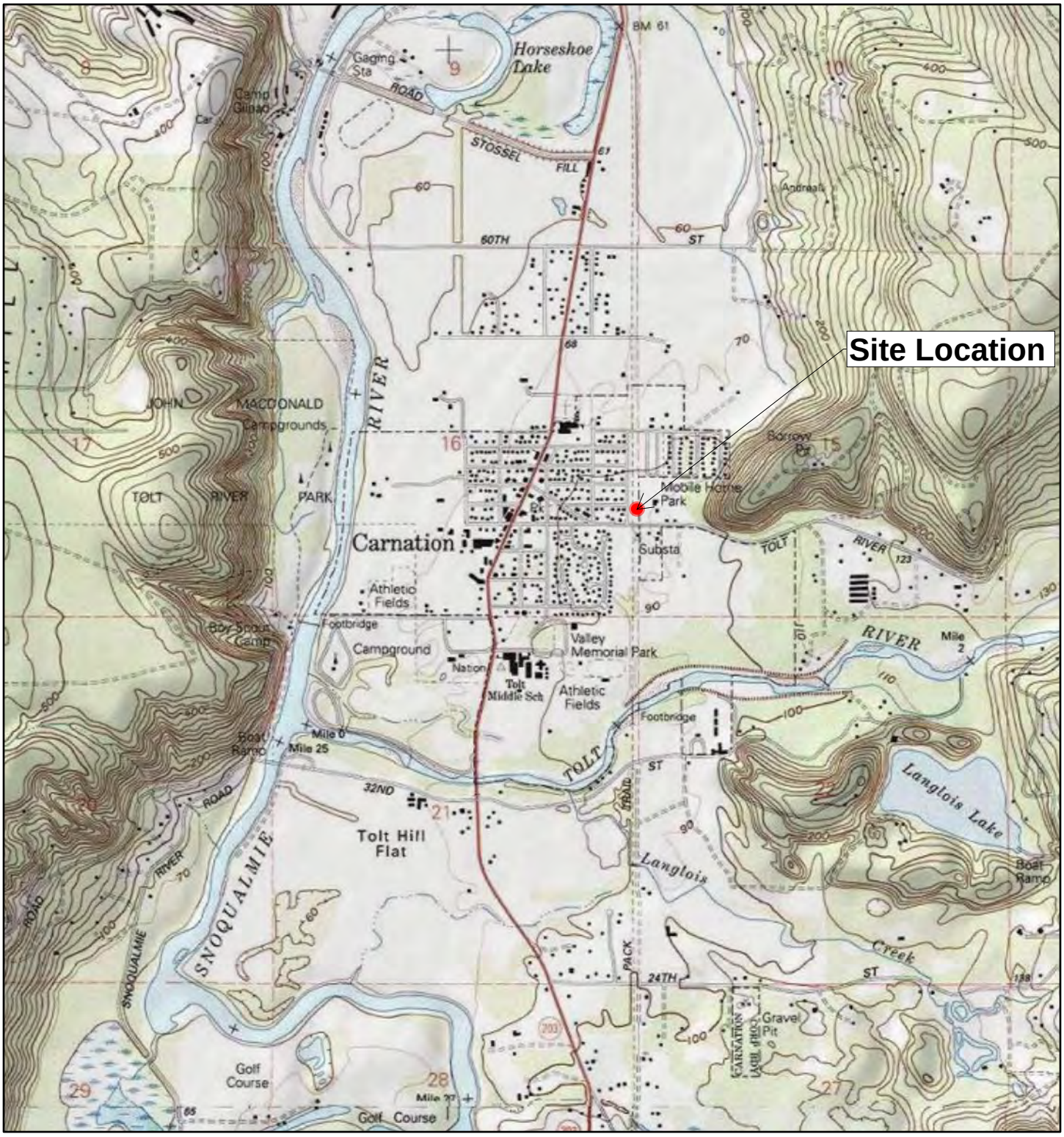
1:36,112

0 0.2 0.4 0.8 mi

0 0.33 0.65 1.3 km

USGS
2021 USGS

Figure 1-6. Vicinity Map - OWS 4



SE1/4 of Section 16, T.25N., R.07E.

1:36,112

0 0.2 0.4 0.8 mi

0 0.33 0.65 1.3 km

USGS
2021 USGS

Figure 1-7. Vicinity Map - OWS 5

SW1/4 of Section 32, T.26N., R.09E.

1:36,112

0 0.2 0.4 0.8 mi

0 0.33 0.65 1.3 km

USGS
2021 USGS

Figure 1-8. Vicinity Map - OWS 6

NE1/4 of Section 33, T.26N., R.08E.

1:36,112

0 0.2 0.4 0.8 mi

0 0.33 0.65 1.3 km

USGS
2021 USGS

Figure 1-9. Vicinity Map - OWS 8

SE1/4 of Section 15, T.25N., R.07E.

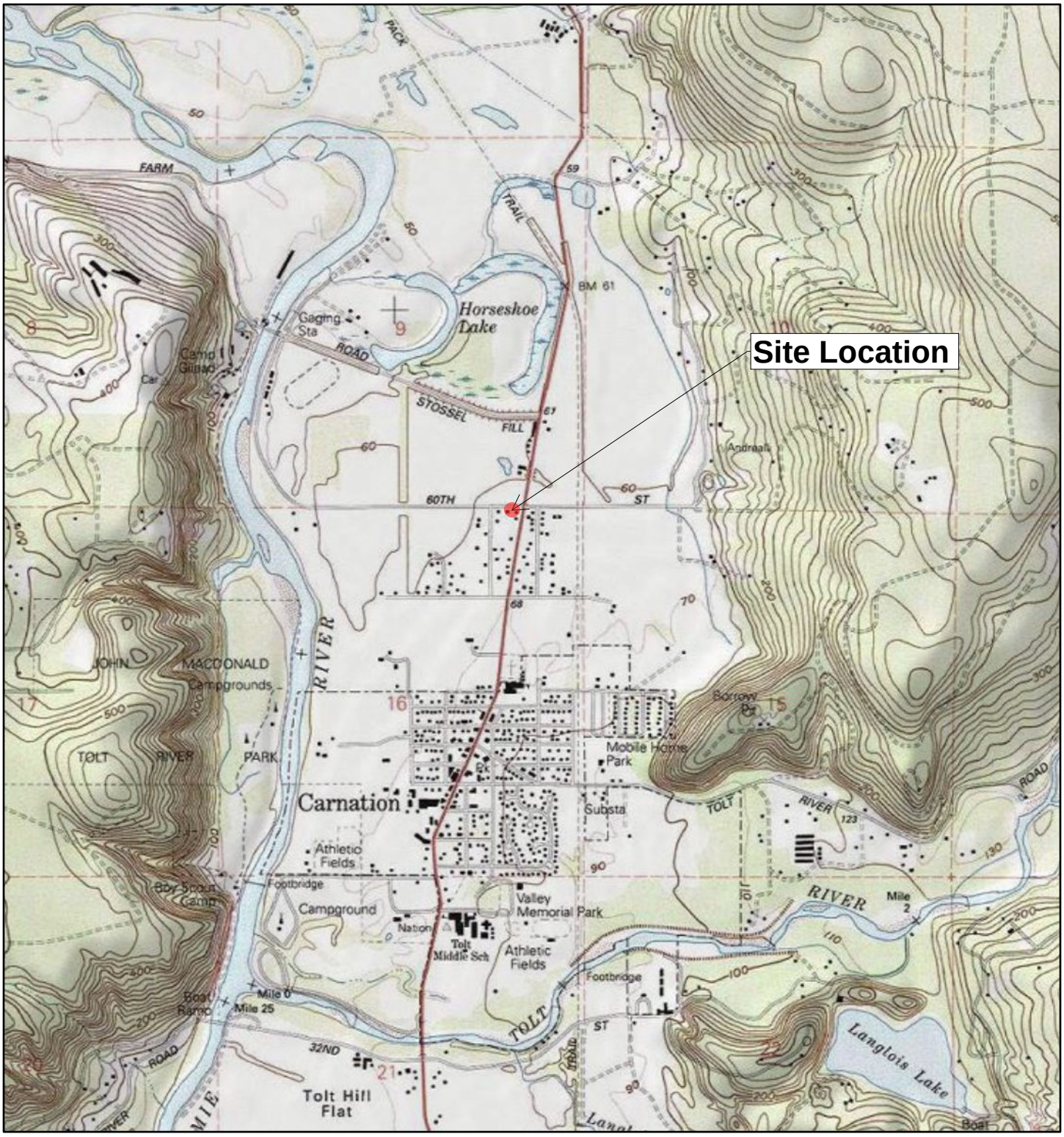
1:36,112

0 0.2 0.4 0.8 mi

0 0.33 0.65 1.3 km

USGS
2021 USGS

Figure 1-10. Vicinity Map - OWS 9



NE1/4 of Section 16, T.25N., R.07E.

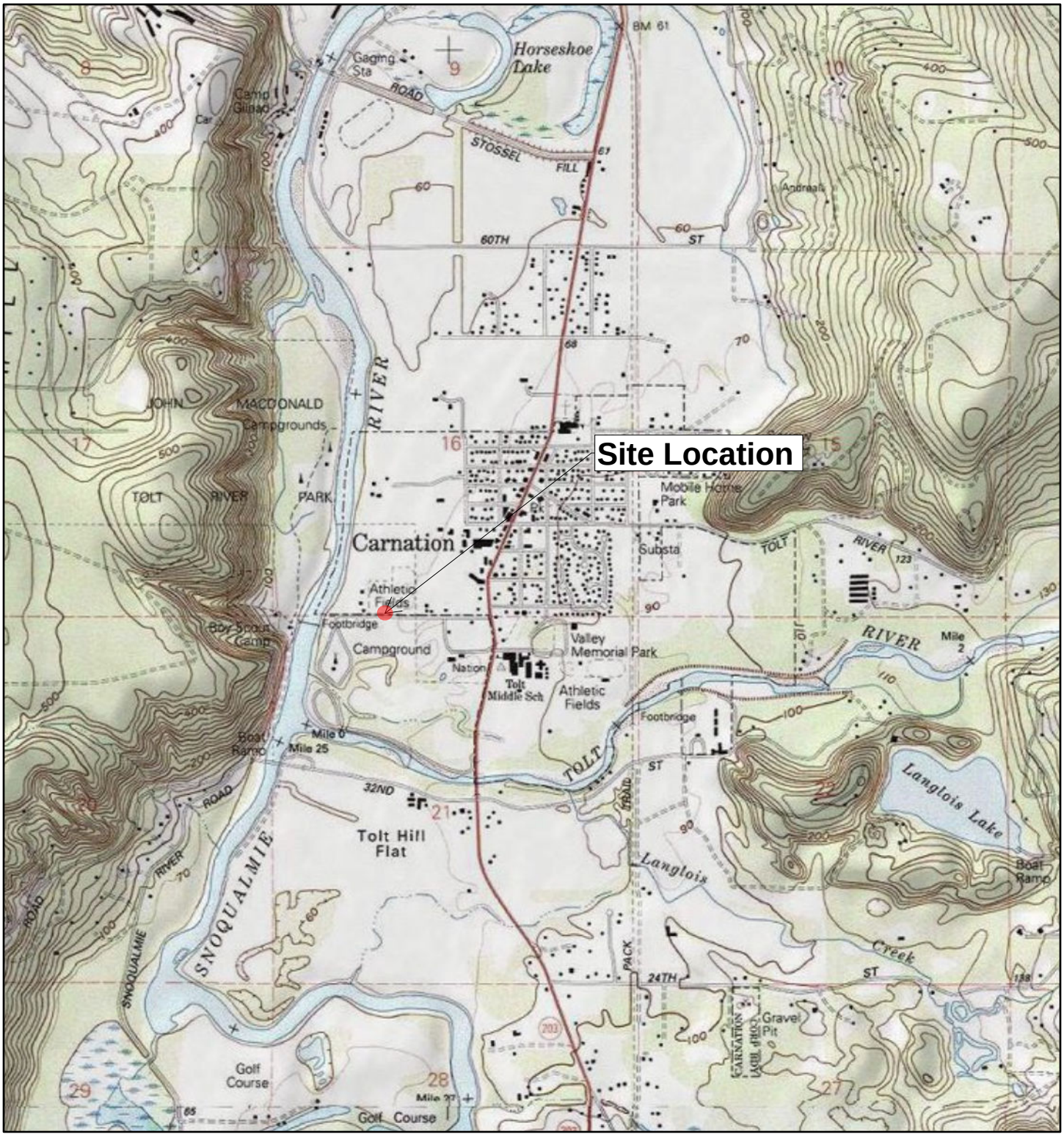
1:36,112

0 0.2 0.4 0.8 mi

0 0.33 0.65 1.3 km

USGS
2021 USGS

Figure 1-11. Vicinity Map - OWS 10



SW1/4 of Section 16, T.25N., R.07E.

1:36,112

0 0.2 0.4 0.8 mi

0 0.33 0.65 1.3 km

USGS
2021 USGS

Figure 1-12. Vicinity Map - HMS 1

SE1/4 of Section 09, T.25N., R.07E.

1:36,112

0 0.2 0.4 0.8 mi

0 0.33 0.65 1.3 km

USGS
2021 USGS

Figure 1-13. Vicinity Map - HMS 2

NE1/4 of Section 21, T.25N., R.07E.

USGS
2021 USGS

Figure 1-14. Vicinity Map - HMS 3

NW1/4 of Section 14, T.24N., R.07E.

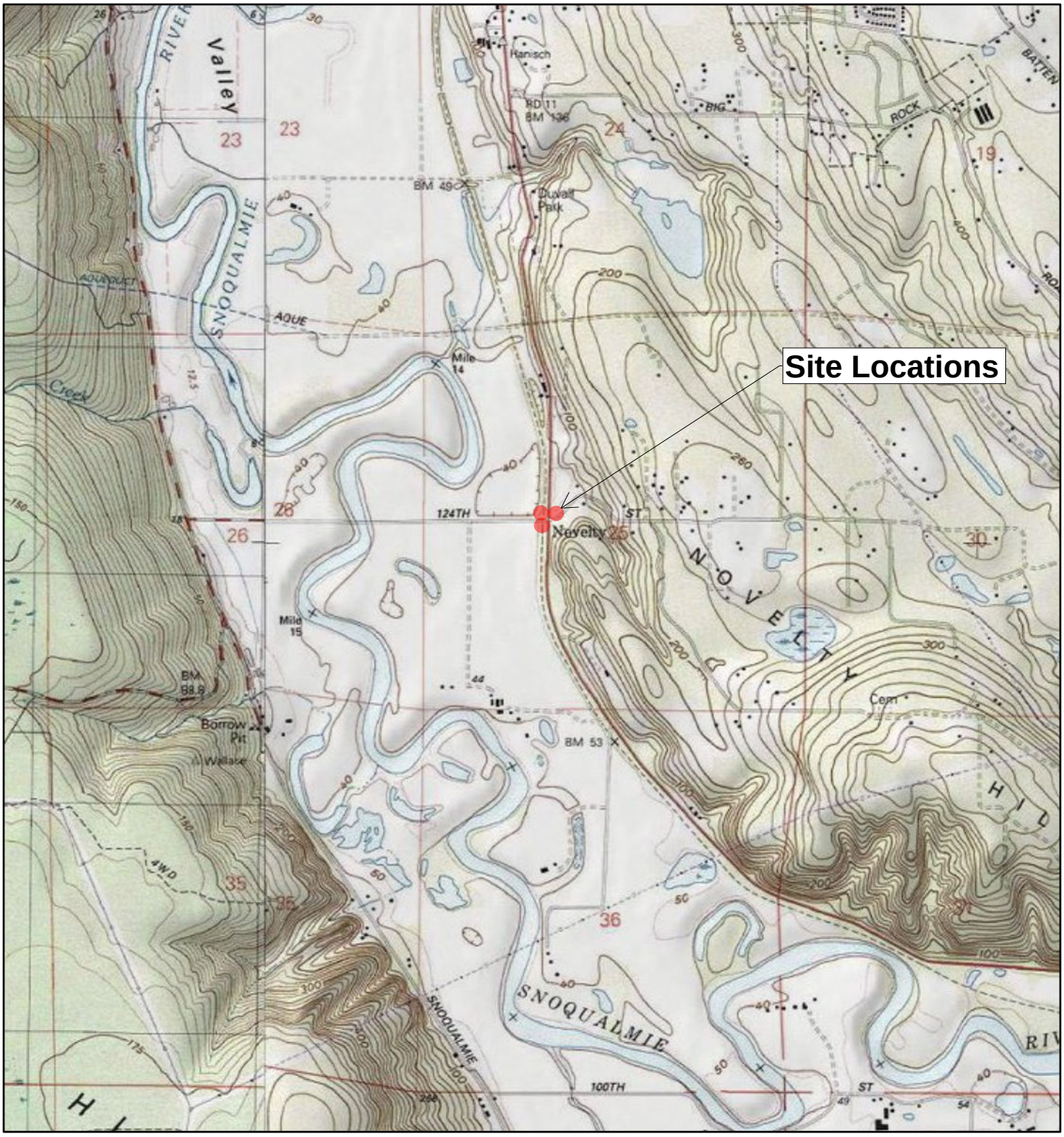
1:36,112

0 0.2 0.4 0.8 mi

0 0.33 0.65 1.3 km

USGS
2021 USGS

Figure 1-15. Vicinity Map - HMS 4 NE, NW, SW



SW1/4 and NW1/4 of Section 25, T.26N., R.06E.

1:36,112

0 0.2 0.4 0.8 mi

0 0.33 0.65 1.3 km

USGS
2021 USGS

Figure 1-16. Vicinity Map - HMS 5

NE1/4 of Section 20, T.25N., R.07E.

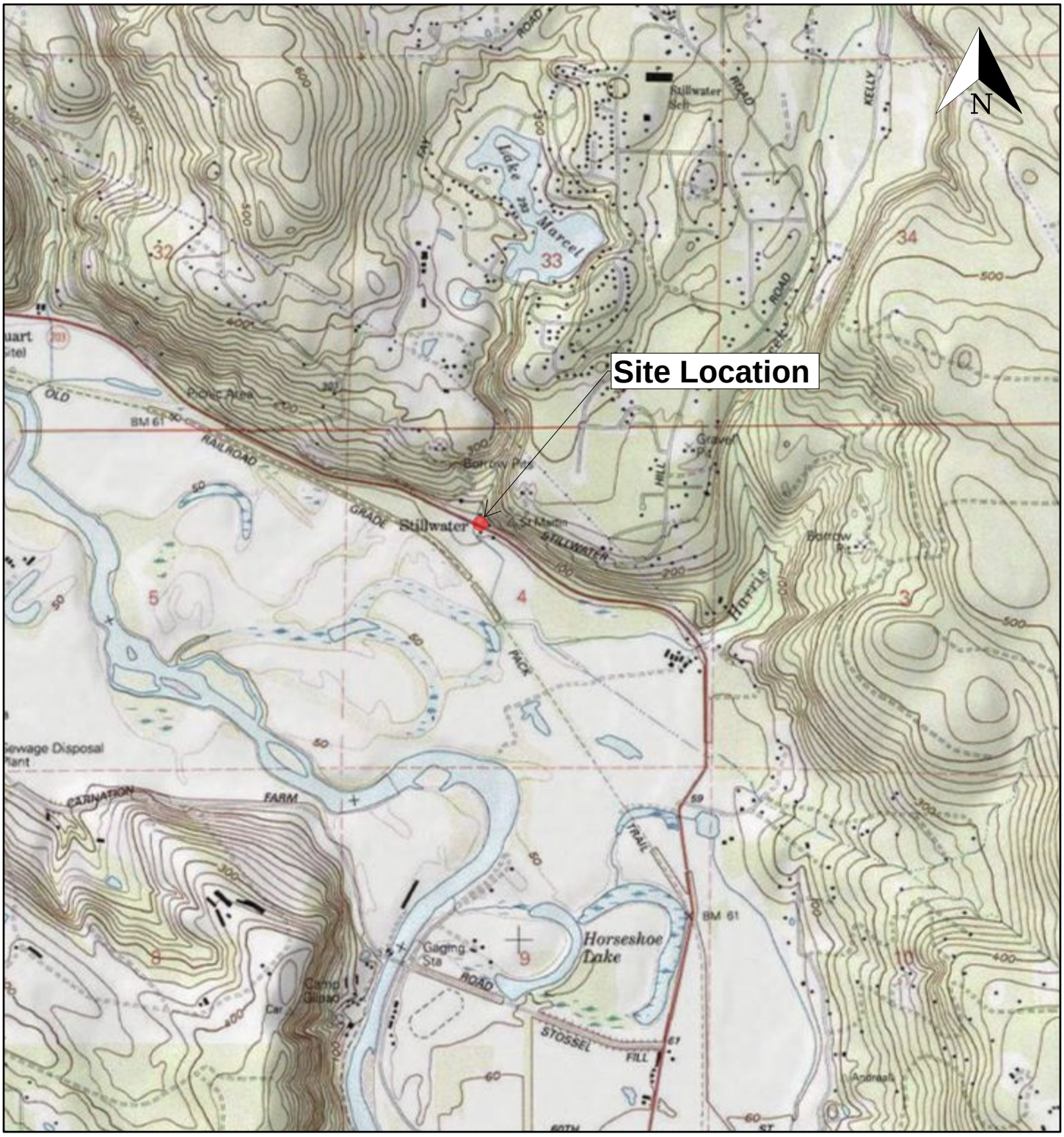
1:36,112

0 0.2 0.4 0.8 mi

0 0.33 0.65 1.3 km

USGS
2021 USGS

Figure 1-17. Vicinity Map - HMS 7



NE1/4 of Section 4, T.25N., R.07E.

1:36,112

0 0.2 0.4 0.8 mi

0 0.33 0.65 1.3 km

USGS
2021 USGS

Figure 1-18. Vicinity Map - HMS 8

SE1/4 of Section 21, T.25N., R.07E.

1:36,112

0 0.2 0.4 0.8 mi

0 0.33 0.65 1.3 km

USGS
2021 USGS

Appendix B

Soil Maps (Figures 2-1 to 2-19)

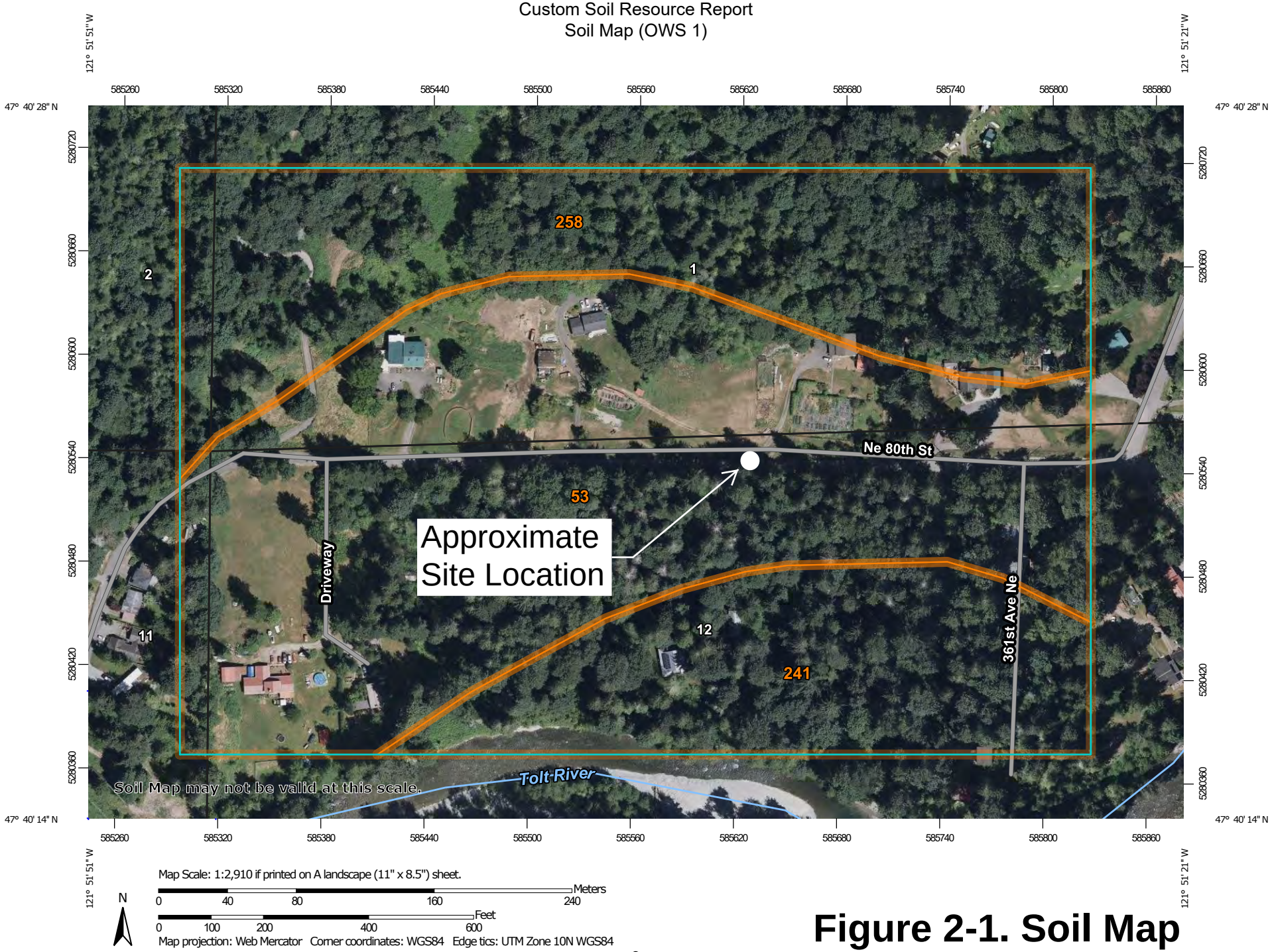


Figure 2-1. Soil Map

Figure 2-2. Soil Map

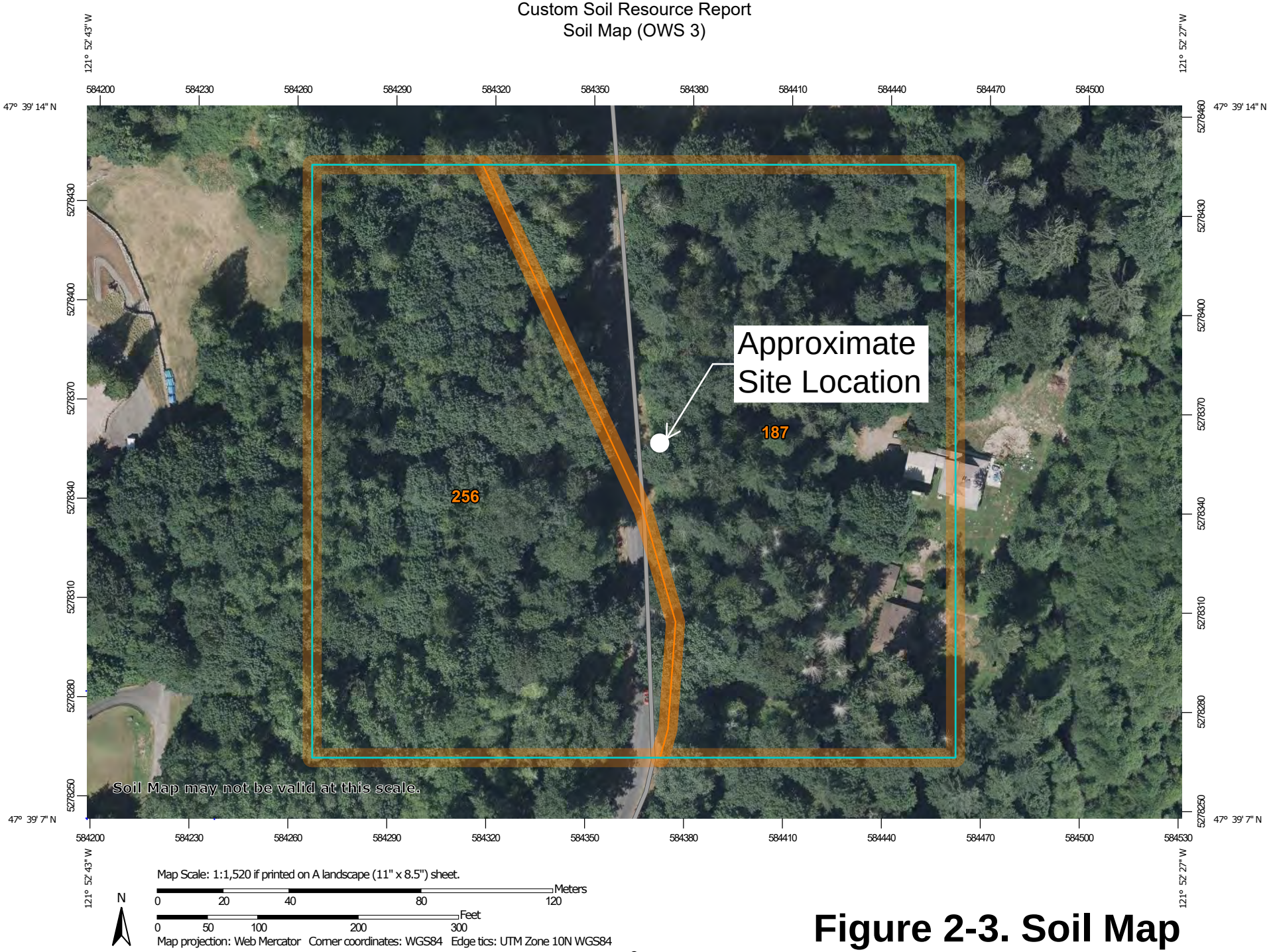


Figure 2-3. Soil Map

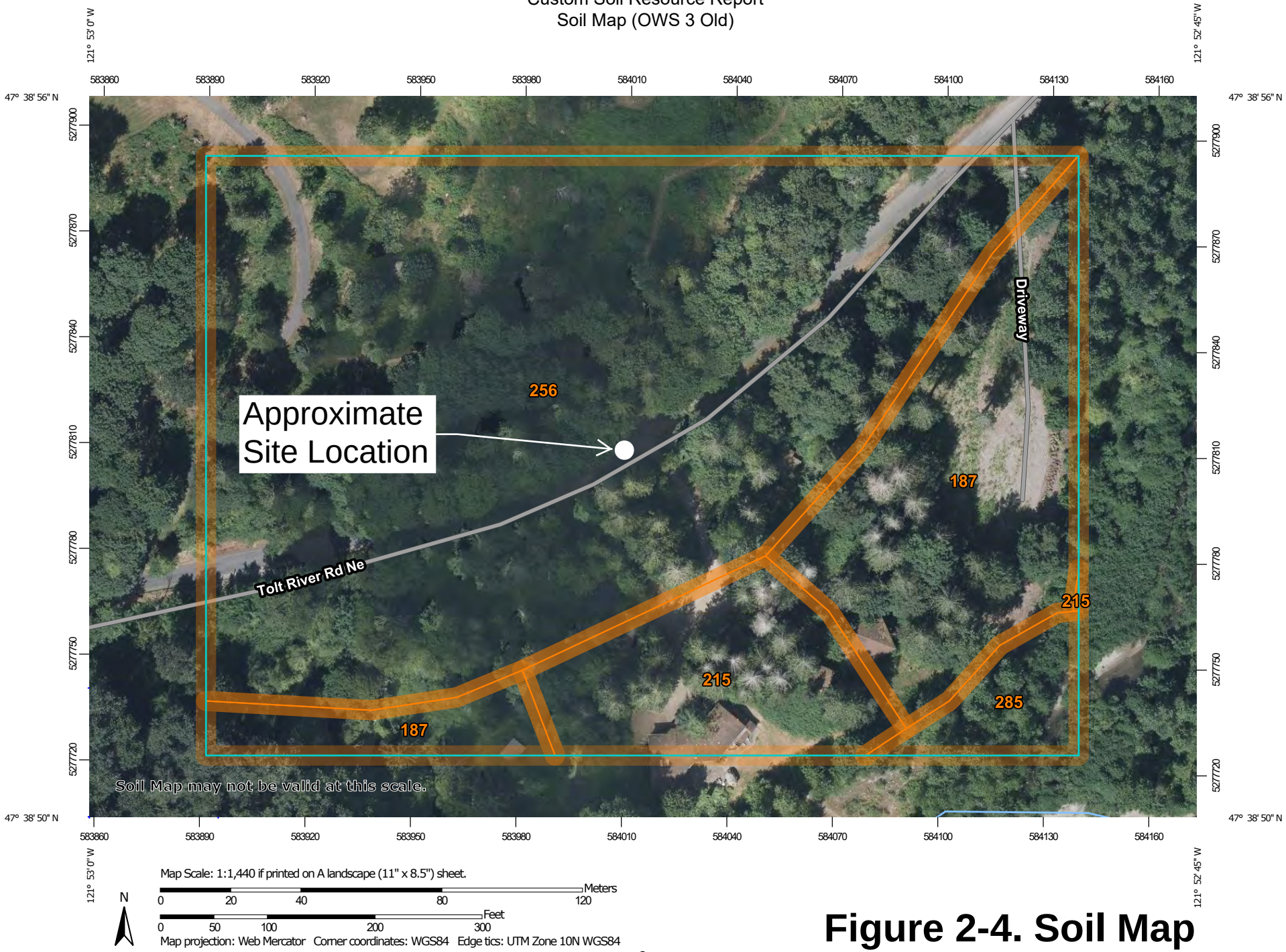


Figure 2-4. Soil Map

Map Scale: 1:1,590 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 20 40 80 120

Feet
0 50 100 200 300

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

Figure 2-5. Soil Map

Figure 2-6. Soil Map

Figure 2-7. Soil Map

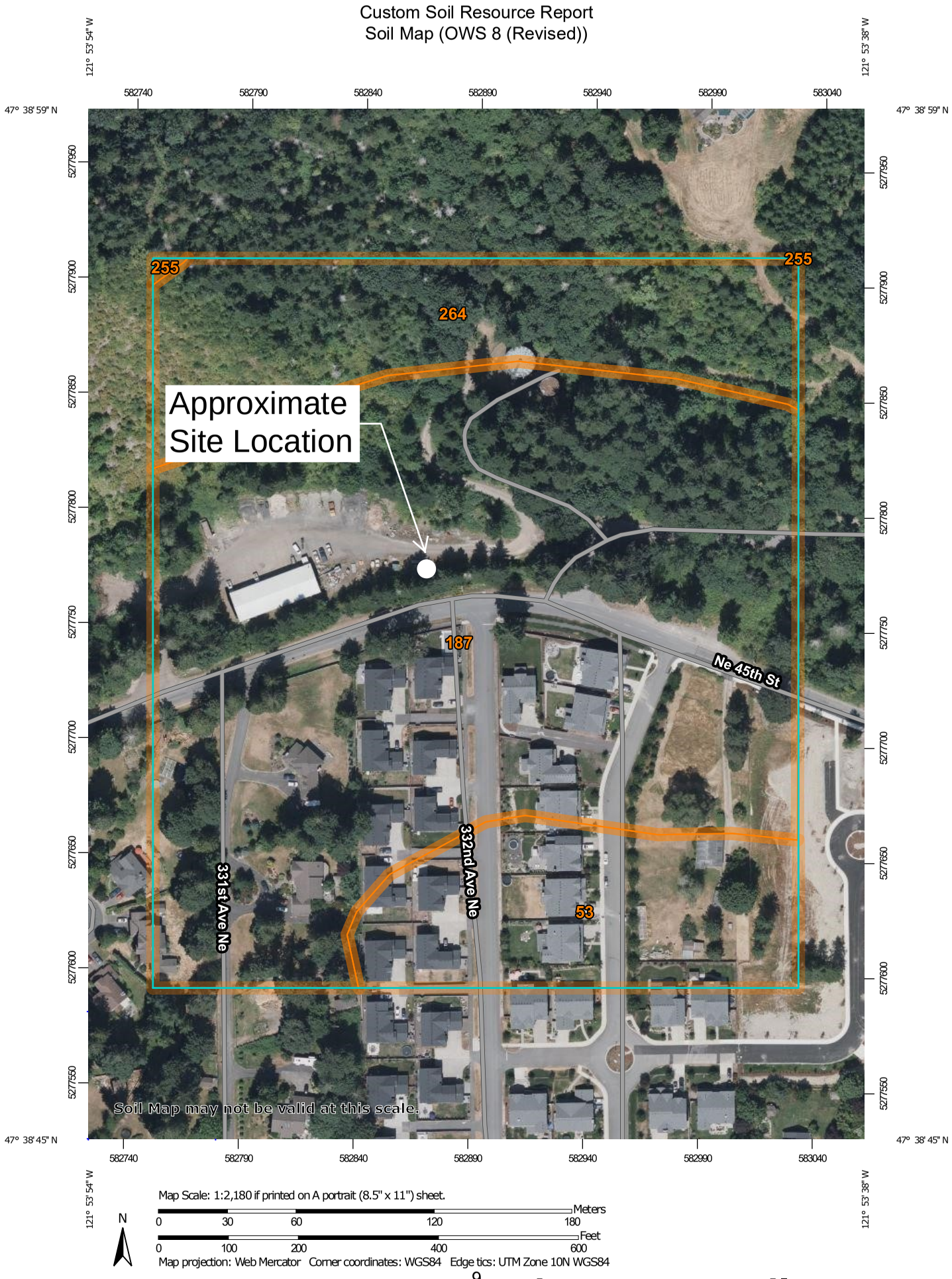


Figure 2-8. Soil Map

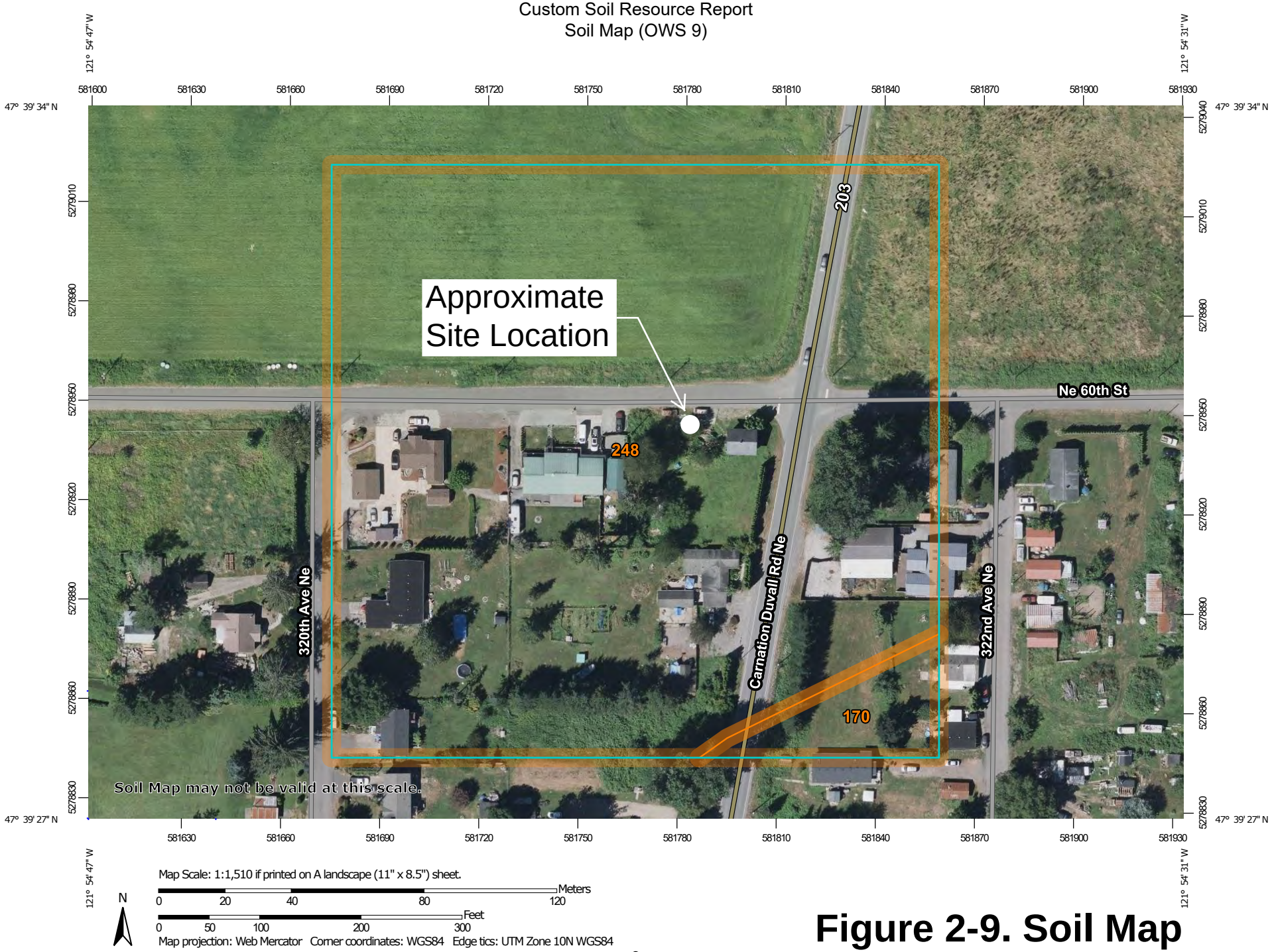


Figure 2-9. Soil Map

Figure 2-10. Soil Map

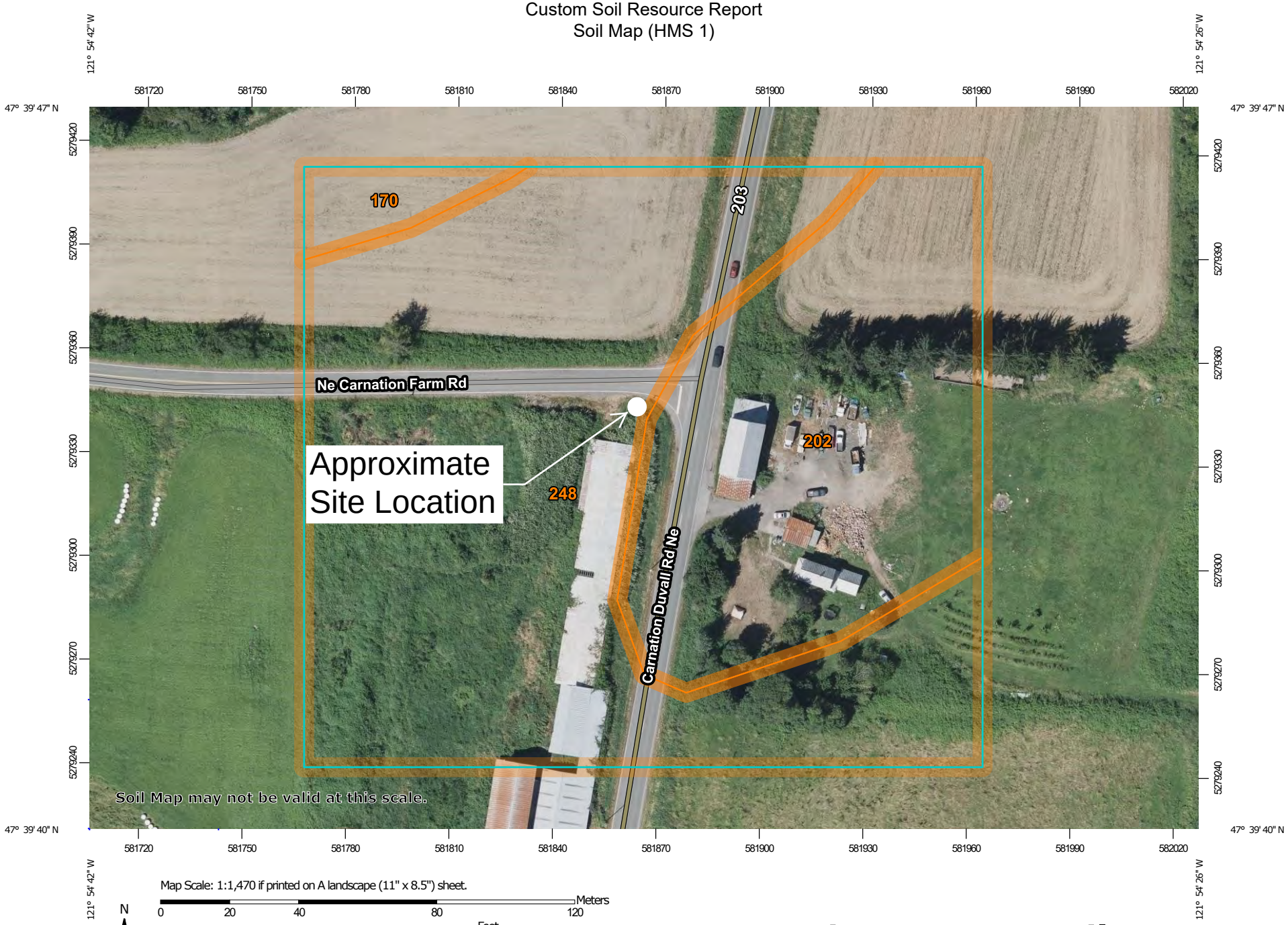


Figure 2-11. Soil Map

Figure 2-12. Soil Map

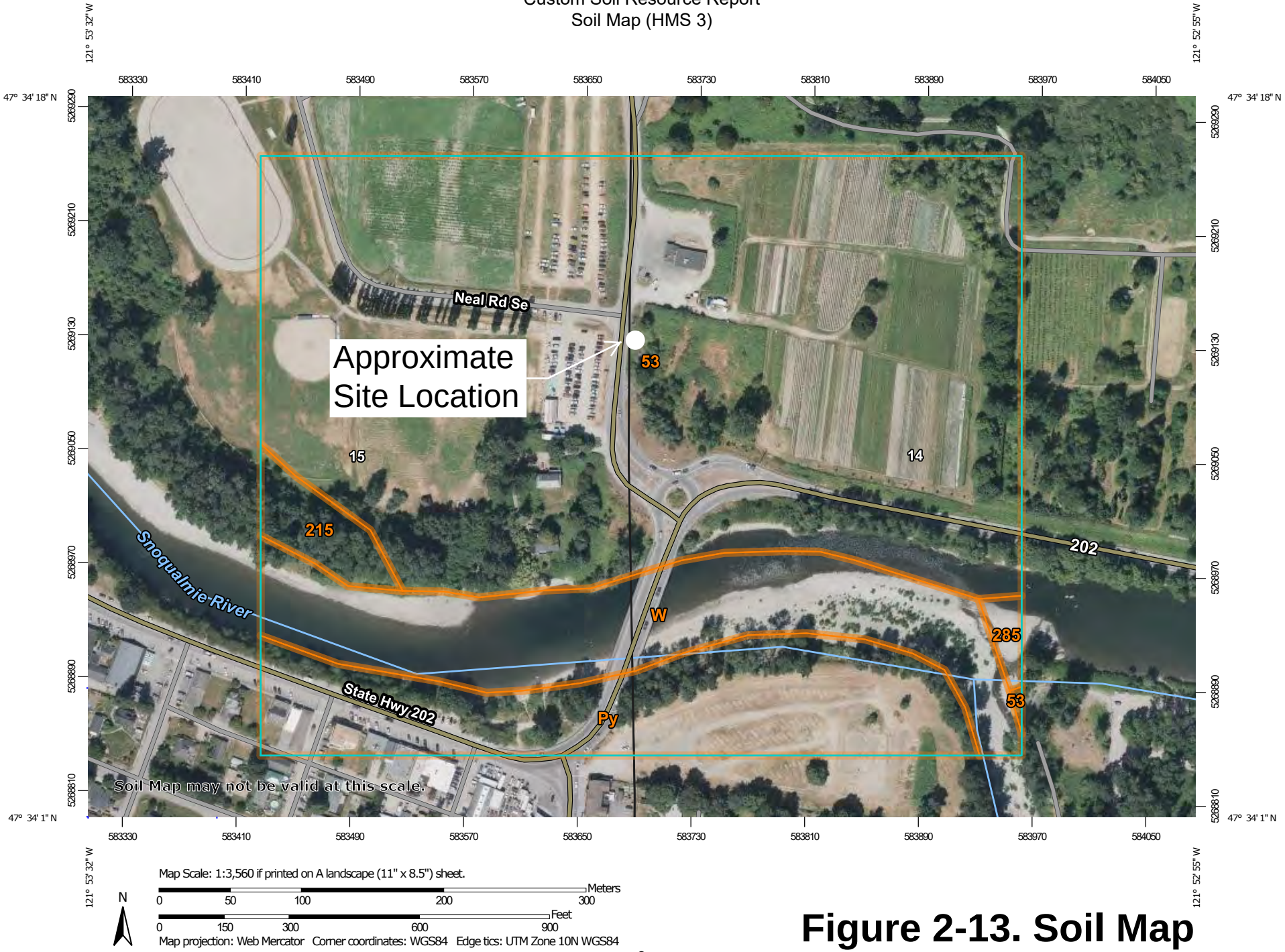


Figure 2-13. Soil Map

Figure 2-14. Soil Map

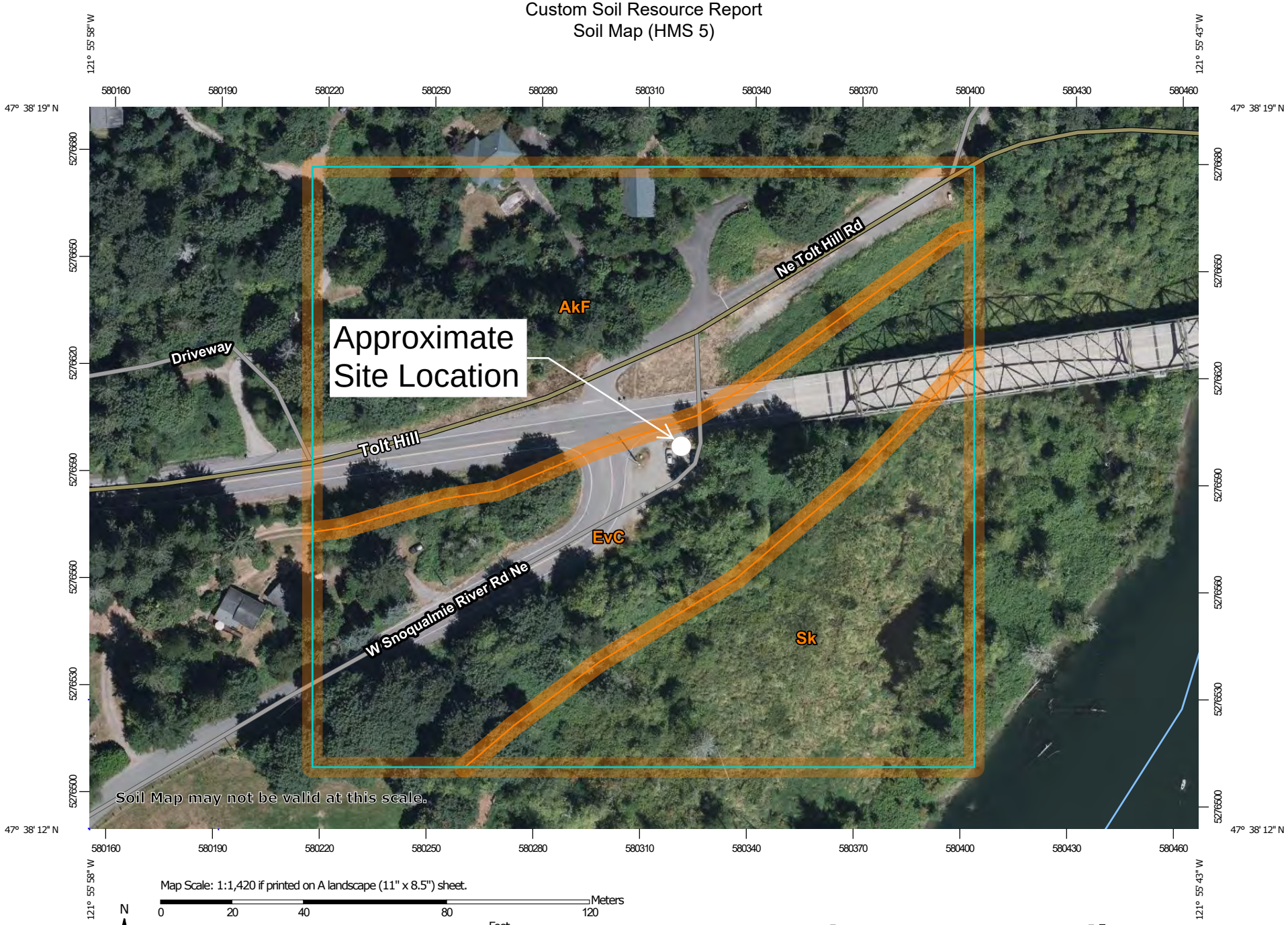


Figure 2-15. Soil Map

Figure 2-16. Soil Map

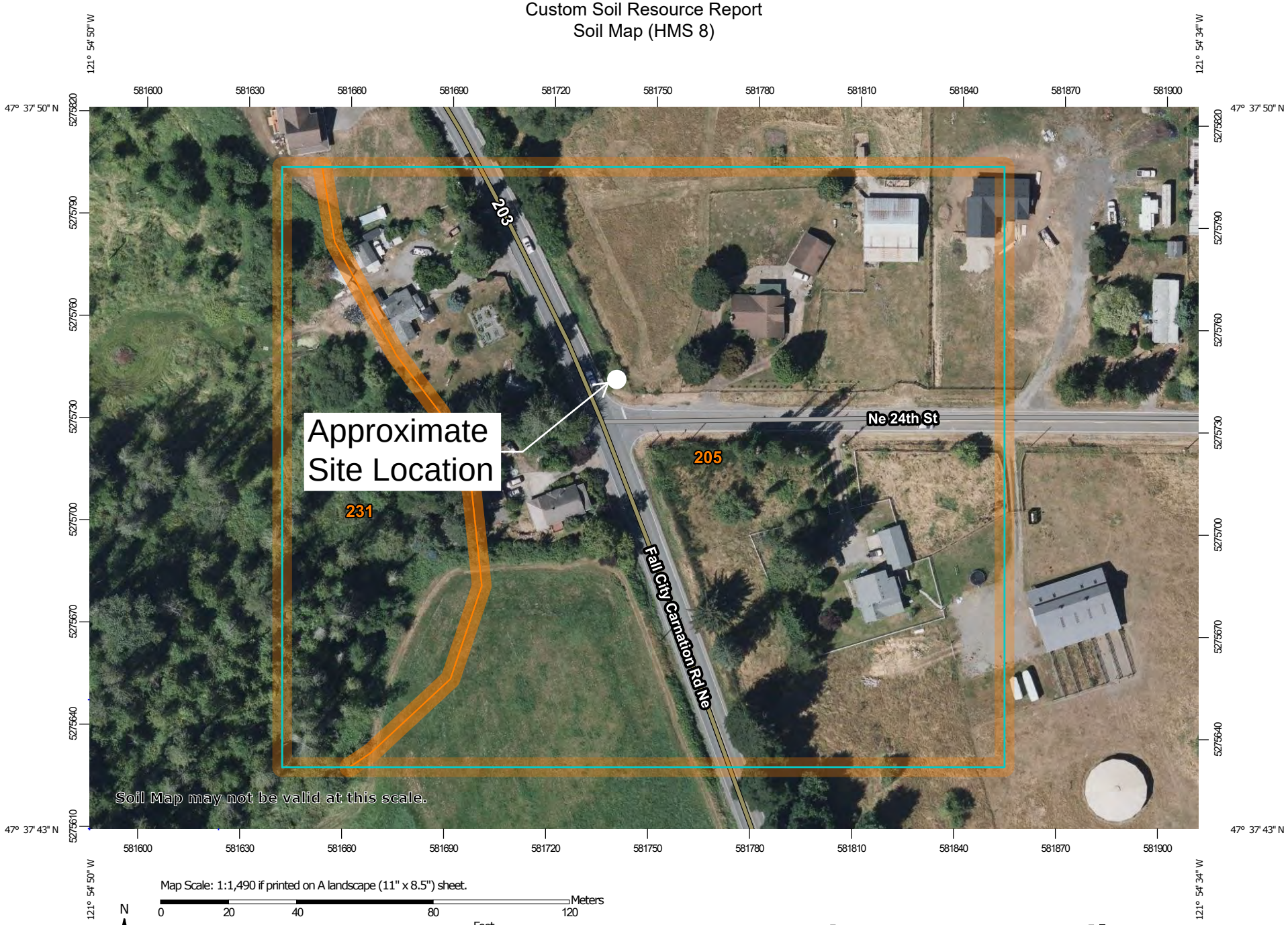
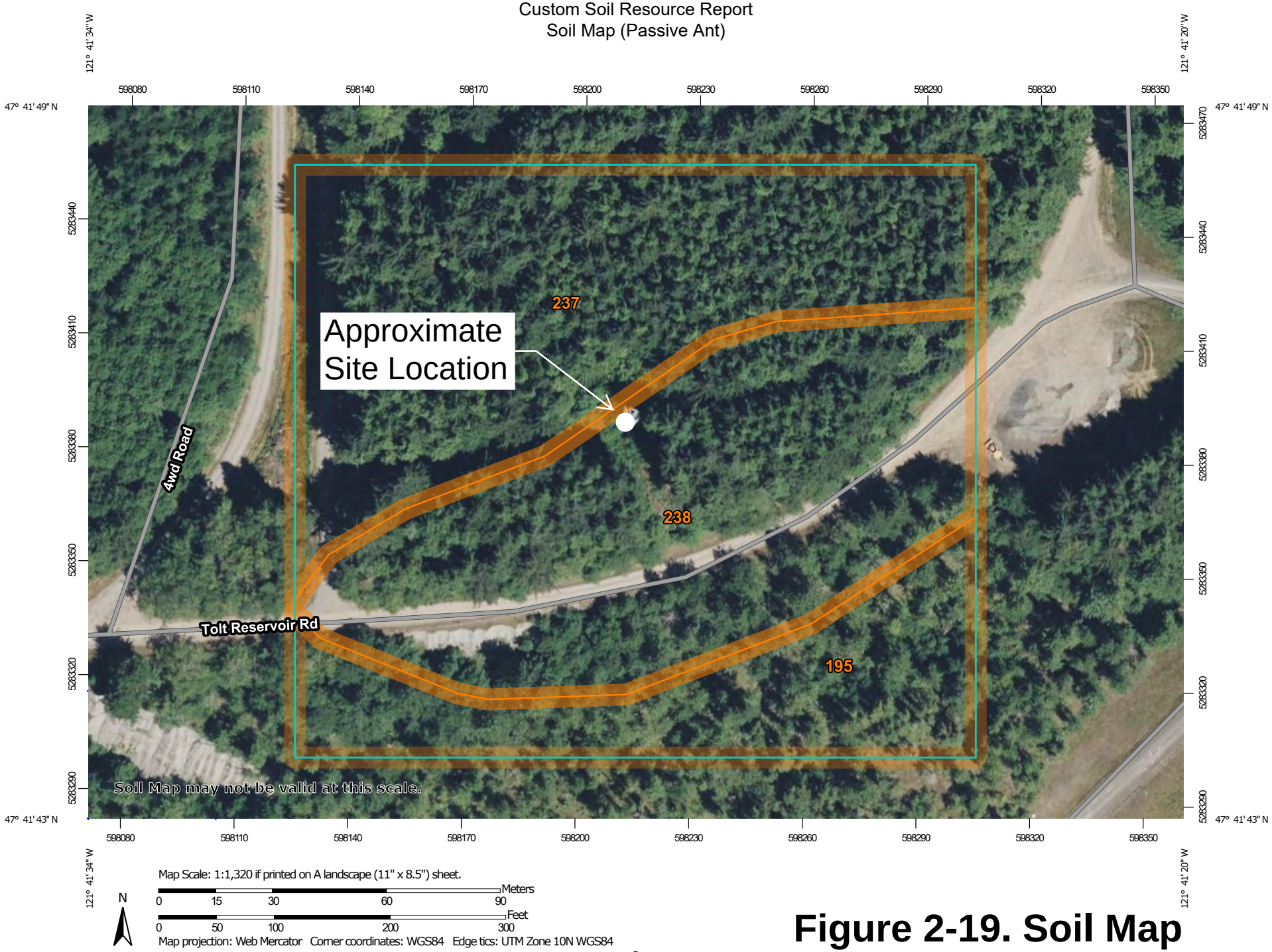


Figure 2-17. Soil Map

Figure 2-18. Soil Map



Map Scale: 1:1,320 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 15 30 60 90

Feet
0 50 100 200 300

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

Figure 2-19. Soil Map

Appendix C

Critical Area Maps (Figures 3-1 to 3-19)

1387500 1388000

247500 247000

NE 80th Street

OWS 1 Location

PREPARED FOR: ADCOMM/SPU

King County Resource Data from Imap (2022)

NOTES:

[NOTES / COMMENTS]

MAP LEGEND

- King County Channel Migration Zones
- King County Erosion Hazards
- King County FEMA 100-year_Floodplain
- King County Floodway
- King County Parcels
- King County Potential_Landslide Hazards
- King County Shoreline Designations
- King County Steep Slope Hazard
- Study Area
- Edge of Road Facility (Lidar derived)
- Field Inventoried Ditches
- King County Rivers & Streams
- OWS 1 GENERATED CONTOURS(7)
- Approximate Facility Location
- OWS 1 GENERATED CONTOURS(7)

SCALE 1:1200

0 ft 100 ft 200 ft 300 ft

State Plane (Washington North) / NAD83 / feet

SPU/ADCOMM

Critical Areas Assessment

OWS 1

PROJECT: 41747.000

DATE: December

PBS ENGINEERING ENVIRONMENTAL SURVEYING PBSUSA.COM

3-1

1384000 1384500 1385000

244000 243500

OWS 2 Location

OWS 2 - Tolt River Road

Tolt River Road NE

NOTES:

[NOTES / COMMENTS]

MAP LEGEND

- King County Channel Migration Zones
- King County Erosion Hazards
- King County FEMA 100-year_Floodplain
- King County Floodway
- King County Parcels
- King County Potential_Landslide Hazards
- King County Shoreline Designations
- King County Steep Slope Hazard
- Study Area
- Edge of Road Facility (Lidar derived)
- Field Inventoried Ditches
- King County Rivers & Streams
- OWS 2 GENERATED CONTOURS(8)
- Approximate Facility Location

SCALE 1:1200

0 ft 100 ft 200 ft 300 ft

State Plane (Washington North) / NAD83 / feet

PREPARED FOR: ADCOMM/SPU

King County Resource Data from Imap (2022)

SPU/ADCOMM

Critical Areas Assessment

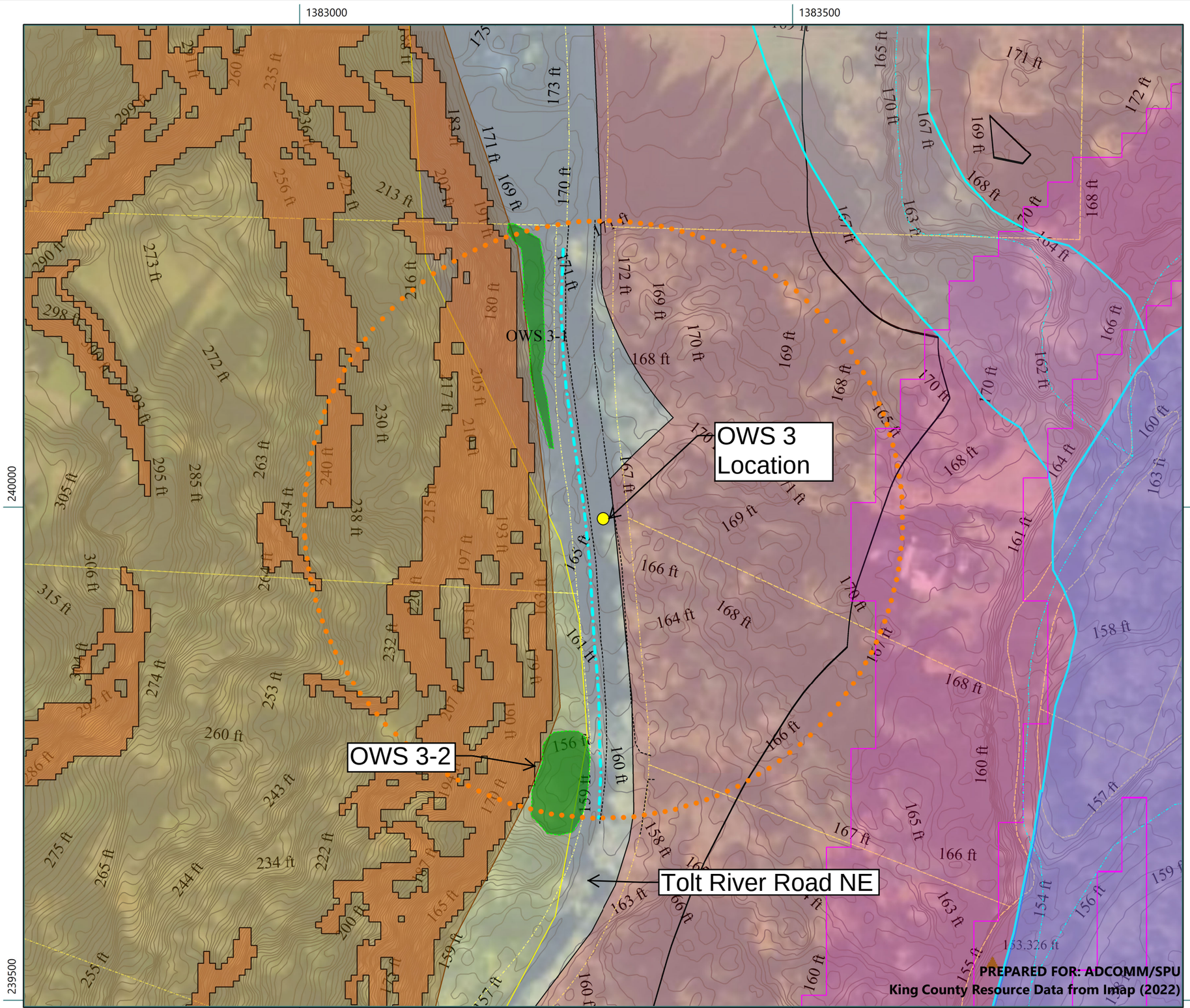
OWS 2

PROJECT: 41747.000

DATE: December

PBS ENGINEERING ENVIRONMENTAL SURVEYING PBSUSA.COM

3-2



NOTES:

[NOTES / COMMENTS]

MAP LEGEND

- Field Wetland Inventory
- King County Channel Migration Zones
- King County Erosion Hazards
- King County FEMA 100-year_Floodplain
- King County Floodway
- King County Parcels
- King County Potential_Landslide Hazards
- King County SAO Wetlands
- King County Shoreline Designations
- King County Steep Slope Hazard
- Study Area
- Edge of Road Facility (Lidar derived)
- Field Inventoried Ditches
- King County Rivers & Streams

SCALE 1:1200

0 ft 100 ft 200 ft 300 ft

State Plane (Washington North) / NAD83 / feet

SPU/ADCOMM

Critical Areas Assessment

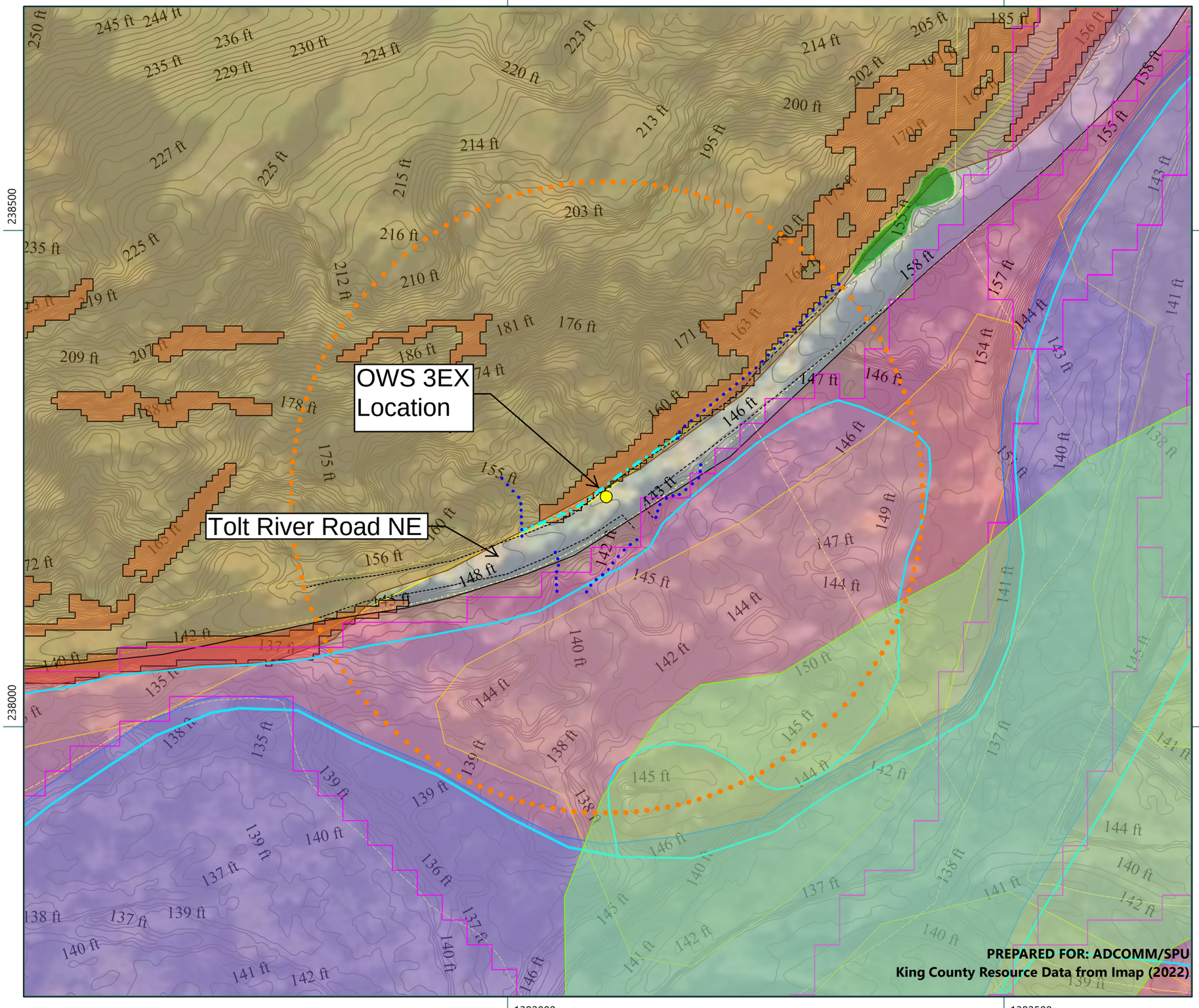
OWS 3

PROJECT: 41747.000

DATE: December

PBS ENGINEERING ENVIRONMENTAL SURVEYING PBSUSA.COM

3-3



NOTES:

[NOTES / COMMENTS]

MAP LEGEND

- Field Wetland Inventory
- King County Channel Migration Zones
- King County Erosion Hazards
- King County FEMA 100-year_Floodplain
- King County Floodway
- King County Parcels
- King County Potential_Landslide Hazards
- King County SAO Wetlands
- King County Shoreline Designations
- King County Steep Slope Hazard
- Study Area
- Edge of Road Facility (Lidar derived)
- Field Inventoried Ditches
- Field Inventoried Streams
- OWS 3EX GENERATED CONTOURS(11)
- Approximate Facility Location

SCALE 1:1200

0 ft 100 ft 200 ft 300 ft

State Plane (Washington North) / NAD83 / feet

SPU/ADCONN

Critical Areas Assessment

OWS 3 Existing

PROJECT: 41747.000

DATE: December

PBS ENGINEERING ENVIRONMENTAL SURVEYING PBSUSA.COM

3-4

1375500

1376000

238500

238000

Milwaukee Avenue

Entwhistle Street

OWS 4 Location

OWS 4 - PSE ROW Existing

OWS 4 Proposed

82.984 ft

99.887 ft

PREPARED FOR: ADCOMM/SPU

King County Resource Data from Imap (2022)

NOTES:

[NOTES / COMMENTS]

MAP LEGEND

- King County Channel Migration Zones
- King County Erosion Hazards
- King County FEMA 100-year_Floodplain
- King County Floodway
- King County Parcels
- King County Shoreline Designations
- Study Area
- King County Rivers & Streams
- OWS 4 GENERATED CONTOURS(3)
- Approximate Facility Location
- OWS 4 GENERATED CONTOURS(3)

SCALE 1:1200

0 ft 100 ft 200 ft 300 ft

State Plane (Washington North) / NAD83 / feet

SPU/ADCOMM

Critical Areas Assessment

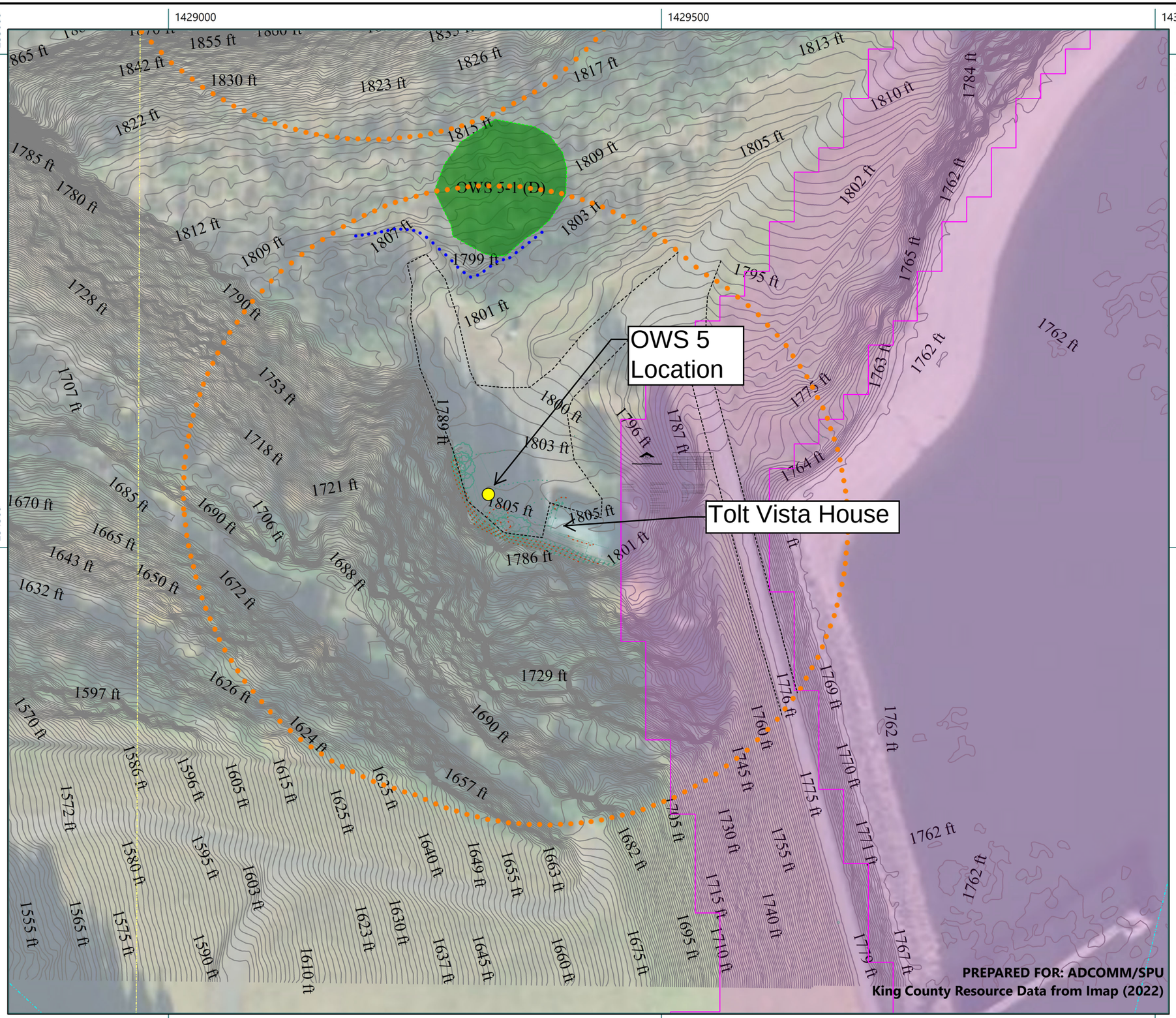
OWS 4

PROJECT: 41747.000

DATE: December

PBS ENGINEERING ENVIRONMENTAL SURVEYING PBSUSA.COM

3-5



NOTES:

[NOTES / COMMENTS]

MAP LEGEND

- Field Wetland Inventory
- King County Parcels
- King County Shoreline Designations
- Study Area
- 261-1398-X-TOPO-TOLT DAM WARNING SYSTEM OWS #5.dw
- 261-1398-X-TOPO-TOLT DAM WARNING SYSTEM OWS #5.dw
- 261-1398-X-TOPO-TOLT DAM WARNING SYSTEM OWS #5.dw
- 261-1398-X-TOPO-TOLT DAM WARNING SYSTEM OWS #5.dw
- 261-1398-X-TOPO-TOLT DAM WARNING SYSTEM OWS #5.dw
- 261-1398-X-TOPO-TOLT DAM WARNING SYSTEM OWS #5.dw
- Edge of Road Facility (Lidar derived)
- Field Inventoried Streams
- King County Rivers & Streams
- OWS 5 GENERATED CONTOURS(5)
- 261-1398-X-TOPO-TOLT DAM WARNING SYSTEM OWS #5.dw
- 261-1398-X-TOPO-TOLT DAM WARNING SYSTEM OWS #5.dw
- 261-1398-X-TOPO-TOLT DAM WARNING SYSTEM OWS #5.dw
- 261-1398-X-TOPO-TOLT DAM WARNING SYSTEM OWS #5.dw
- 261-1398-X-TOPO-TOLT DAM WARNING SYSTEM OWS #5.dw
- Approximate Facility Location
- 261-1398-X-TOPO-TOLT DAM WARNING SYSTEM OWS #5.dw

SCALE 1:1200

0 ft 100 ft 200 ft 300 ft

State Plane (Washington North) / NAD83 / feet

SPU/ADCOMM

Critical Areas Assessment

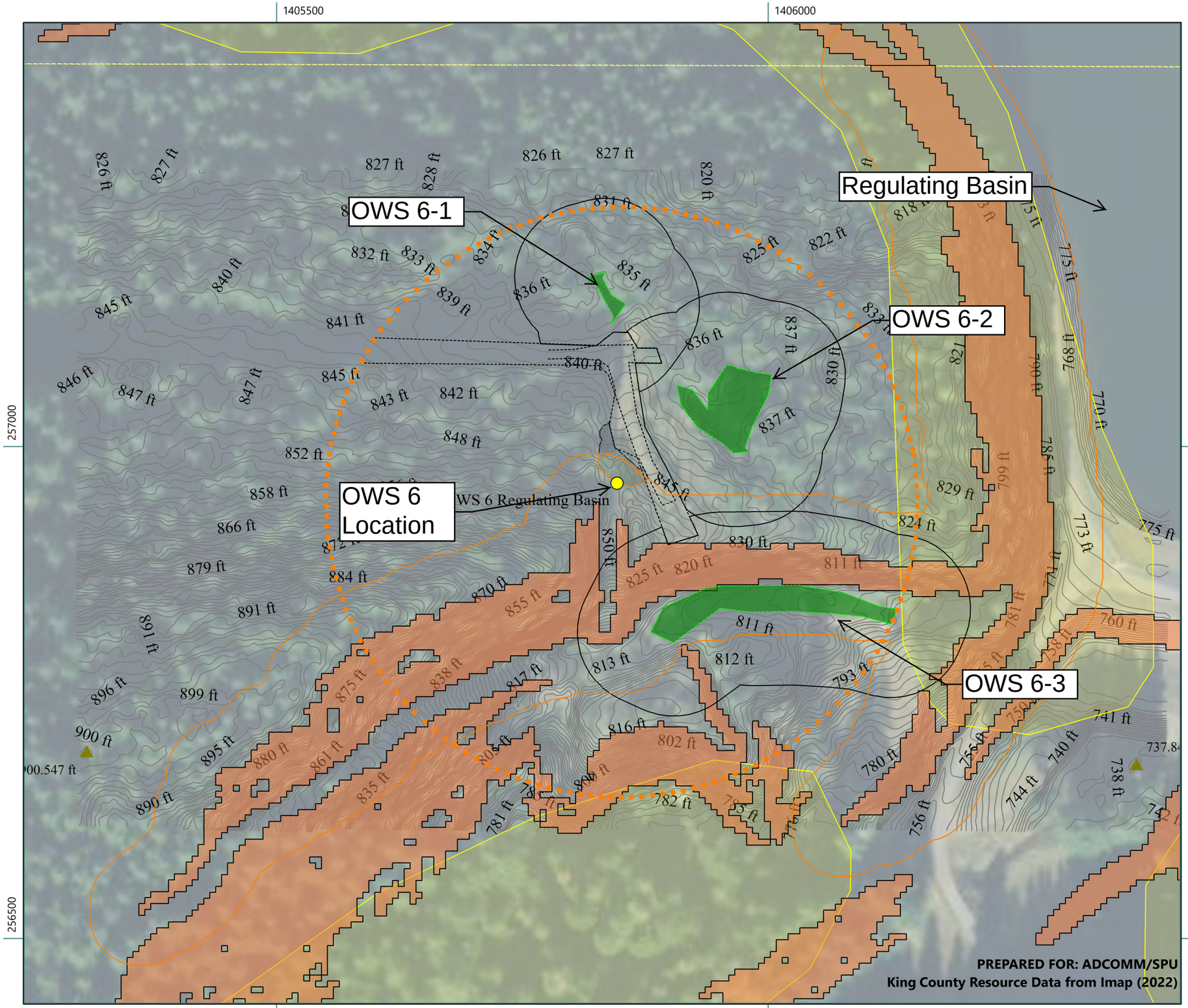
OWS 5

PROJECT: 41747.000

DATE: December

PBS ENGINEERING ENVIRONMENTAL SURVEYING PBSUSA.COM

3-6



NOTES:

[NOTES / COMMENTS]

MAP LEGEND

- Field Wetland Inventory
- King County Erosion Hazards
- King County Floodway
- King County Parcels
- King County Shoreline Designations
- King County Steep Slope Hazard
- OWS 6 Impact Area
- Steep Slope Buffer
- Study Area
- Wetland Buffer
- Edge of Road Facility (Lidar derived)
- King County Rivers & Streams
- OWS 6 GENERATED CONTOURS
- Approximate Facility Location
- OWS 6 GENERATED CONTOURS

SCALE 1:1200

0 ft 100 ft 200 ft 300 ft

State Plane (Washington North) / NAD83 / feet

SPU/ADCOMM

Critical Areas Assessment

OWS 6

PROJECT: 41747.000

DATE: December

PBS ENGINEERING ENVIRONMENTAL SURVEYING PBSUSA.COM

3-7

1378000

1378500

238500

238500

OWS 8 East Carnation Tolt River Road 334th - Proposed

Tolt River Road NE

OWS 8
Location

238000

238000

1378000

1378500

PREPARED FOR: ADCOMM/SPU
King County Resource Data from Imap (2022)

NOTES:

[NOTES / COMMENTS]

MAP LEGEND

- city.shp
- King County Channel Migration Zones
- King County Erosion Hazards
- King County FEMA 100-year_Floodplain
- King County Floodway
- King County Parcels
- King County Potential_Landslide Hazards
- King County Shoreline Designations
- King County Steep Slope Hazard
- Study Area
- Edge of Road Facility (Lidar derived)
- King County Rivers & Streams
- Approximate Facility Location

SCALE 1:1200

0 ft 100 ft 200 ft 300 ft

State Plane (Washington North) / NAD83 / feet

SPU/ADCOMM

Critical Areas Assessment

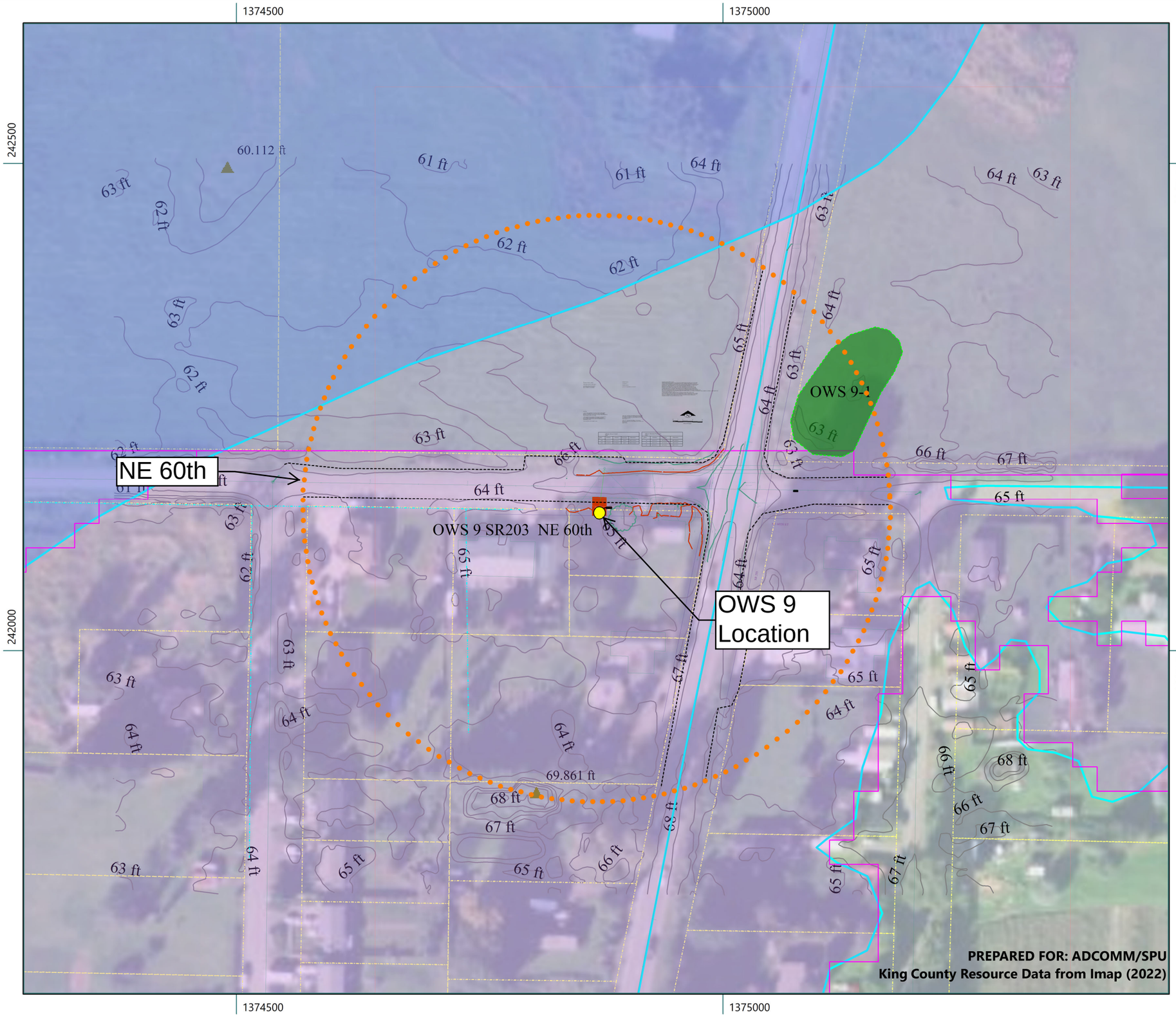
OWS 8

PROJECT: 41747.000

DATE: December

PBS ENGINEERING ENVIRONMENTAL SURVEYING PBSUSA.COM

3-8



NOTES:

[NOTES / COMMENTS]

MAP LEGEND

- Field Wetland Inventory
- King County Channel Migration Zones
- King County Erosion Hazards
- King County FEMA 100-year_Floodplain
- King County Floodway
- King County Parcels
- King County Shoreline Designations
- Study Area
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg

SCALE 1:1200

0 ft 100 ft 200 ft 300 ft

State Plane (Washington North) / NAD83 / feet

SPU/ADCOMM

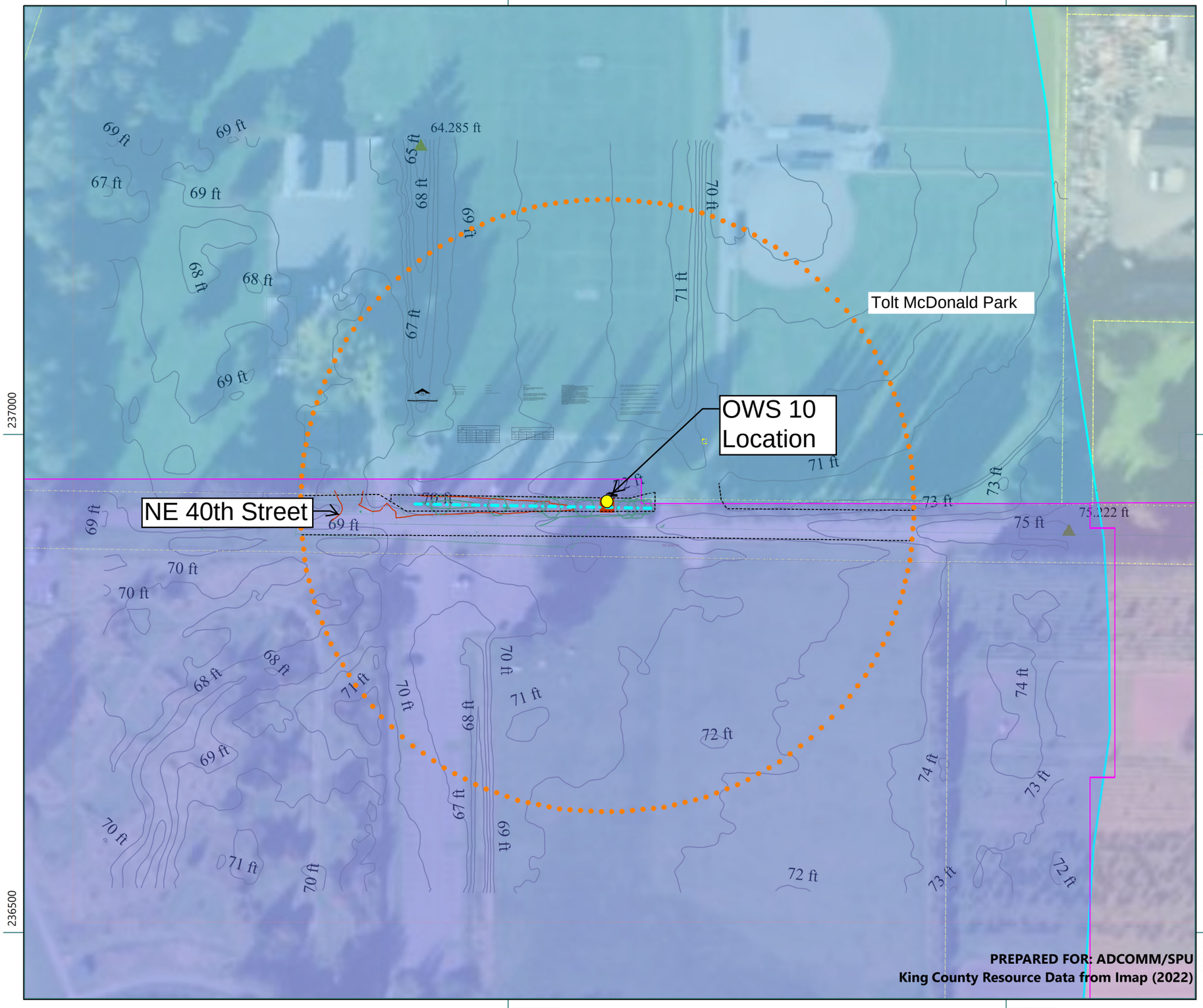
Critical Areas Assessment

OWS 9

PROJECT: 41747.000

DATE: December

PBS ENGINEERING ENVIRONMENTAL SURVEYING PBSUSA.COM



NOTES:

[NOTES / COMMENTS]

MAP LEGEND

- King County Channel Migration Zones
- King County Erosion Hazards
- King County FEMA 100-year_Floodplain
- King County Floodway
- King County Parcels
- King County Shoreline Designations
- Study Area
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
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- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-TOPO-TOLT DAM WARNING SYSTEM - OWS #10
- 261-1398-X-TOPO-TOLT DAM WARNING SYSTEM - OWS #10
- 261-1398-X-TOPO-TOLT DAM WARNING SYSTEM - OWS #10
- 261-1398-X-TOPO-TOLT DAM WARNING SYSTEM - OWS #10

SCALE 1:1200

0 ft 100 ft 200 ft 300 ft

State Plane (Washington North) / NAD83 / feet

SPU/ADCOMM

Critical Areas Assessment

OWS 10

PROJECT: 41747.000

DATE: December

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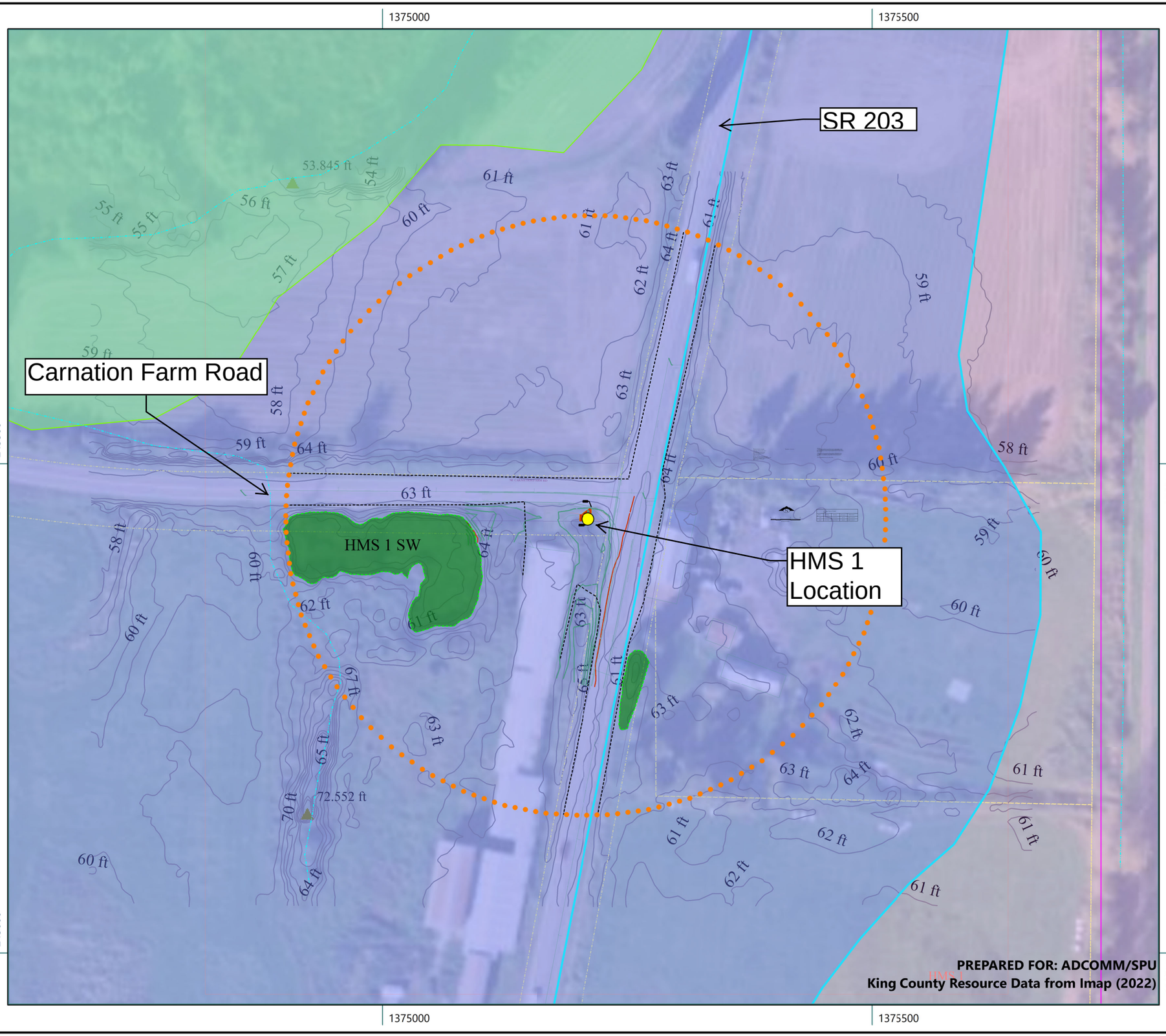
3-10



NOTES:

[NOTES / COMMENTS]

MAP LEGEND

- Field Wetland Inventory
- King County Channel Migration Zones
- King County Erosion Hazards
- King County FEMA 100-year_Floodplain
- King County Floodway
- King County Parcels
- King County SAO Wetlands
- King County Shoreline Designations
- Study Area
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
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- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-TOPO-TOLT DAM WARNING SYSTEM HMS#1.dw
- 261-1398-X-TOPO-TOLT DAM WARNING SYSTEM HMS#1.dw
- 261-1398-X-TOPO-TOLT DAM WARNING SYSTEM HMS#1.dw
- 261-1398-X-TOPO-TOLT DAM WARNING SYSTEM HMS#1.dw
- 261-1398-X-TOPO-TOLT DAM WARNING SYSTEM HMS#1.dw
- 261-1398-X-TOPO-TOLT DAM WARNING SYSTEM HMS#1.dw

SCALE 1:1200

0 ft 100 ft 200 ft 300 ft

State Plane (Washington North) / NAD83 / feet

SPU/ADCOMM

Critical Areas Assessment

HMS 1

PROJECT: 41747.000

DATE: December

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3-11

1373000 1373500 1374000

234500 234000

HMS 2-1

Tolt-Bunker Road

HMS 2 Location

SR 203

PREPARED FOR: ADCOMM/SPU
King County Resource Data from Imap (2022)

NOTES:

[NOTES / COMMENTS]

MAP LEGEND

- Field Wetland Inventory
- King County Channel Migration Zones
- King County Erosion Hazards
- King County FEMA 100-year_Floodplain
- King County Floodway
- King County Parcels
- King County SAO Wetlands
- King County Shoreline Designations
- Study Area
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-TOPO-TOLT DAM WARNING SYSTEM HMS#2.dwg
- 261-1398-X-TOPO-TOLT DAM WARNING SYSTEM HMS#2.dwg
- 261-1398-X-TOPO-TOLT DAM WARNING SYSTEM HMS#2.dwg
- 261-1398-X-TOPO-TOLT DAM WARNING SYSTEM HMS#2.dwg
- 261-1398-X-TOPO-TOLT DAM WARNING SYSTEM HMS#2.dwg
- Edge of Road Facility (Lidar derived)

SCALE 1:1200

0 ft 100 ft 200 ft 300 ft

State Plane (Washington North) / NAD83 / feet

SPU/ADCOMM

Critical Areas Assessment

HMS 2

PROJECT: 41747.000

DATE: December

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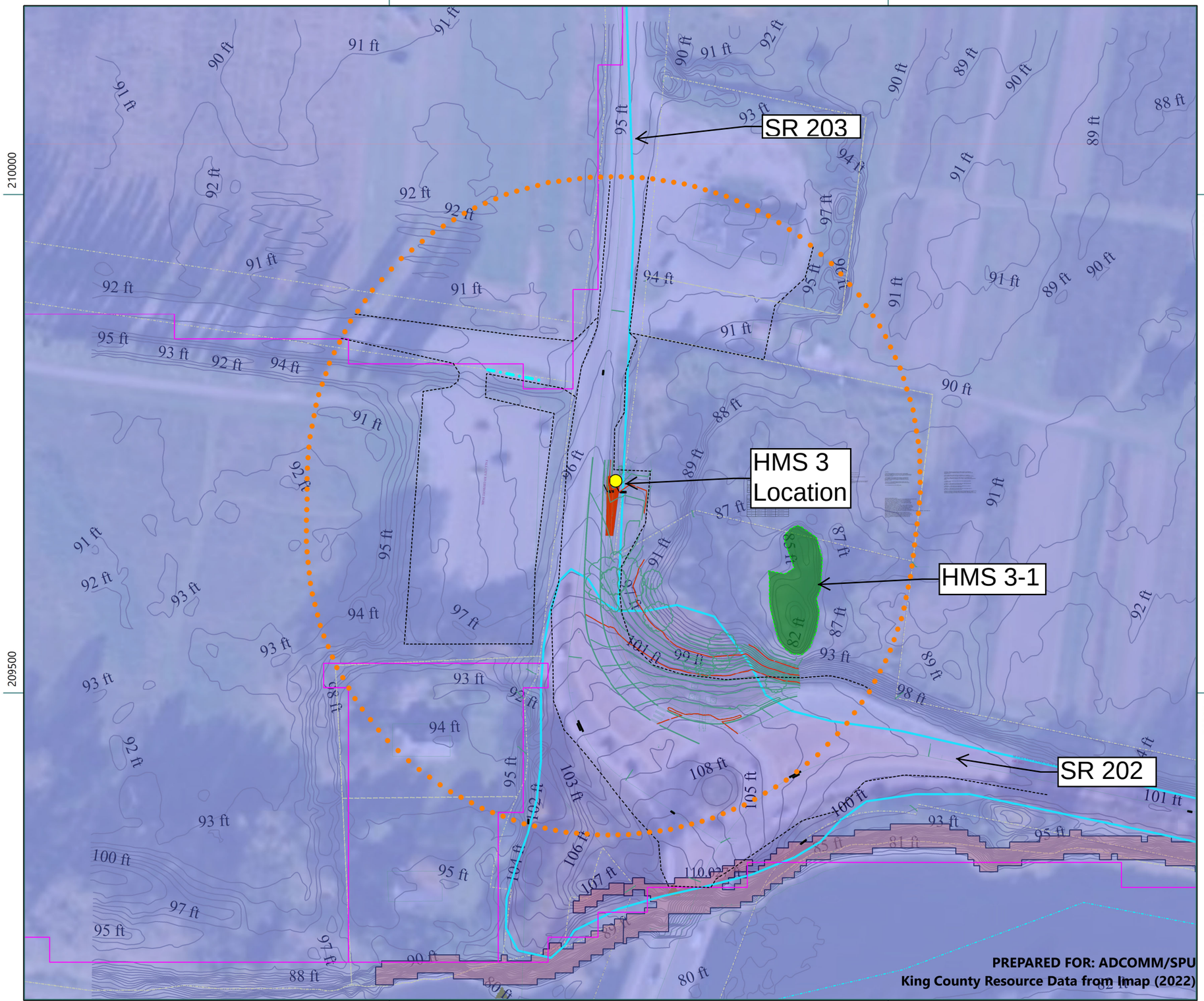
3-12



NOTES:

[NOTES / COMMENTS]

MAP LEGEND

- Field Wetland Inventory
- King County Erosion Hazards
- King County FEMA 100-year_Floodplain
- King County Floodway
- King County Parcels
- King County SAO Wetlands
- King County Shoreline Designations
- King County Steep Slope Hazard
- Study Area
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
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- 261-1398-X-TOPO-TOLT DAM WARNING SYSTEM HMS#3.dwg
- 261-1398-X-TOPO-TOLT DAM WARNING SYSTEM HMS#3.dwg
- 261-1398-X-TOPO-TOLT DAM WARNING SYSTEM HMS#3.dwg
- 261-1398-X-TOPO-TOLT DAM WARNING SYSTEM HMS#3.dwg
- 261-1398-X-TOPO-TOLT DAM WARNING SYSTEM HMS#3.dwg

SCALE 1:1200

0 ft | 100 ft | 200 ft | 300 ft

State Plane (Washington North) / NAD83 / feet

SPU/ADCOMM

Critical Areas Assessment

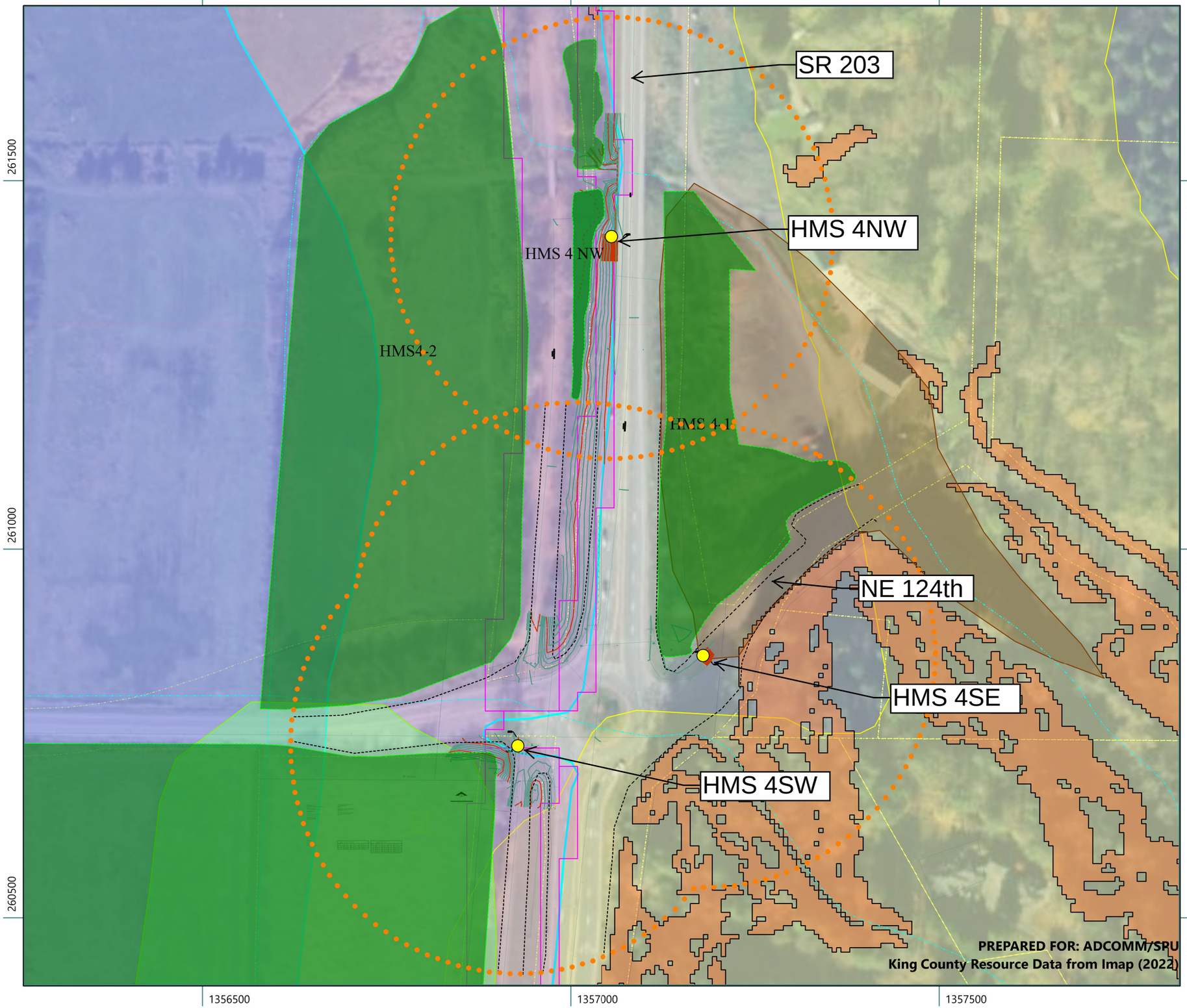
HMS 3

PROJECT: 41747.000

DATE: December

PBS ENGINEERING ENVIRONMENTAL SURVEYING PBSUSA.COM

3-13



NOTES:

[NOTES / COMMENTS]

MAP LEGEND

- Field Wetland Inventory
- King County Erosion Hazards
- King County FEMA 100-year_Floodplain
- King County Floodway
- King County Parcels
- King County Potential_Landslide Hazards
- King County SAO Wetlands
- King County Shoreline Designations
- King County Steep Slope Hazard
- Study Area

SCALE 1:1600

50 ft 150 ft 250 ft 350 ft 450 ft

State Plane (Washington North) / NAD83 / feet

SPU/ADCOMM

Critical Areas Assessment

HMS 4

PROJECT: 41747.000

DATE: December

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3-14

1369500

1370000

235000

234500

NE Tolt Hill Road

HMS 5 Location

West River Road

HMS 5-1

PREPARED FOR: ADCOMM/SPU
King County Resource Data from Imap (2022)

NOTES:

[NOTES / COMMENTS]

MAP LEGEND

- Field Wetland Inventory
- King County Erosion Hazards
- King County FEMA 100-year_Floodplain
- King County Floodway
- King County Parcels
- King County Potential_Landslide Hazards
- King County Shoreline Designations
- King County Steep Slope Hazard
- Study Area

SCALE 1:1200

0 ft 100 ft 200 ft 300 ft

State Plane (Washington North) / NAD83 / feet

SPU/ADCOMM

Critical Areas Assessment

HMS 5

PROJECT: 41747.000

DATE: December

PBS ENGINEERING ENVIRONMENTAL SURVEYING PBSUSA.COM

3-15

1372500

1373000

251000

250500

HMS 7 Location

NE Stillwater Hill Road

SR 203

PREPARED FOR: ADCOMM/SPU

King County Resource Data from Imap (2022)

NOTES:

[NOTES / COMMENTS]

MAP LEGEND

- King County Erosion Hazards
- King County FEMA 100-year_Floodplain
- King County Floodway
- King County Parcels
- King County Potential_Landslide Hazards
- King County SAO Wetlands
- King County Shoreline Designations
- King County Steep Slope Hazard
- Study Area
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-TOPO-TOLT DAM WARNING SYSTEM HMS 7.dwg
- 261-1398-X-TOPO-TOLT DAM WARNING SYSTEM HMS 7.dwg
- 261-1398-X-TOPO-TOLT DAM WARNING SYSTEM HMS 7.dwg
- 261-1398-X-TOPO-TOLT DAM WARNING SYSTEM HMS 7.dwg
- 261-1398-X-TOPO-TOLT DAM WARNING SYSTEM HMS 7.dwg
- Edge of Road Facility (Lidar derived)

SCALE 1:1200

0 ft 100 ft 200 ft 300 ft

State Plane (Washington North) / NAD83 / feet

SPU/ADCOMM

Critical Areas Assessment

HMS 7

PROJECT: 41747.000

DATE: December 2022

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3-16

1374000 1374500 1375000

232000 231500

HMS 8 Location

PREPARED FOR: ADCOMM/SPU

King County Resource Data from Imap (2022)

NOTES:

[NOTES / COMMENTS]

MAP LEGEND

- Field Wetland Inventory
- King County Channel Migration Zones
- King County Erosion Hazards
- King County FEMA 100-year_Floodplain
- King County Floodway
- King County Parcels
- King County Potential_Landslide Hazards
- King County SAO Wetlands
- King County Shoreline Designations
- King County Steep Slope Hazard
- Study Area
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg
- 261-1398-X-SITE_OPC.dwg

SCALE 1:1200

0 ft 100 ft 200 ft 300 ft

State Plane (Washington North) / NAD83 / feet

SPU/ADCOMM

Critical Areas Assessment

HMS 8

PROJECT: 41747.000

DATE: December

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3-17

1398000

1398500

259500

259000

Swan Loop Road

PSERN SWAN
(array on
existing tower)

PSERN SWAN

PREPARED FOR: ADCOMM/SPU
King County Resource Data from Imap (2022)

NOTES:

[NOTES / COMMENTS]

MAP LEGEND

- King County Erosion Hazards
- King County Floodway
- King County Parcels
- King County Potential_Landslide Hazards
- King County Shoreline Designations
- King County Steep Slope Hazard
- Study Area
- Edge of Road Facility (Lidar derived)
- King County Rivers & Streams
- PSERN SWAN GENERATED CONTOURS
- Approximate Facility Location

SCALE 1:1200

0 ft 100 ft 200 ft 300 ft

State Plane (Washington North) / NAD83 / feet

SPU/ADCOMM

Critical Areas Assessment

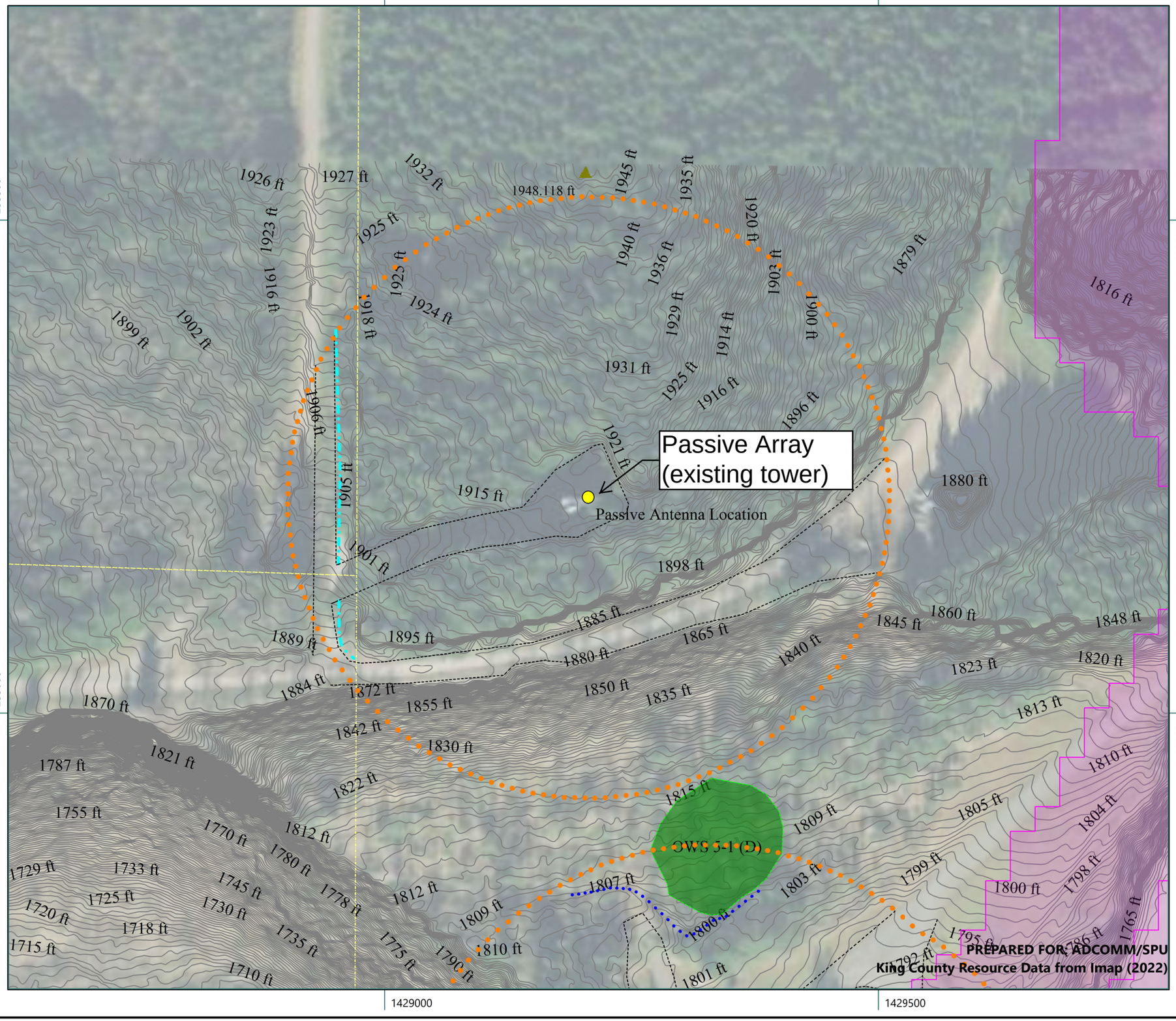
PSERN SWAN

PROJECT: 41747.000

DATE: December

PBS ENGINEERING ENVIRONMENTAL SURVEYING PBSUSA.COM

3-18



NOTES:

[NOTES / COMMENTS]

MAP LEGEND

- Field Wetland Inventory
- King County Parcels
- King County Shoreline Designations
- Study Area
- Edge of Road Facility (Lidar derived)
- Field Inventoried Ditches
- Field Inventoried Streams
- King County Rivers & Streams
- OWS 5 GENERATED CONTOURS(5)
- Approximate Facility Location
- OWS 5 GENERATED CONTOURS(5)

SCALE 1:1200

0 ft 100 ft 200 ft 300 ft

State Plane (Washington North) / NAD83 / feet

SPU/ADCOMM

Critical Areas Assessment

Passive Antenna Site

PROJECT: 41747.000

DATE: December

PBS ENGINEERING ENVIRONMENTAL SURVEYING PBSUSA.COM

3-19

Appendix D

Wetland Determination Data Forms

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

Project/Site: TEWS OWS 1 City/County: King Sampling Date: 3/25/2022
Applicant/Owner: ADCOMM State: WA Sampling Point: OWS 1
Investigator(s): Patrick Togher Section, Township, Range: S12, T25N, R7E
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 10
Subregion (LRR): A Lat: 47.672481 Long: -121.859259 Datum: WGS84
Soil Map Unit Name: Fluventic Haplumbrepts NWI Classification: Upland
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No ___ (If no, explain in remarks)
Are vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No ___
Are vegetation ___, Soil ___, or Hydrology ___ naturally problematic?

SUMMARY OF FINDINGS - Attach site map showing sampling point location, transects, important features, etc.

Hydrophytic vegetation present?	Yes ___	No **X**	**Is the sampled area within a wetland?** Yes ___ No **X**
Hydric soil present?	Yes ___	No **X**	
Indicators of wetland hydrology present?	Yes ___	No **X**	

Remarks: On south side of SE 80th to the south of existing OWS 1 cleared area.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species	Indicator Status
1. *Acer macrophyllum*	30	Y	FACU
2. *Pseudotsuga menziesii*	20	Y	FACU
3. *Thuja plicata*	10	N	FAC
4.			
	60 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' r)			
1. *Oemleria cerasiformis*	20	Y	FACU
2. *Symphoricarpos albus*	15	Y	FACU
3. *Rubus spectabilis*	10	Y	FAC
4.			
5.			
	45 = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Polystichum munitum*	90	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: 30' r)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 10

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across all Strata: 6 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 17% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	20	x 3 =	60
FACU species	175	x 4 =	700
UPL species	0	x 5 =	0
Column totals	195 (A)		760 (B)

Prevalence Index = B/A = 3.90

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0
___ 4 - Morphological Adaptations* (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:
Dominant species do not satisfy hydrophytic vegetation criteria.

SOIL

Sampling Point: OWS 1

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/2	100					SiL	
8-18	10YR 3/3	100					GSL	
18-20+	10YR 3/3	100					GSL	

[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 MRLA 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:

Soils do not satisfy hydric soil criteria.

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is 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 MRLA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on 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): 0"
Water Table Present?	Yes	___	No	X	Depth (inches): >20"
Saturation Present? (includes capillary fringe)	Yes	___	No	X	Depth (inches): >20"

Wetland Hydrology Present?

Yes ___ **No** X

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

Remarks:

No indicators of wetland hydrology are present.

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

Project/Site: TEWS OWS 2 City/County: King Sampling Date: 3/25/2022
Applicant/Owner: ADCOMM State: WA Sampling Point: OWS 2
Investigator(s): Patrick Togher Section, Township, Range: S11, T25N, R7E
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0
Subregion (LRR): A Lat: 47.663643 Long: -121.872279 Datum: WGS84
Soil Map Unit Name: Typic Vitrixerands NWI Classification: Upland
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No ___ (If no, explain in remarks)
Are vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No ___
Are vegetation ___, Soil ___, or Hydrology ___ naturally problematic?

SUMMARY OF FINDINGS - Attach site map showing sampling point location, transects, important features, etc.

Hydrophytic vegetation present?	Yes ___	No **X**	**Is the sampled area within a wetland?** Yes ___ No **X**
Hydric soil present?	Yes ___	No **X**	
Indicators of wetland hydrology present?	Yes ___	No **X**	

Remarks: East side of Tolt River Road NE. Plot located on terrace above stream at roadedge east of existing siren footprint.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species	Indicator Status
1. *Thuja plicata*	50	Y	FAC
2.			
3.			
4.			
	50 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' r)			
1. *Oemleria cerasiformis*	25	Y	FACU
2. *Acer circinatum*	25	Y	FAC
3. *Rosa gymnocarpa*	25	Y	FACU
4.			
5.			
	75 = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Lamium galeobdolon*	90	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: 30' r)			
1. *Rubus armeniacus*	50	Y	FAC
2.			
	50 = Total Cover		

% Bare Ground in Herb Stratum 10

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across all Strata: 6 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	125	x 3 =	375
FACU species	50	x 4 =	200
UPL species	90	x 5 =	450
Column totals	265 (A)		1025 (B)

Prevalence Index = B/A = 3.87

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0
___ 4 - Morphological Adaptations* (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:
Dominant species do not satisfy criteria for hydrophytic vegetation.

SOIL

Sampling Point: OWS 2

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	2.5YR 2.5/2	100					L	
4-21+	10YR 3/6	85	10YR 3/4	15	C	M	GL	

[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 MRLA 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:

Soils do not satisfy hydric soil criteria.

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is 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 MRLA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on 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):	0"	**Wetland Hydrology Present?**
Water Table Present?	Yes ___	No X	Depth (inches):	>21"	
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	>21"	**Yes** ___ **No** **X**

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

Remarks:

Dry, well drained. No indicators of wetland hydrology are present.

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

Project/Site: TEWS OWS 3ex | City/County: King | Sampling Date: 3/22/2022
Applicant/Owner: ADCOMM | State: WA | Sampling Point: OWS 3ex
Investigator(s): Patrick Togher and Mallory Phillips | Section, Township, Range: S14, T25N, R7E
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Convex | Slope (%): 20
Subregion (LRR): A | Lat: 47.648297 | Long: -121.881434 | Datum: WGS84
Soil Map Unit Name: Aquic Vitrixerands | NWI Classification: Upslope
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No ___ (If no, explain in remarks)
Are vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No ___
Are vegetation ___, Soil ___, or Hydrology ___ naturally problematic?

SUMMARY OF FINDINGS - Attach site map showing sampling point location, transects, important features, etc.

Hydrophytic vegetation present?	Yes ___	No **X**	**Is the sampled area within a wetland?** Yes ___ No **X**
Hydric soil present?	Yes ___	No **X**	
Indicators of wetland hydrology present?	Yes ___	No **X**	

Remarks: N. Side of Tolt River Road, just east of the existing OWS 3 pole.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species	Indicator Status
1. *Thuja plicata*	40	Y	FAC
2. *Acer macrophyllum*	40	Y	FACU
3.			
4.			
	80 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' r)			
1. *Oemleria cerasiformis*	50	Y	FACU
2. *Corylus cornuta*	30	Y	FACU
3. *Symphoricarpos albus*	10	N	FACU
4.			
5.			
	90 = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Mahonia nervosa*	15	Y	FACU
2. *Polystichum munitum*	10	Y	FACU
3. *Pteridium aquilinum*	10	Y	FACU
4. *Tolmiea menziesii*	5	N	FAC
5. *Geranium robertianum*	1	N	FACU
6. *Ranunculus repens*	1	N	FAC
7.			
8.			
9.			
10.			
11.			
	42 = Total Cover		
Woody Vine Stratum (Plot size: 30' r)			
1. *Rubus ursinus*	30	Y	FACU
2.			
	30 = Total Cover		

% Bare Ground in Herb Stratum 58

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across all Strata: 8 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 13% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	46	x 3 =	138
FACU species	196	x 4 =	784
UPL species	0	x 5 =	0
Column totals	242 (A)		922 (B)

Prevalence Index = B/A = 3.81

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0
___ 4 - Morphological Adaptations* (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:
Dominant species do not satisfy criteria for hydrophytic vegetation.

SOIL

Sampling Point: OWS 3ex

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20+	10YR 2/2	100					SL	

[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 MRLA 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:

Soils do not satisfy hydric soil criteria.

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is 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 MRLA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on 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): 0
Water Table Present?	Yes	___	No	X	Depth (inches): >20"
Saturation Present? (includes capillary fringe)	Yes	___	No	X	Depth (inches): >20"

Wetland Hydrology Present?

Yes ___ **No** **X**

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

Remarks:

No indicators of wetland hydrology are present.

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

Project/Site: TEWS OWS 3 City/County: King Sampling Date: 3/25/2022
Applicant/Owner: ADCOMM State: WA Sampling Point: OWS 3
Investigator(s): Patrick Togher Section, Township, Range: S14, T25N, R7E
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 0
Subregion (LRR): A Lat: 47.653128 Long: -121.876358 Datum: WGS84
Soil Map Unit Name: Dystric Xeropsamments NWI Classification: Upland
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No ___ (If no, explain in remarks)
Are vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No ___
Are vegetation ___, Soil ___, or Hydrology ___ naturally problematic?

SUMMARY OF FINDINGS - Attach site map showing sampling point location, transects, important features, etc.

Hydrophytic vegetation present?	Yes		No	X
Hydric soil present?	Yes		No	X
Indicators of wetland hydrology present?	Yes		No	X

Is the sampled area within a wetland? Yes ___ No X

Remarks: Located on east side of Tolt River Road NE about 20 feet from pavement at base of existing power pole/utility box on driveway.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species	Indicator Status
1. *Thuja plicata*	50	Y	FAC
2. *Acer macrophyllum*	35	Y	FACU
3. *Pseudotsuga menziesii*	10	N	FACU
4.			
	95 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' r)			
1. *Rubus spectabilis*	25	Y	FAC
2. *Oemleria cerasiformis*	25	Y	FACU
3. *Acer circinatum*	25	Y	FAC
4.			
5.			
	75 = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Tolmiea menziesii*	25	Y	FAC
2. *Polystichum munitum*	20	Y	FACU
3. *Geranium robertianum*	15	Y	FACU
4. *Ranunculus repens*	10	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: 30' r)			
1. *Rubus ursinus*	25	Y	FACU
2.			
	25 = Total Cover		

% Bare Ground in Herb Stratum 30

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across all Strata: 9 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 44% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	135	x 3 =	405
FACU species	130	x 4 =	520
UPL species	0	x 5 =	0
Column totals	265 (A)		925 (B)

Prevalence Index = B/A = 3.49

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0
___ 4 - Morphological Adaptations* (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:
Dominant species do not satisfy hydrophytic vegetation criteria.

SOIL

Sampling Point: OWS 3

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
3-6	10YR 2/2	100					SiL	
6-15	10YR 2/2	100					GSiL	
15-20+	10YR 3/2	100					GSiL	

[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 MRLA 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:

Soils do not satisfy hydric soil criteria.

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is 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 MRLA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on 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):	0"	**Wetland Hydrology Present?**
Water Table Present?	Yes ___	No X	Depth (inches):	>20"	
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	>20"	**Yes** ___ **No** X

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

Remarks:

No wetland hydrology indicators are present.

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

Project/Site: TEWS OWS 4 City/County: King Sampling Date: 3/3/2022
Applicant/Owner: ADCOMM State: WA Sampling Point: OWS 4 (2)
Investigator(s): Patrick Togher Section, Township, Range: S16; T26N; R7E
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0
Subregion (LRR): A Lat: 47.648475 Long: -121.906963 Datum: WGS84
Soil Map Unit Name: Aeric Fluvaquents NWI Classification: Upland
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No ___ (If no, explain in remarks)
Are vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No ___
Are vegetation ___, Soil ___, or Hydrology ___ naturally problematic?

SUMMARY OF FINDINGS - Attach site map showing sampling point location, transects, important features, etc.

Hydrophytic vegetation present?	Yes	X	No	
Hydric soil present?	Yes		No	X
Indicators of wetland hydrology present?	Yes		No	X

Is the sampled area within a wetland? Yes ___ No X

Remarks: Plot is located about 250-feet northeast of the intersection of Milwaukee Ave and Entwistle St.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species	Indicator Status
1. *Populus balsamifera*	20	Y	FAC
2.			
3.			
4.			
	20 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' r)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Agrostis stolonifera*	45	Y	FAC
2. *Phalaris arundinacea*	20	Y	FACW
3. *Schedonorus arundinaceus*	10	N	FAC
4. *Ranunculus repens*	10	N	FAC
5. *Hypochaeris radicata*	10	N	FACU
6. *Taraxacum officinale*	5	N	FACU
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30' r)			
1. *Rubus armeniacus*	5	Y	FAC
2.			
	5 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across all Strata: 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	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	90	x 3 =	270
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column totals	125 (A)		370 (B)

Prevalence Index = B/A = 2.96

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0
___ 4 - Morphological Adaptations* (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:
Hydrophytic vegetation is dominant.

SOIL

Sampling Point: OWS 4 (2)

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/3	100					GSL	
12-16	10YR 4/3	100					GSL	
16-18+	2.5YR 3/3	100					SL	

[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 MRLA 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:

Soils do not satisfy hydric soil criteria.

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is 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 MRLA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on 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):	0"
Water Table Present?	Yes	___	No X	Depth (inches):	>18"
Saturation Present? (includes capillary fringe)	Yes	___	No X	Depth (inches):	>18"

Wetland Hydrology Present?

Yes ___ **No** X

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

Remarks:

Moist but not saturated. No indicators of wetland hydrology are present.

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

Project/Site: TEWS OWS 5 City/County: King Sampling Date: 3/11/2022
Applicant/Owner: ADCOMM State: WA Sampling Point: OWS 5 (50)
Investigator(s): Patrick Togher and Mallory Phillips Section, Township, Range: S32; T26N; R9E
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 20
Subregion (LRR): A Lat: 47.694518 Long: -121.690589 Datum: WGS84
Soil Map Unit Name: Arents NWI Classification: Upland
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No ___ (If no, explain in remarks)
Are vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No ___
Are vegetation ___, Soil ___, or Hydrology ___ naturally problematic?

SUMMARY OF FINDINGS - Attach site map showing sampling point location, transects, important features, etc.

Hydrophytic vegetation present?	Yes ___	No **X**	**Is the sampled area within a wetland?** Yes ___ No **X**
Hydric soil present?	Yes ___	No **X**	
Indicators of wetland hydrology present?	Yes ___	No **X**	

Remarks: Plot located about 75-feet west of the tolt vista house.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species	Indicator Status
1. *Tsuga heterophylla*	60	Y	FACU
2. *Pseudotsuga menziesii*	40	Y	FACU
3.			
4.			
	100 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' r)			
1. *mahonia nervosa*	5	Y	FACU
2.			
3.			
4.			
5.			
	5 = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Polystichum munitum*	80	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: 30' r)			
1. *Rubus spectabilis*	5	Y	FAC
2.			
	5 = Total Cover		

% Bare Ground in Herb Stratum 20

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across all Strata: 5 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 20% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	5	x 3 =	15
FACU species	185	x 4 =	740
UPL species	0	x 5 =	0
Column totals	190 (A)		755 (B)

Prevalence Index = B/A = 3.97

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0
___ 4 - Morphological Adaptations* (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:
Dominant species do not satisfy hydrophytic vegetation criteria.

SOIL

Sampling Point: OWS 5 (50)

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 3/3	100					L	
9-19+	10YR 3/3	100					GSL	

[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 MRLA 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:

Soils do not satisfy hydric soils criteria.

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is 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 MRLA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on 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 indicators of wetland hydrology are present.

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

Project/Site: TEWS OWS 5 City/County: King Sampling Date: 3/11/2022
Applicant/Owner: ADCOMM State: WA Sampling Point: OWS 5 (54)
Investigator(s): Patrick Togher and Mallory Phillips Section, Township, Range: S32; T26N; R9E
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 0
Subregion (LRR): A Lat: 47.695431 Long: -121.690682 Datum: WGS84
Soil Map Unit Name: Pits NWI Classification: PFO
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No ___ (If no, explain in remarks)
Are vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No ___
Are vegetation ___, Soil ___, or Hydrology ___ naturally problematic?

SUMMARY OF FINDINGS - Attach site map showing sampling point location, transects, important features, etc.

Hydrophytic vegetation present?	Yes	**X**	No	
Hydric soil present?	Yes		No	**X**
Indicators of wetland hydrology present?	Yes	**X**	No	

Is the sampled area within a wetland? Yes ___ No **X**

Remarks: Plot is located about 350-feet north of the tolt vista house.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species	Indicator Status
1. *Populus balsamifera*	10	Y	FAC
2. *Salix lasiandra*	10	Y	FACW
3. *Alnus rubra*	2	N	FAC
4.			
	22 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' r)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Agrostis stolonifera*	30	Y	FAC
2. *Phalaris arundinacea*	10	Y	FACW
3. *Unknown moss species 1*	1	N	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	41 = Total Cover		
Woody Vine Stratum (Plot size: 30' r)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 59

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	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	42	x 3 =	126
FACU species	0	x 4 =	0
UPL species	1	x 5 =	5
Column totals	63 (A)		171 (B)

Prevalence Index = B/A = 2.71

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0
___ 4 - Morphological Adaptations* (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:
Hydrophytic vegetation is dominant.

SOIL

Sampling Point: OWS 5 (54)

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/2	100					GSL	
7+	10YR 3/2	100					GSL	Very gravelly/cobbly

[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 MRLA 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:

Soil does not satisfy hydric soil criteria.

HYDROLOGY

Wetland Hydrology Indicators

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X 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 MRLA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on 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):	7"
Saturation Present? (includes capillary fringe)	Yes	X	No ___	Depth (inches):	Surface

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

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

Remarks:

Spots of inundation. Water table present at depth of 7" and soil saturated to the surface. Wetland hydrology criteria satisfied.

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

Project/Site: TEWS OWS 6 City/County: King Sampling Date: 3/11/2022
Applicant/Owner: ADCOMM State: WA Sampling Point: OWS 6 (4)
Investigator(s): Patrick Togher and Mallory Phillips Section, Township, Range: S33; T26N; R8E
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 0
Subregion (LRR): A Lat: 47.700376 Long: .121.786003 Datum: WGS84
Soil Map Unit Name: Typic Vitrixerands NWI Classification: Upland
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No ___ (If no, explain in remarks)
Are vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No ___
Are vegetation ___, Soil ___, or Hydrology ___ naturally problematic?

SUMMARY OF FINDINGS - Attach site map showing sampling point location, transects, important features, etc.

Hydrophytic vegetation present?	Yes	X	No	
Hydric soil present?	Yes		No	X
Indicators of wetland hydrology present?	Yes	X	No	

Is the sampled area within a wetland? Yes ___ No X

Remarks: Plot located about 55-feet northwest of power line tower off of access road on what appeared to revegetated gravel fill.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species	Indicator Status
1. *Tsuga heterophylla*	20	Y	FACU
2. *Alnus rubra*	5	Y	FAC
3.			
4.			
	25 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' r)			
1. *Gualtheria shallon*	35	Y	UPL
2. *Rubus spectabilis*	30	Y	FAC
3.			
4.			
5.			
	65 = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Agrostis stolonifera*	80	Y	FAC
2. *Fragaria chiloensis*	10	N	FACU
3. *Juncus effusus*	5	N	FACW
4. *Ranunculus repens*	5	N	FAC
5. *Polystichum munitum*	1	N	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	101 = Total Cover		
Woody Vine Stratum (Plot size: 30' r)			
1. *Rubus ursinus*	10	Y	FACU
2. *Rubus armeniacus*	5	Y	FAC
	15 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across all Strata: 7 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 57% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	125	x 3 =	375
FACU species	41	x 4 =	164
UPL species	35	x 5 =	175
Column totals	206 (A)		724 (B)

Prevalence Index = B/A = 3.51

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0
___ 4 - Morphological Adaptations* (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:
Hydrophytic vegetation is dominant.

SOIL

Sampling Point: OWS 6 (4)

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/3	100					Gravelly fil	
4-8	10YR 5/3	100					Gravelly fil	Cannot auger further

[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 MRLA 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:

Plot does not meet any hydric soil indicator criteria.

HYDROLOGY

Wetland Hydrology Indicators

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

- X Surface Water (A1)
- X High Water Table (A2)
- X 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 on 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	X	No ___	Depth (inches):	<1"
Water Table Present?	Yes	X	No ___	Depth (inches):	Surface
Saturation Present? (includes capillary fringe)	Yes	X	No ___	Depth (inches):	Surface

Wetland Hydrology Present?

Yes X **No** ___

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

Remarks:

Water table perched on imported fill material; water table ranges from surface-6".

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

Project/Site: TEWS OWS 6 City/County: King Sampling Date: 3/11/2022
Applicant/Owner: ADCOMM State: WA Sampling Point: OWS 6 (5)
Investigator(s): Patrick Togher and Mallory Phillips Section, Township, Range: S33; T26N; R8E
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 2
Subregion (LRR): A Lat: 47.700865 Long: -121.786439 Datum: WGS84
Soil Map Unit Name: Typic Vitrixerands NWI Classification: Upland
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No ___ (If no, explain in remarks)
Are vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No ___
Are vegetation ___, Soil ___, or Hydrology ___ naturally problematic?

SUMMARY OF FINDINGS - Attach site map showing sampling point location, transects, important features, etc.

Hydrophytic vegetation present?	Yes	X	No	
Hydric soil present?	Yes		No	X
Indicators of wetland hydrology present?	Yes		No	X

Is the sampled area within a wetland? Yes ___ No X

Remarks: Plot located southwest of Wetland A on the north edge of the access road in a bramble of R. spectabilis.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' r)			
1. *Rubus spectabilis*	85	Y	FAC
2.			
3.			
4.			
5.			
	85 = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Tolmiea menziesii*	20	Y	FAC
2. *Polystichum munitum*	5	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	25 = Total Cover		
Woody Vine Stratum (Plot size: 30' r)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 75

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: 67% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	105	x 3 =	315
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column totals	110 (A)		335 (B)

Prevalence Index = B/A = 3.05

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0
___ 4 - Morphological Adaptations* (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:
No fill (off access road edge). Hydrophytic vegetation is dominant.

SOIL

Sampling Point: OWS 6 (5)

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/2	100					SCL	
6-20+	7.5YR 2.5/3	90	7.5YR 3/3	10	C	M	SCL	

[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 MRLA 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:

Soils do not satisfy hydric soils criteria.

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is 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 MRLA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on 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):	>20"
Water Table Present?	Yes	___	No X	Depth (inches):	>20"
Saturation Present? (includes capillary fringe)	Yes	___	No X	Depth (inches):	>20"

Wetland Hydrology Present?

Yes ___ **No** X

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

Remarks:

No indicators of wetland hydrology are present.

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

Project/Site: TEWS OWS 6 City/County: King Sampling Date: 3/11/2022
Applicant/Owner: ADCOMM State: WA Sampling Point: OWS 6 (15)
Investigator(s): Patrick Togher and Mallory Phillips Section, Township, Range: S33; T26N; R8E
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Convex Slope (%): 0
Subregion (LRR): A Lat: 47.701074 Long: -121.785956 Datum: WGS84
Soil Map Unit Name: Typic Vitrixerands NWI Classification: Upland
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No ___ (If no, explain in remarks)
Are vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No ___
Are vegetation ___, Soil ___, or Hydrology ___ naturally problematic?

SUMMARY OF FINDINGS - Attach site map showing sampling point location, transects, important features, etc.

Hydrophytic vegetation present?	Yes		No	X
Hydric soil present?	Yes		No	X
Indicators of wetland hydrology present?	Yes		No	X

Is the sampled area within a wetland? Yes ___ No X

Remarks: Plot is located about 30-feet east of wetland point a2. Upland plot for WL A.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species	Indicator Status
1. *Tsuga heterophylla*	20	Y	FACU
2.			
3.			
4.			
	20 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' r)			
1. *Vaccinium ovatum*	15	Y	FACU
2.			
3.			
4.			
5.			
	15 = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Polystichum munitum*	25	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	25 = Total Cover		
Woody Vine Stratum (Plot size: 30' r)			
1. *Rubus spectabilis*	10	Y	FAC
2.			
	10 = Total Cover		

% Bare Ground in Herb Stratum 75

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across all Strata: 4 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 25% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	10	x 3 =	30
FACU species	60	x 4 =	240
UPL species	0	x 5 =	0
Column totals	70 (A)		270 (B)

Prevalence Index = B/A = 3.86

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0
___ 4 - Morphological Adaptations* (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:
Dominant species does not satisfy hydrophytic vegetation criteria.

SOIL

Sampling Point: OWS 6 (15)

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
2-0	Duff							
0-23+	7.5YR 2.5/3	100					L	Rotted roots

[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 MRLA 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:

Soils do not satisfy hydric soils criteria.

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is 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 MRLA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on 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): >23"
Water Table Present?	Yes	___	No	X	Depth (inches): >23"
Saturation Present? (includes capillary fringe)	Yes	___	No	X	Depth (inches): >23"

Wetland Hydrology Present?

Yes ___ **No** **X**

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

Remarks:

No indicators of wetland hydrology are present.

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

Project/Site: TEWS OWS 6 City/County: King Sampling Date: 3/11/2022
Applicant/Owner: ADCOMM State: WA Sampling Point: OWS 6 (14)
Investigator(s): Patrick Togher and Mallory Phillips Section, Township, Range: S33; T26N; R8E
Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 0
Subregion (LRR): A Lat: 47.701018 Long: -121.786035 Datum: WGS84
Soil Map Unit Name: Typic Vitrixerands NWI Classification: PEM
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No ___ (If no, explain in remarks)
Are vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No ___
Are vegetation ___, Soil ___, or Hydrology ___ naturally problematic?

SUMMARY OF FINDINGS - Attach site map showing sampling point location, transects, important features, etc.

Hydrophytic vegetation present?	Yes	X	No	
Hydric soil present?	Yes	X	No	
Indicators of wetland hydrology present?	Yes	X	No	

Is the sampled area within a wetland? Yes X No

Remarks: Plot is located about 10-feet southeast of wetland point a3. Wetland A wet plot.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' r)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Agrostis stolonifera*	15	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15 = Total Cover		
Woody Vine Stratum (Plot size: 30' r)			
1. *Rubus spectabilis*	10	Y	FAC
2.			
	10 = Total Cover		

% Bare Ground in Herb Stratum 85

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	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	25	x 3 =	75
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	25 (A)		75 (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0
___ 4 - Morphological Adaptations* (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:
Polystichum munitum on the upland edges. Hydrophytic vegetation is dominant.

SOIL

Sampling Point: OWS 6 (14)

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

Depth	Matrix		Redox Features					
(Inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 4/2	95	10YR 4/4	5	C	M	SCL	5mm
16-20+	10YR 4/2	95	10YR 4/4	5	C	M	SCL	10-20mm

[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)
- X 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 MRLA 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:

Hydrogen sulfide at 2".

HYDROLOGY

Wetland Hydrology Indicators

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

- X Surface Water (A1)
- X High Water Table (A2)
- X 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 MRLA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on 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	X	No ___	Depth (inches):	3-4"
Water Table Present?	Yes	X	No ___	Depth (inches):	Surface
Saturation Present? (includes capillary fringe)	Yes	X	No ___	Depth (inches):	Surface

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

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

Remarks:

3-4" of surface water present.

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

Project/Site: TEWS OWS 6 City/County: King Sampling Date: 3/11/2022
Applicant/Owner: ADCOMM State: WA Sampling Point: OWS 6 (33)
Investigator(s): Patrick Togher and Mallory Phillips Section, Township, Range: S33; T26N; R8E
Landform (hillslope, terrace, etc.): Depression w/in terrace Local relief (concave, convex, none): Concave Slope (%): 0
Subregion (LRR): A Lat: 47.700736 Long: -121.785518 Datum: WGS84
Soil Map Unit Name: Typic Vitrixerands NWI Classification: PEM
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No ___ (If no, explain in remarks)
Are vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No ___
Are vegetation ___, Soil ___, or Hydrology ___ naturally problematic?

SUMMARY OF FINDINGS - Attach site map showing sampling point location, transects, important features, etc.

Hydrophytic vegetation present?	Yes	X	No	
Hydric soil present?	Yes	X	No	
Indicators of wetland hydrology present?	Yes	X	No	

Is the sampled area within a wetland? Yes X No

Remarks: Plot located about 10-feet east of wetland point b15. Wetland B wet plot.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species	Indicator Status
1. *Tsuga heterophylla*	50	Y	FACU
2.			
3.			
4.			
	50 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' r)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Carex obnupta*	50	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	50 = Total Cover		
Woody Vine Stratum (Plot size: 30' r)			
1. *Rubus spectabilis*	50	Y	FAC
2.			
	50 = Total Cover		

% Bare Ground in Herb Stratum 50

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: 67% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	50	x 1 =	50
FACW species	0	x 2 =	0
FAC species	50	x 3 =	150
FACU species	50	x 4 =	200
UPL species	0	x 5 =	0
Column totals	150 (A)		400 (B)

Prevalence Index = B/A = 2.67

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0
___ 4 - Morphological Adaptations* (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:
On hummocks: 10% G. shallon, 5% P. munitum, 15% R. ursinus. Hydrophytic vegetation is dominant.

SOIL

Sampling Point: OWS 6 (33)

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/1	100					Loam	Organic matter present
2-6	10YR 2/2	97	10YR 3/2	3	C	M	Loam	Organic matter present
6-18	10YR 5/2	93	10YR 4/3	7	C	M	SiCL	
18-20+	10YR 5/1	90	10YR 4/4	10	C	M	GSiCL	

[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)
- X 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 MRLA 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:

Hydrogen sulfide present at 2".

HYDROLOGY

Wetland Hydrology Indicators

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

- X Surface Water (A1)
- X High Water Table (A2)
- X 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 MRLA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on 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	X	No ___	Depth (inches):	1"
Water Table Present?	Yes	X	No ___	Depth (inches):	Surface
Saturation Present? (includes capillary fringe)	Yes	X	No ___	Depth (inches):	Surface

Wetland Hydrology Present?

Yes X **No** ___

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

Remarks:

About an inch of surface water present.

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

Project/Site: TEWS OWS 6 City/County: King Sampling Date: 3/11/2022
Applicant/Owner: ADCOMM State: WA Sampling Point: OWS 6 (34)
Investigator(s): Patrick Togher and Mallory Phillips Section, Township, Range: S33, T26N, R8E
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 5
Subregion (LRR): A Lat: 47.700812 Long: -121.785575 Datum: WGS84
Soil Map Unit Name: Typic Vitrixerands NWI Classification: Upland
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No ___ (If no, explain in remarks)
Are vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No ___
Are vegetation ___, Soil ___, or Hydrology ___ naturally problematic?

SUMMARY OF FINDINGS - Attach site map showing sampling point location, transects, important features, etc.

Hydrophytic vegetation present?	Yes ___	No **X**	**Is the sampled area within a wetland?** Yes ___ No **X**
Hydric soil present?	Yes ___	No **X**	
Indicators of wetland hydrology present?	Yes ___	No **X**	

Remarks: Plot located about 15-feet northwest of wetland point b16. Wetland B upland plot.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species	Indicator Status
1. *Tsuga heterophylla*	80	Y	FACU
2. *Acer circinatum*	20	Y	FAC
3.			
4.			
	100 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' r)			
1. *Gualtheria shallon*	15	Y	UPL
2. *Vaccinium ovatum*	2	N	FACU
3.			
4.			
5.			
	17 = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Polystichum munitum*	50	Y	FACU
2. *Blechnum spicant*	5	N	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	55 = Total Cover		
Woody Vine Stratum (Plot size: 30' r)			
1. *Rubus ursinus*	10	Y	FACU
2.			
	10 = Total Cover		

% Bare Ground in Herb Stratum 45

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across all Strata: 5 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 20% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	25	x 3 =	75
FACU species	142	x 4 =	568
UPL species	15	x 5 =	75
Column totals	182 (A)		718 (B)

Prevalence Index = B/A = 3.95

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0
___ 4 - Morphological Adaptations* (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:
Dominant species do not satisfy hydrophytic vegetation criteria.

SOIL

Sampling Point: OWS 6 (34)

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	100						
8-20+	10YR 3/2	99	10YR 3/3	1			GSiL	2-5mm

[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 MRLA 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:

Soils do not satisfy hydric soils criteria.

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is 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 MRLA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on 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):	>20"
Saturation Present? (includes capillary fringe)	Yes	X	No ___	Depth (inches):	18"

Wetland Hydrology Present?

Yes ___ **No** X

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

Remarks:

Saturation present at 18"; however, no surface water present and water table >20". Wetland hydrology criteria not satisfied because saturation >12" below surface.

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

Project/Site: TEWS OWS 6 City/County: King Sampling Date: 3/11/2022
Applicant/Owner: ADCOMM State: WA Sampling Point: OWS 6 (45)
Investigator(s): Patrick Togher and Mallory Phillips Section, Township, Range: S33; T26N; R8E
Landform (hillslope, terrace, etc.): Depression w/in terrace Local relief (concave, convex, none): Concave Slope (%): 1
Subregion (LRR): A Lat: 47.700119 Long: -121.785561 Datum: WGS84
Soil Map Unit Name: Typic Vitrixerands NWI Classification: PSS
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No ___ (If no, explain in remarks)
Are vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No ___
Are vegetation ___, Soil ___, or Hydrology ___ naturally problematic?

SUMMARY OF FINDINGS - Attach site map showing sampling point location, transects, important features, etc.

Hydrophytic vegetation present?	Yes	X	No	
Hydric soil present?	Yes	X	No	
Indicators of wetland hydrology present?	Yes	X	No	

Is the sampled area within a wetland? Yes X No

Remarks: Plot located about 25-feet southeast of wetland point c10 and 25-feet southwest of the corresponding upland plot.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species	Indicator Status
1. *Prunus emarginata*	5	Y	FACU
2.			
3.			
4.			
	5 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' r)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Phalaris arundinacea*	25	Y	FACW
2. *Juncus effusus*	10	Y	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	35 = Total Cover		
Woody Vine Stratum (Plot size: 30' r)			
1. *Rubus spectabilis*	25	Y	FAC
2. *Rubus ursinus*	10	Y	FACU
	35 = Total Cover		

% Bare Ground in Herb Stratum 65

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	0	x 1 =	0
FACW species	35	x 2 =	70
FAC species	25	x 3 =	75
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column totals	75 (A)		205 (B)

Prevalence Index = B/A = 2.73

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0
___ 4 - Morphological Adaptations* (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:
P. munitum 25% on hummocks. Hydrophytic vegetation is dominant.

SOIL

Sampling Point: OWS 6 (45)

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20+	10YR 4/2	97	10YR 5/4	3	C	M	GSiCL	

[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)
- X 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 MRLA 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:

Inclusions of charcoal. Hydrogen sulfide at 2"+.

HYDROLOGY

Wetland Hydrology Indicators

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X 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 MRLA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on 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):	0"
Water Table Present?	Yes	X	No	___	Depth (inches):	5"
Saturation Present? (includes capillary fringe)	Yes	X	No	___	Depth (inches):	Surface

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

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

Remarks:

Soil is saturated at the surface and water table is 5" below the surface. No surface water present. Wetland hydrology criteria is satisfied.

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

Project/Site: TEWS OWS 6 City/County: King Sampling Date: 3/11/2022
Applicant/Owner: ADCOMM State: WA Sampling Point: OWS 6 (46)
Investigator(s): Patrick Togher and Mallory Phillips Section, Township, Range: S33; T26N; R8E
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 20
Subregion (LRR): A Lat: 47.700187 Long: -121.785542 Datum: WGS84
Soil Map Unit Name: Typic Vitrixerands NWI Classification: Upland
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No ___ (If no, explain in remarks)
Are vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No ___
Are vegetation ___, Soil ___, or Hydrology ___ naturally problematic?

SUMMARY OF FINDINGS - Attach site map showing sampling point location, transects, important features, etc.

Hydrophytic vegetation present?	Yes		No	X
Hydric soil present?	Yes		No	X
Indicators of wetland hydrology present?	Yes		No	X

Is the sampled area within a wetland? Yes ___ No X

Remarks: Plot located about 20-feet west of wetland point c9 and 15-feet east of wetland point c10. Upland plot for Wetland C.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' r)			
1. *Holodiscus discolor*	60	Y	FACU
2.			
3.			
4.			
5.			
	60 = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Agrostis stolonifera*	80	Y	FAC
2. *Juncus effusus*	5	N	FACW
3. *Polystichum munitum*	5	N	FACU
4. *Fragaria chiloensis*	5	N	FACU
5. *Schedonorus arundinaceus*	1	N	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	96 = Total Cover		
Woody Vine Stratum (Plot size: 30' r)			
1. *Rubus ursinus*	5	Y	FACU
2.			
	5 = Total Cover		

% Bare Ground in Herb Stratum 4

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across all Strata: 3 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	81	x 3 =	243
FACU species	75	x 4 =	300
UPL species	0	x 5 =	0
Column totals	161 (A)		553 (B)

Prevalence Index = B/A = 3.43

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0
___ 4 - Morphological Adaptations* (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:
Dominant species do not satisfy hydrophytic vegetation criteria.

SOIL

Sampling Point: OWS 6 (46)

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/3	100					SL	Very gravelly
8-18+	10YR 5/4	95	10YR 5/5	5	C	M	SL	2-5mm

[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 MRLA 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:

Charcoal present at 16". Soils do not satisfy hydric soils criteria.

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is 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 MRLA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on 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):	>18"
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches):	10"

Wetland Hydrology Present?

Yes ___ **No** X

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

Remarks:

Saturation is present at a depth of 10". Water table is >18" deep and no surface water present. Wetland hydrology criteria not satisfied.

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

Project/Site: OWS 9 TEWS | City/County: King | Sampling Date: 3/16/2022
Applicant/Owner: ADCOMM | State: WA | Sampling Point: OWS 9
Investigator(s): Patrick Togher and Mallory Phillips | Section, Township, Range: S16; T25N; R7E
Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None | Slope (%): 0
Subregion (LRR): A | Lat: 47.658737 | Long: -121.910960 | Datum: WGS84
Soil Map Unit Name: Aquandic Xerochrepts | NWI Classification: Upland
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No ___ (If no, explain in remarks)
Are vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No ___
Are vegetation ___, Soil ___, or Hydrology ___ naturally problematic?

SUMMARY OF FINDINGS - Attach site map showing sampling point location, transects, important features, etc.

Hydrophytic vegetation present?	Yes	X	No	
Hydric soil present?	Yes		No	X
Indicators of wetland hydrology present?	Yes		No	X

Is the sampled area within a wetland? Yes ___ No X

Remarks: Plot located at proposed OWS 9 location.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species	Indicator Status
1. *Prunis emarginata*	10	Y	UPL
2.			
3.			
4.			
	10 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' r)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Schedonorus arundinaceus*	20	Y	FAC
2. *Phalaris arundinacea*	5	Y	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	25 = Total Cover		
Woody Vine Stratum (Plot size: 30' r)			
1. *Rubus armeniacus*	100	Y	FAC
2.			
	100 = Total Cover		

% Bare Ground in Herb Stratum 75

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across all Strata: 4 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	120	x 3 =	360
FACU species	0	x 4 =	0
UPL species	10	x 5 =	50
Column totals	135 (A)		420 (B)

Prevalence Index = B/A = 3.11

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0
___ 4 - Morphological Adaptations* (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:
Dominant species do not satisfy hydrophytic vegetation criteria.

SOIL

Sampling Point: OWS 9

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/3	100					GSL	Very gravelly
6-20+	10YR 4/3	95	10YR 3/6	5	C	M	SiL	<5mm

[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 MRLA 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:

Soils do not satisfy hydric soils criteria.

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is 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 MRLA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on 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): 0
Water Table Present?	Yes	___	No	X	Depth (inches): >20"
Saturation Present? (includes capillary fringe)	Yes	___	No	X	Depth (inches): >20"

Wetland Hydrology Present?

Yes ___ **No** X

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

Remarks:

No indicators of wetland hydrology are present.

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

Project/Site: TEWS OWS 10 City/County: King Sampling Date: 3/3/2022
Applicant/Owner: ADCOMM State: WA Sampling Point: OWS 10 (3)
Investigator(s): Patrick Togher Section, Township, Range: S16; T26N; R7E
Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 2
Subregion (LRR): A Lat: 47.644338 Long: -121.921922 Datum: WGS84
Soil Map Unit Name: Aeric Fluvaquents NWI Classification: Upland
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No ___ (If no, explain in remarks)
Are vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No ___
Are vegetation ___, Soil ___, or Hydrology ___ naturally problematic?

SUMMARY OF FINDINGS - Attach site map showing sampling point location, transects, important features, etc.

Hydrophytic vegetation present?	Yes ___	No X	**Is the sampled area within a wetland?** Yes ___ No X
Hydric soil present?	Yes ___	No X	
Indicators of wetland hydrology present?	Yes ___	No X	

Remarks: Plot located on the southeastern edge of the Tolt-MacDonald Park Soccer Field parking lot (off of NE 40th St).

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species	Indicator Status
1. *Populus nigra*	15	Y	UPL
2.			
3.			
4.			
	15 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' r)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Agrostis stolonifera*	50	Y	FAC
2. *Taraxacum officinale*	40	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: 30' r)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 10

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across all Strata: 3 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	50	x 3 =	150
FACU species	40	x 4 =	160
UPL species	15	x 5 =	75
Column totals	105 (A)		385 (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
___ 4 - Morphological Adaptations* (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:

Herbaceious tratus is mixed grasses. Agrostis S. assumed as most convervative interpretetation. Dominant species do not satisfy hydrophytic vegetation criteria.

SOIL

Sampling Point: OWS 10 (3)

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/3	100					SiCL	
8-12	10YR 3/3	80	2.5YR 4/3	20	C	M	SiCL	
12-15	10YR 5/3	50	10YR 3/3	50	C	M	SiCL	
15-20	10YR 4/3	100					SiCL	

[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 MRLA 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:

Soils do not satisfy hydric soil criteria.

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is 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 MRLA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on 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): 0"
Water Table Present?	Yes	___	No	X	Depth (inches): >20"
Saturation Present? (includes capillary fringe)	Yes	___	No	X	Depth (inches): >20"

Wetland Hydrology Present?

Yes ___ **No** X

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

Remarks:

Slightly moist, no saturation. No indicators of wetland hydrology are present.

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

Project/Site: HMS1 TEWS | City/County: King | Sampling Date: 3/16/2022
Applicant/Owner: ADCOMM | State: WA | Sampling Point: HMS 1
Investigator(s): Patrick Togher and Mallory Phillips | Section, Township, Range: S9; T25N; R7E
Landform (hillslope, terrace, etc.): Depression w/in Terrace | Local relief (concave, convex, none): Concave | Slope (%): 0
Subregion (LRR): A | Lat: 47.662221 | Long: -121.909567 | Datum: WGS84
Soil Map Unit Name: Aeric Fluvaquents | NWI Classification: Upland
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No ___ (If no, explain in remarks)
Are vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No ___
Are vegetation ___, Soil ___, or Hydrology ___ naturally problematic?

SUMMARY OF FINDINGS - Attach site map showing sampling point location, transects, important features, etc.

Hydrophytic vegetation present?	Yes	X	No	
Hydric soil present?	Yes		No	X
Indicators of wetland hydrology present?	Yes		No	X

Is the sampled area within a wetland? Yes ___ No X

Remarks: Plot located at HMS 1 proposed location.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' r)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Phalaris arundinacea*	100	Y	FACW
2. *Polygonum cuspidatum*	1	N	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	101 = Total Cover		
Woody Vine Stratum (Plot size: 30' r)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

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	0	x 1 =	0
FACW species	100	x 2 =	200
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	1	x 5 =	5
Column totals	101 (A)		205 (B)

Prevalence Index = B/A = 2.03

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0
___ 4 - Morphological Adaptations* (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:
Polygonus cuspidatum on the edge of the plot. Hydrophytic vegetation is dominant.

SOIL

Sampling Point: HMS 1

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/3	100					SiCL	
8-14	10YR 4/3	93	10YR 4/4	7	C	M	SiCL	Glass @ 8"; 2-5mm redox
14-20+	10YR 4/3	93	10YR 4/6	7	C	M	SCL	

[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 MRLA 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:

Soils do not meet hydric soils criteria.

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is 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 MRLA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on 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):	0
Water Table Present?	Yes	___	No X	Depth (inches):	>22"
Saturation Present? (includes capillary fringe)	Yes	___	No X	Depth (inches):	>22"

Wetland Hydrology Present?

Yes ___ **No** X

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

Remarks:

No indicators of wetland hydrology are present.

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

Project/Site: TEWS HMS 2 City/County: King Sampling Date: 3/22/2022
Applicant/Owner: ADCOMM State: WA Sampling Point: HMS 2 1
Investigator(s): Patrick Togher and Mallory Phillips Section, Township, Range: S21, T25N, R7E
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Convex Slope (%): 0
Subregion (LRR): A Lat: 47.637191 Long: -121.916078 Datum: WGS84
Soil Map Unit Name: Fluventic Haplumbrepts NWI Classification: Upland
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No ___ (If no, explain in remarks)
Are vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No ___
Are vegetation ___, Soil ___, or Hydrology ___ naturally problematic?

SUMMARY OF FINDINGS - Attach site map showing sampling point location, transects, important features, etc.

Hydrophytic vegetation present?	Yes	X	No	
Hydric soil present?	Yes		No	X
Indicators of wetland hydrology present?	Yes		No	X

Is the sampled area within a wetland? Yes ___ No X

Remarks: NE corner of SE 32nd and and SR 203. Wetland delineated north of plot. Plot located directly downslope from stop sign on NE 32nd st.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' r)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Phalaris arundinacea*	45	Y	FACW
2. *Agrostis stolonifera*	30	Y	FAC
3. *Schedonorus arundinaceus*	17	N	FAC
4. *Geranium molle*	5	N	UPL
5. *Taraxacum officinale*	2	N	FACU
6. *Vicia sp.*	1	N	UPL
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30' r)			
1. *Rubus armeniacus*	40	Y	FAC
2.			
	40 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across all Strata: 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	0	x 1 =	0
FACW species	45	x 2 =	90
FAC species	87	x 3 =	261
FACU species	2	x 4 =	8
UPL species	6	x 5 =	30
Column totals	140 (A)		389 (B)

Prevalence Index = B/A = 2.78

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0
___ 4 - Morphological Adaptations* (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:
Hydrophytic vegetation is dominant.

SOIL

Sampling Point: HMS 2 1

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-11	10YR 3/2	100					GSiCL	
11-14	10YR 3/3	100					GSiCL	
14-16	10YR 4/3	100					GSiCL	
16-22+	2.5Y 4/3	95	10YR 4/6	5	C	M	SCL	1-2mm

[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 MRLA 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:

Soils do not meet hydric soil criteria.

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is 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 on 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):	0
Water Table Present?	Yes	___	No X	Depth (inches):	>22"
Saturation Present? (includes capillary fringe)	Yes	X	No ___	Depth (inches):	0-16"

Wetland Hydrology Present?

Yes ___ **No** X

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

Remarks:

Saturation is present in the A, B, and C horizons from recent rainfall. No indicators of wetland hydrology are present and therefore the criteria is not satisfied.

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

Project/Site: HMS 3 TEWS | City/County: King | Sampling Date: 3/16/2022
Applicant/Owner: ADCOMM | State: WA | Sampling Point: HMS 3 (1)
Investigator(s): Patrick Togher and Mallory Phillips | Section, Township, Range: S14; T24N; R7E
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Convex | Slope (%): 15
Subregion (LRR): A | Lat: 47.569736 | Long: -121.887273 | Datum: WGS84
Soil Map Unit Name: Fluventic Haplumbrepts | NWI Classification: Upland
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No ___ (If no, explain in remarks)
Are vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No ___
Are vegetation ___, Soil ___, or Hydrology ___ naturally problematic?

SUMMARY OF FINDINGS - Attach site map showing sampling point location, transects, important features, etc.

Hydrophytic vegetation present?	Yes	X	No	
Hydric soil present?	Yes		No	X
Indicators of wetland hydrology present?	Yes		No	X

Is the sampled area within a wetland? Yes ___ No X

Remarks: Eastern side of 300-foot radius. Directly across from parking lot on the slope.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species	Indicator Status
1. *Populus balsamifera*	50	Y	FAC
2.			
3.			
4.			
	50 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' r)			
1. *Cytisus scoparius*	5	Y	UPL
2.			
3.			
4.			
5.			
	5 = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Agrostis stolonifera*	70	Y	FAC
2. *Schedonorus arundinaceus*	10	N	FAC
3. *Hypochaeris radicata*	10	N	FACU
4. *Taraxacum officinale*	5	N	FACU
5. *Geranium molle*	5	N	UPL
6. *Plantago lanceolata*	1	N	FACU
7.			
8.			
9.			
10.			
11.			
	101 = Total Cover		
Woody Vine Stratum (Plot size: 30' r)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across all Strata: 3 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	130	x 3 =	390
FACU species	16	x 4 =	64
UPL species	10	x 5 =	50
Column totals	156 (A)		504 (B)

Prevalence Index = B/A = 3.23

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0
___ 4 - Morphological Adaptations* (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:
Hydrophytic vegetation is dominant.

SOIL

Sampling Point: HMS 3 (1)

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20+	10YR 4/2-4/3	100					GS	

[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 MRLA 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:

Appears to be roadfill. Soils do not satisfy hydric soils criteria.

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is 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 MRLA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on 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):	0
Water Table Present?	Yes	___	No X	Depth (inches):	>20"
Saturation Present? (includes capillary fringe)	Yes	___	No X	Depth (inches):	>20"

Wetland Hydrology Present?

Yes ___ **No** X

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

Remarks:

No indicators of wetland hydrology are present.

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

Project/Site: HMS 3 TEWS | City/County: King | Sampling Date: 3/16/2022
Applicant/Owner: ADCOMM | State: WA | Sampling Point: HMS3 2
Investigator(s): Patrick Togher and Mallory Phillips | Section, Township, Range: S14; T24N; R7E
Landform (hillslope, terrace, etc.): Depression w/in terrace | Local relief (concave, convex, none): Concave | Slope (%): 0
Subregion (LRR): A | Lat: 47.570182 | Long: -121.887366 | Datum: WGS84
Soil Map Unit Name: Fluventic Haplumbrepts | NWI Classification: Upland
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No ___ (If no, explain in remarks)
Are vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No ___
Are vegetation ___, Soil ___, or Hydrology ___ naturally problematic?

SUMMARY OF FINDINGS - Attach site map showing sampling point location, transects, important features, etc.

Hydrophytic vegetation present?	Yes	X	No	
Hydric soil present?	Yes		No	X
Indicators of wetland hydrology present?	Yes		No	X

Is the sampled area within a wetland? Yes ___ No X

Remarks: East side of SR 203, east of blue "Fall City Community Park" sign (opposite side of Fall City Carnation Rd).

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' r)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' r)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: 30' r)			
1. *Rubus armeniacus*	100	Y	FAC
2.			
	100 = Total Cover		

% Bare Ground in Herb Stratum 100

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	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	100	x 3 =	300
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	100 (A)		300 (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0
___ 4 - Morphological Adaptations* (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:
Dominant vegetation is hydrophytic.

SOIL

Sampling Point: HMS3 2

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-11	10YR 2/2	100					GSiL	
11-20+	10YR 3/3	100					GSiL	

[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 MRLA 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:

A and B horizon are compacted. Soils do not meet hydric soils criteria.

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is 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 MRLA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on 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):	0
Water Table Present?	Yes	___	No X	Depth (inches):	>20"
Saturation Present? (includes capillary fringe)	Yes	___	No X	Depth (inches):	>20"

Wetland Hydrology Present?

Yes ___ **No** X

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

Remarks:

Top layer is moist from recent rainfall but lower horizon is totally dry. No indicators of wetland hydrology are present.

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

Project/Site: HMS 4 TEWS | City/County: King | Sampling Date: 3/16/2022
Applicant/Owner: ADCOMM | State: WA | Sampling Point: HMS 4NE (1)
Investigator(s): Patrick Togher and Mallory Phillips | Section, Township, Range: S25; T26N; R6E
Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Concave | Slope (%): 1
Subregion (LRR): A | Lat: 47.709379 | Long: -121.983982 | Datum: WGS84
Soil Map Unit Name: Aquic Vitrixerands | NWI Classification: PSS
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No ___ (If no, explain in remarks)
Are vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No ___
Are vegetation ___, Soil ___, or Hydrology ___ naturally problematic?

SUMMARY OF FINDINGS - Attach site map showing sampling point location, transects, important features, etc.

Hydrophytic vegetation present?	Yes	X	No	
Hydric soil present?	Yes	X	No	
Indicators of wetland hydrology present?	Yes	X	No	

Is the sampled area within a wetland? Yes X No

Remarks: NE quadrant of 300-foot radius near silver utilities box adjacent to roadway. Wetland plot.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' r)			
1. *Symphoricarpos albus*	40	Y	FACU
2. *Cornus alba*	35	Y	FACW
3.			
4.			
5.			
	75 = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Agrostis stolonifera*	60	Y	FAC
2. *Schedonorus arundinaceus*	30	Y	FAC
3. *Phalaris arundinacea*	6	N	FACW
4. *Taraxacum officinale*	1	N	FACU
5. *Geranium robertianum*	1	N	FACU
6. *Unidentified sedge 1*	1	N	UPL
7. *Galium aparine*	1	N	FACU
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30' r)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across all Strata: 4 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	41	x 2 =	82
FAC species	90	x 3 =	270
FACU species	43	x 4 =	172
UPL species	1	x 5 =	5
Column totals	175 (A)		529 (B)

Prevalence Index = B/A = 3.02

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0
- ___ 4 - Morphological Adaptations* (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:
Dominant species satisfy hydrophytic vegetation criteria.

SOIL

Sampling Point: HMS 4NE (1)

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 2/1	100					L	
5-11	10YR 4/2	80	10YR 5/3	20	C	M	GCL	5-10mm
11-20+								Apparently compacted fill material

[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 MRLA 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: compacted fill material

Depth (inches): 11"

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

Remarks:

B horizon is very compacted with angular gravel. Cannot dig deeper than 11" due to compacted fill material. Soils satisfy the depleted matrix indicator (depleted layer is 80% chroma of 2, thickness of at least 6"). Additionally, soils are depleted below dark surface (B horizon has depleted matrix with 80% chroma of 2 starting within 12" of the surface and is at least 6" thick). Soils satisfy hydric soil criteria.

HYDROLOGY

Wetland Hydrology Indicators

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

- X Surface Water (A1)
- X High Water Table (A2)
- X 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 on 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	X	No ___	Depth (inches):	<1"
Water Table Present?	Yes	X	No ___	Depth (inches):	0-5"
Saturation Present? (includes capillary fringe)	Yes	X	No ___	Depth (inches):	0-5"

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

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

Remarks:

Perched water table present. Surface water <1" and saturation present from surface to 5" in depth. Wetland hydrology criteria satisfied.

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

Project/Site: TEWS HMS 4 City/County: King Sampling Date: 8/22/2022
Applicant/Owner: ADCOMM State: WA Sampling Point: HMS 4NW-1
Investigator(s): Patrick Togher and Mallory Phillips Section, Township, Range: S25; T26N; R06E
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 5
Subregion (LRR): A Lat: 47.710250 Long: -121.984751 Datum: WGS84
Soil Map Unit Name: Aquic Vitrixerands NWI Classification: UPL
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No ___ (If no, explain in remarks)
Are vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No ___
Are vegetation ___, Soil ___, or Hydrology ___ naturally problematic?

SUMMARY OF FINDINGS - Attach site map showing sampling point location, transects, important features, etc.

Hydrophytic vegetation present?	Yes ___	No **X**	**Is the sampled area within a wetland?** Yes ___ No **X**
Hydric soil present?	Yes ___	No **X**	
Indicators of wetland hydrology present?	Yes ___	No **X**	

Remarks: Plot located in west of SR 203 and north of NE 124th, in swale between Snoqualmie Valley Trail and SR 203.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species	Indicator Status
1. *Acer macrophyllum*	55	Y	FACU
2. *Cherry sp.*	15	N	UPL
3. *Plum sp.*	10	N	UPL
4.			
	80 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' r)			
1. *Cornus alba*	70	Y	FACW
2. *Symphoricarpos albus*	15	N	FACU
3. *Rubus spectabilis*	5	N	FAC
4. *Rubus armeniacus*	5	N	FAC
5. *Spiraea douglasii*	5	N	FACW
	100 = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Equisetum arvense*	2		FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	2 = Total Cover		
Woody Vine Stratum (Plot size: 30' r)			
1. *Rubus laciniatus*	15	Y	FACU
2.			
	15 = Total Cover		

% Bare Ground in Herb Stratum 98

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across all Strata: 3 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	75	x 2 =	150
FAC species	12	x 3 =	36
FACU species	85	x 4 =	340
UPL species	25	x 5 =	125
Column totals	197 (A)		651 (B)
Prevalence Index = B/A =			3.30

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0
___ 4 - Morphological Adaptations* (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:
The dominant vegetation does not satisfy hydrophytic vegetation criterion.

SOIL

Sampling Point: HMS 4NW-1

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
								Angular spalls/fill

[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 MRLA 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:

Angular rock at the surface. Cannot auger pat 4". Soil assumed not hydric.

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is 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 MRLA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on 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:

Aerial photograph

Remarks:

No wetland hydrology indicators present.

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

Project/Site: TEWS HMS 4 City/County: King Sampling Date: 8/22/2022
Applicant/Owner: ADCOMM State: WA Sampling Point: HMS 4NW -2
Investigator(s): Mallory Phillips and Patrick Togher Section, Township, Range: S25; T26N; R6E
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 5
Subregion (LRR): A Lat: 47.710571 Long: -121.984551 Datum: WGS84
Soil Map Unit Name: Aquic Vitrixerands NWI Classification: UPL
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No ___ (If no, explain in remarks)
Are vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No ___
Are vegetation ___, Soil ___, or Hydrology ___ naturally problematic?

SUMMARY OF FINDINGS - Attach site map showing sampling point location, transects, important features, etc.

Hydrophytic vegetation present?	Yes ___	No **X**	**Is the sampled area within a wetland?** Yes ___ No **X**
Hydric soil present?	Yes ___	No **X**	
Indicators of wetland hydrology present?	Yes ___	No **X**	

Remarks: Plot located in the ditch between Snoqualmie Valley Trail and SR 203.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species	Indicator Status
1. *Acer macrophyllum*	65	Y	FACU
2. *Thuja plicata*	5	N	FAC
3.			
4.			
	70 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' r)			
1. *Cornus alba*	30	Y	FACW
2. *Acer circinatum*	15	Y	FAC
3. *Oemleria cerasiformis*	3	N	FACU
4.			
5.			
	48 = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Polystichum munitum*	15	Y	FACU
2. *Rubus ursinus*	10	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	25 = Total Cover		
Woody Vine Stratum (Plot size: 30' r)			
1. *Rubus laciniatus*	10	Y	FACU
2.			
	10 = Total Cover		

% Bare Ground in Herb Stratum 75

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across all Strata: 6 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	30	x 2 =	60
FAC species	20	x 3 =	60
FACU species	103	x 4 =	412
UPL species	0	x 5 =	0
Column totals	153 (A)		532 (B)

Prevalence Index = B/A = 3.48

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0
___ 4 - Morphological Adaptations* (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:
Dominant vegetation does not satisfy hydrophytic vegetation criterion.

SOIL

Sampling Point: HMS 4NW -2

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	100					SiL	
								Angular rock material 1-3" below.

[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 MRLA 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:

Cannot auger past 6" due to angular rock material. Soils do not satisfy hydric soil indicator criterion.

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is 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 MRLA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on 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:

Aerial photograph

Remarks:

No indicators of wetland hydrology present.

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

Project/Site: TEWS HMS 4 City/County: King Sampling Date: 8/22/2022
Applicant/Owner: ADCOMM State: WA Sampling Point: HMS 4NW -3
Investigator(s): Mallory Phillips and Patrick Togher Section, Township, Range: S25; T26N; R6E
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 5
Subregion (LRR): A Lat: 47.711037 Long: -121.984465 Datum: WGS84
Soil Map Unit Name: Aquic Vitrixerands NWI Classification: PSS
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No ___ (If no, explain in remarks)
Are vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No ___
Are vegetation ___, Soil ___, or Hydrology ___ naturally problematic?

SUMMARY OF FINDINGS - Attach site map showing sampling point location, transects, important features, etc.

Hydrophytic vegetation present?	Yes	X	No	
Hydric soil present?	Yes	X	No	
Indicators of wetland hydrology present?	Yes	X	No	

Is the sampled area within a wetland? Yes X No

Remarks: Plot is located in the northwest quadrant of the intersection, south of the trail underpass in a stand of redosier dogwoods near a downed log. A stream channel s present to the north of the wetland and paved trail.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' r)			
1. *Cornus alba*	85	Y	FACW
2. *Rubus spectabilis*	10	N	FAC
3.			
4.			
5.			
	95 = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Tolmiea menziesii*	15	Y	FAC
2. *Athyrium cyclosorum*	2	N	FAC
3. *Equisetum arvense*	2	N	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	19 = Total Cover		
Woody Vine Stratum (Plot size: 30' r)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 81

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	0	x 1 =	0
FACW species	85	x 2 =	170
FAC species	29	x 3 =	87
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	114 (A)		257 (B)

Prevalence Index = B/A = 2.25

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0
___ 4 - Morphological Adaptations* (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:

Dominant vegetation satisfies hydrophytic vegetation criterion through the dominance test.

SOIL

Sampling Point: HMS 4NW -3

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/2	100					SiL	
6-10	10YR 4/2	95	10YR 4/4	5	C	M	SiL	Compact at 6", distinct
10-15	10YR 4/2	90	10YR 5/4	10	C	M	SiL	Fine, distinct
15-18	10YR 4/2	70	10YR 5/6	30	C	M	SiCL	Damp, medium (2-5mm), distinct

[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 MRLA 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)
- X 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:

Likely satisfies Depleted Matrix (F3) hydric soil indicators. Depths can be skewed when using an auger. The B horizon does not meet the criteria by 2" and the C horizon by 1". Assumed that hydric soils are present.

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is 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 MRLA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on 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)
- X Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X 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):	18
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:

Aerial photograph

Remarks:

FAC-Neutral Test (D5) satisfied by the presence of 1 dominant FACW species and 0 FACU/UPL species. Water table present at approximately 18" which satisfies the Dry-Season Water Table (C2) indicator.

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

Project/Site: HMS 4 TEWS | City/County: King | Sampling Date: 3/16/2022
Applicant/Owner: ADCOMM | State: WA | Sampling Point: HMS 4NE(2)
Investigator(s): Patrick Togher and Mallory Phillips | Section, Township, Range: S25; T26N; R6E
Landform (hillslope, terrace, etc.): Bottomland | Local relief (concave, convex, none): Convex | Slope (%): 20
Subregion (LRR): A | Lat: 47.709442 | Long: -121.984106 | Datum: WGS84
Soil Map Unit Name: Aquic Vitrixerands | NWI Classification: Upland
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No ___ (If no, explain in remarks)
Are vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No ___
Are vegetation ___, Soil ___, or Hydrology ___ naturally problematic?

SUMMARY OF FINDINGS - Attach site map showing sampling point location, transects, important features, etc.

Hydrophytic vegetation present?	Yes	X	No	
Hydric soil present?	Yes		No	X
Indicators of wetland hydrology present?	Yes		No	X

Is the sampled area within a wetland? Yes ___ No X

Remarks: In NE quadrant of the 300-foot radius off of Carnation Duvall Rd. Upland plot NW of corresponding wetland plot.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' r)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Agrostis stolonifera*	40	Y	FAC
2. *Schedonorus arundinaceus*	40	Y	FAC
3. *Hypochaeris radicata*	10	N	FACU
4. *Plantago lanceolata*	5	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: 30' r)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 5

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	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	80	x 3 =	240
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column totals	95 (A)		300 (B)

Prevalence Index = B/A = 3.16

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0
___ 4 - Morphological Adaptations* (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:
Dominant species do not satisfy hydrophytic vegetation criteria.

SOIL

Sampling Point: HMS 4NE(2)

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 %	Type[1]	Loc[2]	Texture	Remarks
0-13	2.5Y 4/2	100					GSF	Gravelly sandy fill material

[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 MRLA 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:

Less compacted than corresponding wetland plot. Pit encountered roadbase at 13". Soils do not satisfy hydric soil criteria.

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is 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 MRLA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on 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):	0
Water Table Present?	Yes	___	No X	Depth (inches):	>13"
Saturation Present? (includes capillary fringe)	Yes	___	No X	Depth (inches):	>13"

Wetland Hydrology Present?

Yes ___ **No** X

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

Remarks:

No wetland hydrology indicators are present.

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

Project/Site: TEWS HMS 5 City/County: King Sampling Date: 3/22/2022
Applicant/Owner: ADCOMM State: WA Sampling Point: HMS5
Investigator(s): Patrick Togher and Mallory Phillips Section, Township, Range: S20, T25N, R7E
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 5
Subregion (LRR): A Lat: 47.637756 Long: -121.930550 Datum: WGS84
Soil Map Unit Name: Humic Dystroxerepts NWI Classification: Upland
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No ___ (If no, explain in remarks)
Are vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No ___
Are vegetation ___, Soil ___, or Hydrology ___ naturally problematic?

SUMMARY OF FINDINGS - Attach site map showing sampling point location, transects, important features, etc.

Hydrophytic vegetation present?	Yes	X	No	
Hydric soil present?	Yes		No	X
Indicators of wetland hydrology present?	Yes		No	X

Is the sampled area within a wetland? Yes ___ No X

Remarks: southeast corner of intersection at edge of gravel parking area. South of the beginning of guard rail, and SE of proposed HMS location.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species	Indicator Status
1. *Alnus rubra*	30	Y	FAC
2. *Populus balsamifera*	25	Y	FAC
3. *Thuja plicata*	7	N	FAC
4.			
	62 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' r)			
1. *Acer macrophyllum*	5	Y	FACU
2.			
3.			
4.			
5.			
	5 = Total Cover		
Herb Stratum (Plot size: 5' r)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: 30' r)			
1. *Rubus armeniacus*	90	Y	FAC
2.			
	90 = Total Cover		

% Bare Ground in Herb Stratum 100

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across all Strata: 4 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	152	x 3 =	456
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column totals	157 (A)		476 (B)

Prevalence Index = B/A = 3.03

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0
___ 4 - Morphological Adaptations* (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:
Hydrophytic vegetation is dominant.

SOIL

Sampling Point: HMS5

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/2	100					GSL	
2-18+	10YR 3/3	100					GSL	Cobble @ 8"

[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 MRLA 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:

Soils do not satisfy hydric soil criteria.

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is 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 MRLA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on 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):	0
Water Table Present?	Yes	___	No X	Depth (inches):	>18"
Saturation Present? (includes capillary fringe)	Yes	___	No X	Depth (inches):	>18"

Wetland Hydrology Present?

Yes ___ **No** X

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

Remarks:

No indicators of wetland hydrology are present.

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

Project/Site: TEWS HMS 8 City/County: King Sampling Date: 3/22/2022
Applicant/Owner: ADCOMM State: WA Sampling Point: HMS 8
Investigator(s): Patrick Togher and Mallory Phillips Section, Township, Range: S21, T25N, R7E
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Convex Slope (%): 1
Subregion (LRR): A Lat: 47.629914 Long: -121.911981 Datum: WGS84
Soil Map Unit Name: Vitrandic Xerochrepts NWI Classification: Upland
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No ___ (If no, explain in remarks)
Are vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No ___
Are vegetation ___, Soil ___, or Hydrology ___ naturally problematic?

SUMMARY OF FINDINGS - Attach site map showing sampling point location, transects, important features, etc.

Hydrophytic vegetation present?	Yes		No	X
Hydric soil present?	Yes		No	X
Indicators of wetland hydrology present?	Yes		No	X

Is the sampled area within a wetland? Yes ___ No X

Remarks: At proposed HMS 8 location on NE corner of intersection of SR 203 and NE 24th Street.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' r)			
1.			
2. *Ilex aquifolium*	3	Y	FACU
3. *Cytissus scoparius*	3	Y	UPL
4.			
5.			
	6 = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Agrostis stolonifera*	80	Y	FAC
2. *Schedonorus arundinaceus*	20	N	FAC
3. *Pteridium aquilinum*	10	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	110 = Total Cover		
Woody Vine Stratum (Plot size: 30' r)			
1. *Rubus ursinus*	10	Y	FACU
2.			
	10 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across all Strata: 4 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 25% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	100	x 3 =	300
FACU species	23	x 4 =	92
UPL species	3	x 5 =	15
Column totals	126 (A)		407 (B)

Prevalence Index = B/A = 3.23

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0
___ 4 - Morphological Adaptations* (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:
Phalaris arundinacea in ditch. Dominant species do not satisfy hydrophytic vegetation criteria.

SOIL

Sampling Point: HMS 8

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 2/2	100					SL	
9-20+	10YR 3/4	100					SL	

[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 MRLA 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:

Soils do not satisfy hydric soil criteria.

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is 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 MRLA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on 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): 0
Water Table Present?	Yes	___	No	X	Depth (inches): >20"
Saturation Present? (includes capillary fringe)	Yes	___	No	X	Depth (inches): >20"

Wetland Hydrology Present?

Yes ___ **No** **X**

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

Remarks:

No indicators of wetland hydrology are present.

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

Project/Site: TEWS HMS 7 City/County: King Sampling Date: 8/22/2022
Applicant/Owner: ADCOMM State: WA Sampling Point: HMS 7 (1)
Investigator(s): Patrick Togher and Mallory Phillips Section, Township, Range: S4; T25N; R7E
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 2
Subregion (LRR): A Lat: 47.682888 Long: -121.920062 Datum: WGS84
Soil Map Unit Name: Typic Vitrixerands NWI Classification: UPL
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No ___ (If no, explain in remarks)
Are vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No ___
Are vegetation ___, Soil ___, or Hydrology ___ naturally problematic?

SUMMARY OF FINDINGS - Attach site map showing sampling point location, transects, important features, etc.

Hydrophytic vegetation present?	Yes ___	No **X**	**Is the sampled area within a wetland?** Yes ___ No **X**
Hydric soil present?	Yes ___	No **X**	
Indicators of wetland hydrology present?	Yes ___	No **X**	

Remarks: Plot located near stopsign and guardrail north of Stillwater Hill Road and east of SR 203, east of water utility marker.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' r)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Mixed grasses*	98	Y	UPL
2. *Taraxacum officinale*	2	N	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30' r)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across all Strata: 1 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	2	x 4 =	8
UPL species	98	x 5 =	490
Column totals	100 (A)		498 (B)

Prevalence Index = B/A = 4.98

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0
___ 4 - Morphological Adaptations* (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:
Dominant vegetation does not satisfy hydrophytic vegetation criterion.

SOIL

Sampling Point: HMS 7 (1)

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR 2/2	100					SiL	

[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 MRLA 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:

Soil does not meet any hydric soil criterion.

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is 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 MRLA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on 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:

Aerial photograph

Remarks:

No wetland hydrology indicators present.

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

Project/Site: TEWS Passive Ant. City/County: King Sampling Date: 3/11/2022
Applicant/Owner: ADCOMM State: WA Sampling Point: Passive Ant (55)
Investigator(s): Patrick Togher and Mallory Phillips Section, Township, Range: S32; T226N; R9E
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 10
Subregion (LRR): A Lat: 47.696335 Long: -121.690941 Datum: WGS84
Soil Map Unit Name: Typic Vitrixerands NWI Classification: Upland
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No ___ (If no, explain in remarks)
Are vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No ___
Are vegetation ___, Soil ___, or Hydrology ___ naturally problematic?

SUMMARY OF FINDINGS - Attach site map showing sampling point location, transects, important features, etc.

Hydrophytic vegetation present?	Yes ___	No **X**	**Is the sampled area within a wetland?** Yes ___ No **X**
Hydric soil present?	Yes ___	No **X**	
Indicators of wetland hydrology present?	Yes ___	No **X**	

Remarks: Plot located about 35 feet southeast of current tower and proposed activity location.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species	Indicator Status
1. *Pseudotsuga menziesii*	60	Y	FACU
2. *Tsuga heterophylla*	30	Y	FACU
3. *Picea sitchensis*	10	N	FAC
4.			
	100 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' r)			
1. *Tsuga heterophylla*	60	Y	FACU
2. *Rubus spectabilis*	20	Y	FAC
3. *Sambucus racemosa*	2	N	FACU
4. *Picea sitchensis*	1	N	FAC
5.			
	83 = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Rubus ursinus*	10	Y	FACU
2. *Polystichum munitum*	5	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15 = Total Cover		
Woody Vine Stratum (Plot size: 30' r)			
1. *Rubus ursinus*	10	Y	FACU
2. *Rubus armeniacus*	1	N	UPL
	11 = Total Cover		

% Bare Ground in Herb Stratum 85

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across all Strata: 7 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 14% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	31	x 3 =	93
FACU species	177	x 4 =	708
UPL species	1	x 5 =	5
Column totals	209 (A)		806 (B)

Prevalence Index = B/A = 3.86

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0
___ 4 - Morphological Adaptations* (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:
Dominant species do not satisfy hydrophytic vegetation criteria.

SOIL

Sampling Point: Passive Ant (55

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
5-0	Duff							Duff
0-8	7.5YR 3/3	100					L	
8-20+	10YR 4/3	100					L	

[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 MRLA 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:

Soils do not satisfy hydric soil criteria.

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is 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 MRLA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on 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):	0"	
Water Table Present?	Yes ___	No X	Depth (inches):	>20"	
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	>20"	

Wetland Hydrology Present?

Yes ___ **No** **X**

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

Remarks:

No indicators of wetland hydrology are present.

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

Project/Site: TEWS PSERN | City/County: King | Sampling Date: 3/11/2022
Applicant/Owner: ADCOMM | State: WA | Sampling Point: PSERN 1 (1)
Investigator(s): Patrick Togher and Mallory Phillips | Section, Township, Range: S29; T26N; R8E
Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Concave | Slope (%): 0
Subregion (LRR): A | Lat: 47.706849 | Long: -121.817670 | Datum: WGS84
Soil Map Unit Name: Typic Vitrixerands | NWI Classification: Upland
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No ___ (If no, explain in remarks)
Are vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No ___
Are vegetation ___, Soil ___, or Hydrology ___ naturally problematic?

SUMMARY OF FINDINGS - Attach site map showing sampling point location, transects, important features, etc.

Hydrophytic vegetation present?	Yes	X	No	
Hydric soil present?	Yes		No	X
Indicators of wetland hydrology present?	Yes	X	No	

Is the sampled area within a wetland? Yes ___ No X

Remarks: Plot located on the southwest edge of where the two access roads intersect.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' r)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Juncus effusus*	80	Y	FACW
2. *Phalaris arundinacea*	5	N	FACW
3. *Anthoxanthum odoratum*	1	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	86 = Total Cover		
Woody Vine Stratum (Plot size: 30' r)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 14

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	0	x 1 =	0
FACW species	85	x 2 =	170
FAC species	0	x 3 =	0
FACU species	1	x 4 =	4
UPL species	0	x 5 =	0
Column totals	86 (A)		174 (B)

Prevalence Index = B/A = 2.02

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0
___ 4 - Morphological Adaptations* (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:
Hydrophytic vegetation dominant.

SOIL

Sampling Point: PSERN 1 (1)

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/3	90	10YR 3/4	10	C	M	GSL	Gravel fill on surface
5-7	10YR 3/2	100					GSL	Angular gravels
7-8.5	10YR 4/3	100					GSL	Gravel fill; cannot auger more

[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 MRLA 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:

Soils do not satisfy hydric soils criteria.

HYDROLOGY

Wetland Hydrology Indicators

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

- X Surface Water (A1)
- X High Water Table (A2)
- X 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 MRLA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on 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	X	No	___	Depth (inches):	4"
Water Table Present?	Yes	X	No	___	Depth (inches):	Surface
Saturation Present? (includes capillary fringe)	Yes	X	No	___	Depth (inches):	Surface

Wetland Hydrology Present?

Yes X **No** _____

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

Remarks:

Water ponding at road edge on gravel fill material.

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

Project/Site: TEWS PSERN | City/County: King | Sampling Date: 3/11/2022
Applicant/Owner: ADCOMM | State: WA | Sampling Point: PSERN 2 (3)
Investigator(s): Patrick Togher and Mallory Phillips | Section, Township, Range: S30, T26N, R8E
Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): None | Slope (%): 0
Subregion (LRR): A | Lat: 47.706867 | Long: -121.817163 | Datum: WGS84
Soil Map Unit Name: Typic Vitrixerands | NWI Classification: Upland
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No ___ (If no, explain in remarks)
Are vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No ___
Are vegetation ___, Soil ___, or Hydrology ___ naturally problematic?

SUMMARY OF FINDINGS - Attach site map showing sampling point location, transects, important features, etc.

Hydrophytic vegetation present?	Yes	X	No	
Hydric soil present?	Yes		No	X
Indicators of wetland hydrology present?	Yes		No	X

Is the sampled area within a wetland? Yes ___ No X

Remarks: Plot located east of where the two roads intersect, on the southern edge just west of the tree line.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species	Indicator Status
1. *Alnus rubra*	25	Y	FAC
2. *Acer macrophyllum*	5	N	FACU
3.			
4.			
	30 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' r)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Agrostis stolonifera*	85	Y	FAC
2. *Polystichum munitum*	5	N	FACU
3. *Schedonorus arundinaceus*	5	N	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: 30' r)			
1. *Rubus armeniacus*	10	Y	FAC
2. *Rubus ursinus*	10	Y	FACU
	20 = Total Cover		

% Bare Ground in Herb Stratum 5

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across all Strata: 4 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	125	x 3 =	375
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column totals	145 (A)		455 (B)

Prevalence Index = B/A = 3.14

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0
___ 4 - Morphological Adaptations* (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:
Hydrophytic vegetation is dominant.

SOIL

Sampling Point: PSERN 2 (3)

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/3	100					GSL	Gravelly fill
12-19	10YR 4/3	100					GSL	Cobbles; cannot auger further

[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 MRLA 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:

Soils do not satisfy hydric soil criteria.

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is 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 MRLA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on 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): >19"
Water Table Present?	Yes	___	No	X	Depth (inches): >19"
Saturation Present? (includes capillary fringe)	Yes	___	No	X	Depth (inches): >19"

Wetland Hydrology Present?

Yes ___ **No** X

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

Remarks:

No indicators of wetland hydrology are present.

Appendix E

2014 Wetland Rating Forms – Western Washington

Wetland name or number OWS 5-1

RATING SUMMARY – Western Washington

Name of wetland (or ID #): OWS 5-1 Date of site visit: 03/11/22

Rated by Mallory Phillips Trained by Ecology? ___ Yes X No Date of training ___

HGM Class used for rating **Slope** Wetland has multiple HGM classes? ___ Yes X No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map ___

OVERALL WETLAND CATEGORY **IV** (based on functions X or special characteristics ___)

1. Category of wetland based on FUNCTIONS

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

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
Appropriate ratings incl. ("H" - High, "M" - Medium, "L" - Low)				
Site Potential	**L**	**L**	**L**	
Landscape Potential	**L**	**L**	**H**	
Value	**H**	**L**	**H**	**Total**
Score Based on Ratings	**5**	**3**	**7**	**15**

Score for each function based on three ratings
(*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

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

Wetland name or number OWS 5-1

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

Riverine Wetlands

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

Lake Fringe Wetlands

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

Slope Wetlands

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

Wetland name or number OWS 5-1

HGM Classification of Wetland in Western Washington

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

1. Are the water levels in the entire unit usually controlled by tides except during floods?

   X 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.

   X 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).

   X 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 sheetflow, or in a swale without distinct banks.

   X The water leaves the wetland **without being impounded.**

   X NO - go to 5 **X YES** - The wetland class is **Slope**

   NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit meet all of the following criteria?

   ___ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,

   ___ The overbank flooding occurs at least once every 2 years.

Wetland name or number OWS 5-1

X 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.

X 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.

X 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 OWS 5-1

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 drop in elevation for every 100 ft of horizontal distance*)	**0**
___	Slope is 1% or less — points = 3	
___	Slope is > 1% - 2% — points = 2	
___	Slope is > 2% - 5% — points = 1	
X	Slope is greater than 5% — points = 0	
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.*	**1**
___	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	
X	Dense, uncut, herbaceous plants > ¼ of area — points = 1	
___	Does not meet any of the criteria above for plants — points = 0	
Total for S 1	Add the points in the boxes above	**1**

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	**0**
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	**0**
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 for the basin in which the unit is found?* Yes = 2 No = 0	**2**
Total for S 3	Add the points in the boxes above	**2**

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

Wetland name or number OWS 5-1

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 X 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 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 down-gradient 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 down-gradient points = 1 X No flooding problems anywhere downstream points = 0	**0**
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	**0**

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

NOTES and FIELD OBSERVATIONS:

Wetland name or number OWS 5-1

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

___	Aquatic bed	4 structures or more: points = 4	**1**
X	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 :

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

H 1.2. Hydroperiods

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

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

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

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

1

If you counted: > 19 species — points = 2

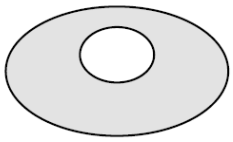
5 - 19 species — points = 1

< 5 species — points = 0

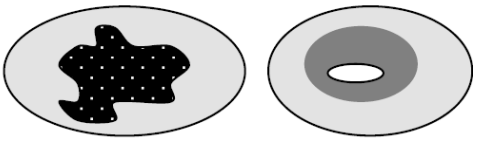
H 1.4. Interspersion of habitats

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

None = 0 points



Low = 1 point



Moderate = 2 points

0

All three diagrams in this row are HIGH = 3 points

Wetland name or number OWS 5-1

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. The number of checks is the number of points. ___ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) 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 extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) **OR** signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ___ 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 for list of strata*)	**1**
Total for H 1 Add the points in the boxes above	**3**

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

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (*include only habitat that directly abuts wetland unit*). *Calculate:* **87** % undisturbed habitat + (**13** moderate & low intensity land uses / 2) = **93.5** If 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	**3**
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* **87** % undisturbed habitat + (**13** moderate & low intensity land uses / 2) = **93.5** Undisturbed habitat > 50% of Polygon points = 3 ___ Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 ___ Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	**3**
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	**0**
Total for H 2 Add the points in the boxes above	**6**

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

H 3.0. Is the habitat provided by the site valuable to society?	
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 ___ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan ___ Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	**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 OWS 5-1

WDFW Priority Habitats

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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.

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

Wetland name or number OWS 5-1

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List 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** **X** No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ___ Yes = **Category I** ___ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ___ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina* , see page 25) ___ At least 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**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? **X** Yes - Go to **SC 2.2** ___ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ___ Yes = **Category I** **X** No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? Updated WA Wetlands of High Conservation Value Web Map (WA DNR) [ORIGINAL DOC] ___ Yes - **Contact WNHP/WDNR and to SC 2.4** ___ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ___ Yes = **Category I** ___ No = **Not WHCV**	
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** **X** 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** **X** No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ___ Yes = **Is a Category I bog** ___ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ___ Yes = **Is a Category I bog** ___ No = **Is not a bog**	

Wetland name or number OWS 5-1

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 **X** No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

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

___ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

___ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

___ Yes - Go to **SC 5.1** **X** No = **Not a wetland in a coastal lagoon**

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

___ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

___ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

___ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

___ Yes = **Category I** ___ No = **Category II**

SC 6.0. Interdunal Wetlands

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

In practical terms that means the following geographic areas:

___ Long Beach Peninsula: Lands west of SR 103

___ Grayland-Westport: Lands west of SR 105

___ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

___ Yes - Go to **SC 6.1** **X** No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? ___ Yes = **Category I** ___ No - Go to **SC 6.2**

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

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

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

___ Yes = **Category III** ___ No = **Category IV**

Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	**NOT APPLICABLE**

Wetland name or number OWS 6-1

RATING SUMMARY – Western Washington

Name of wetland (or ID #): OWS 6-1 Date of site visit: 03/11/22

Rated by Mallory Phillips Trained by Ecology? ___ Yes X No Date of training ___

HGM Class used for rating **Depressional / Flats** Wetland has multiple HGM classes? ___ Yes X No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map ___

OVERALL WETLAND CATEGORY **III** (based on functions 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	
Appropriate ratings incl. ("H" - High, "M" - Medium, "L" - Low)				
Site Potential	**M**	**L**	**L**	
Landscape Potential	**M**	**L**	**H**	
Value	**H**	**L**	**H**	**Total**
Score Based on Ratings	**7**	**3**	**7**	**17**

Score for each function based on three ratings
(*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

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

Wetland name or number OWS 6-1

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

Riverine Wetlands

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

Lake Fringe Wetlands

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

Slope Wetlands

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

Wetland name or number OWS 6-1

HGM Classification of Wetland in Western Washington

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

1. Are the water levels in the entire unit usually controlled by tides except during floods?

   X 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.

   X 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).

   X NO - go to 4 ___ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit meet all of the following criteria?

   ___ The wetland is on a slope (*slope can be very gradual*),

   ___ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

   ___ The water leaves the wetland **without being impounded.**

   X NO - go to 5 ___ **YES** - The wetland class is **Slope**

   NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit meet all of the following criteria?

   ___ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,

   ___ The overbank flooding occurs at least once every 2 years.

Wetland name or number OWS 6-1

X 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 **X** **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 OWS 6-1

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	**3**
___ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing. points = 1	
___ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	
D 1.2. 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	**1**
X Wetland has persistent, ungrazed plants > 1/10 of area points = 1	
___ Wetland has persistent, ungrazed plants < 1/10 of area points = 0	
D 1.4. Characteristics of seasonal ponding or inundation:	
This is the area that is ponded for at least 2 months. See description in manual.	
___ Area seasonally ponded is > ½ total area of wetland points = 4	**2**
X Area seasonally ponded is > ¼ total area of wetland points = 2	
___ Area seasonally ponded is < ¼ total area of wetland points = 0	
Total for D 1 Add the points in the boxes above	**6**

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	**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 - 4 = H** **X** **1 - 2 = M** ___ **0 = L** *Record the rating on the first page*

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

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

Wetland name or number OWS 6-1

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:

X	Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	**4**
___	Wetland has an intermittently flowing stream or ditch, OR highly constricted perm. flowing outlet	points = 2	
___	Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
___	Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	

D 4.2. Depth of storage during wet periods: Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.

___	Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	**0**
___	Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
___	Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
___	The wetland is a "headwater" wetland	points = 3	
___	Wetland is flat but has small depressions on the surface that trap water	points = 1	
X	Marks of ponding less than 0.5 ft (6 in)	points = 0	

D 4.3. Contribution of the wetland to storage in the watershed: Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.

___	The area of the basin is less than 10 times the area of the unit	points = 5	**0**
___	The area of the basin is 10 to 100 times the area of the unit	points = 3	
X	The area of the basin is more than 100 times the area of the unit	points = 0	
___	Entire wetland is in the Flats class	points = 5	

Total for D 4	Add the points in the boxes above	**4**

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

D 5.0. Does the landscape have the potential to support hydrologic function of the site?

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

Rating of Value If score is: ___ **3 = H** ___ **1 - 2 = M** **X** **0 = L** *Record the rating on the first page*

D 6.0. Are the hydrologic functions provided by the site valuable to society?

D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*

The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):

___	Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	**0**
___	Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
___	Flooding from groundwater is an issue in the sub-basin.	points = 1	
___	The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. *Explain why* _____	points = 0	
X	There are no problems with flooding downstream of the wetland.	points = 0	

D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0 — **0**

Total for D 6	Add the points in the boxes above	**0**

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

Wetland name or number OWS 6-1

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

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

If the unit has a Forested class, check if :

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

H 1.2. Hydroperiods

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

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

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

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

If you counted: > 19 species — points = 2

5 - 19 species — points = 1

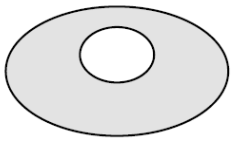
< 5 species — points = 0

0

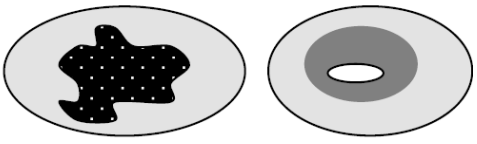
H 1.4. Interspersion of habitats

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

None = 0 points



Low = 1 point



Moderate = 2 points

All three diagrams in this row are HIGH = 3 points

0

Wetland name or number OWS 6-1

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) ___ Standing snags (dbh > 4 in) within the wetland ___ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) **OR** signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ___ At least 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*) X Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	2
Total for H 1 Add the points in the boxes above	**3**

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

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (*include only habitat that directly abuts wetland unit*). *Calculate:* **95** % undisturbed habitat + (**5** moderate & low intensity land uses / 2) = **97.5** If 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	**3**
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* **95** % undisturbed habitat + (**5** moderate & low intensity land uses / 2) = **97.5** Undisturbed habitat > 50% of Polygon points = 3 ___ Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 ___ Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	**3**
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	**6**

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

H 3.0. Is the habitat provided by the site valuable to society?	
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 ___ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan ___ Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	**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 OWS 6-1

WDFW Priority Habitats

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

PDF here: https://wdfw.wa.gov/sites/default/files/publications/00165/wdfw00165.pdf or access the file from here: http://wdfw.wa.gov/conservation/phs/list/

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

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

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

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

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

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

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

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

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

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

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

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

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

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.

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

Wetland name or number OWS 6-1

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List 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** **X** No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ___ Yes = **Category I** ___ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ___ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina* , see page 25) ___ At least 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**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? **X** Yes - Go to **SC 2.2** ___ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ___ Yes = **Category I** **X** No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? Updated WA Wetlands of High Conservation Value Web Map (WA DNR) [ORIGINAL DOC] ___ Yes - **Contact WNHP/WDNR and to SC 2.4** ___ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ___ Yes = **Category I** ___ No = **Not WHCV**	
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** **X** 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** **X** No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ___ Yes = **Is a Category I bog** ___ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ___ Yes = **Is a Category I bog** ___ No = **Is not a bog**	

Wetland name or number OWS 6-1

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 **X** No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

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

___ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

___ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

___ Yes - Go to **SC 5.1** **X** No = **Not a wetland in a coastal lagoon**

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

___ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

___ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

___ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

___ Yes = **Category I** ___ No = **Category II**

SC 6.0. Interdunal Wetlands

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

In practical terms that means the following geographic areas:

___ Long Beach Peninsula: Lands west of SR 103

___ Grayland-Westport: Lands west of SR 105

___ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

___ Yes - Go to **SC 6.1** **X** No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? ___ Yes = **Category I** ___ No - Go to **SC 6.2**

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

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

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

___ Yes = **Category III** ___ No = **Category IV**

Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	**NOT APPLICABLE**

Wetland name or number OWS 6-2

RATING SUMMARY – Western Washington

Name of wetland (or ID #): OWS 6-2 Date of site visit: 03/11/22

Rated by Mallory Phillips Trained by Ecology? ___ Yes X No Date of training _____

HGM Class used for rating **Depressional / Flats** Wetland has multiple HGM classes? ___ Yes X No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map _____

OVERALL WETLAND CATEGORY **III** (based on functions 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	
Appropriate ratings incl. ("H" - High, "M" - Medium, "L" - Low)				
Site Potential	**M**	**M**	**L**	
Landscape Potential	**M**	**L**	**H**	
Value	**H**	**L**	**H**	**Total**
Score Based on Ratings	**7**	**4**	**7**	**18**

Score for each function based on three ratings
(*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

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

Wetland name or number OWS 6-2

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

Riverine Wetlands

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

Lake Fringe Wetlands

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

Slope Wetlands

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

Wetland name or number OWS 6-2

HGM Classification of Wetland in Western Washington

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

1. Are the water levels in the entire unit usually controlled by tides except during floods?

   X 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.

   X 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).

   X NO - go to 4 ___ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit meet all of the following criteria?
   ___ The wetland is on a slope (*slope can be very gradual*),
   ___ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   ___ The water leaves the wetland **without being impounded.**

   X NO - go to 5 ___ **YES** - The wetland class is **Slope**
   NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit meet all of the following criteria?
   ___ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ___ The overbank flooding occurs at least once every 2 years.

Wetland name or number OWS 6-2

X 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 **X** **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 OWS 6-2

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	**3**
___ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing. points = 1	
___ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	
D 1.2. 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	**1**
X Wetland has persistent, ungrazed plants > $^{1}/_{10}$ of area points = 1	
___ Wetland has persistent, ungrazed plants < $^{1}/_{10}$ of area points = 0	
D 1.4. Characteristics of seasonal ponding or inundation:	
This is the area that is ponded for at least 2 months. See description in manual.	
X Area seasonally ponded is > ½ total area of wetland points = 4	**4**
___ Area seasonally ponded is > ¼ total area of wetland points = 2	
___ Area seasonally ponded is < ¼ total area of wetland points = 0	
Total for D 1 Add the points in the boxes above	**8**

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

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0	**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 - 4 = H** **X** **1 - 2 = M** ___ **0 = L** *Record the rating on the first page*

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

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

Wetland name or number OWS 6-2

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:

X	Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	**4**
	Wetland has an intermittently flowing stream or ditch, OR highly constricted perm. flowing outlet	points = 2	
	Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
	Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	

D 4.2. Depth of storage during wet periods: Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.

	Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	**0**
	Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
	Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
	The wetland is a "headwater" wetland	points = 3	
	Wetland is flat but has small depressions on the surface that trap water	points = 1	
X	Marks of ponding less than 0.5 ft (6 in)	points = 0	

D 4.3. Contribution of the wetland to storage in the watershed: Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.

	The area of the basin is less than 10 times the area of the unit	points = 5	**3**
X	The area of the basin is 10 to 100 times the area of the unit	points = 3	
	The area of the basin is more than 100 times the area of the unit	points = 0	
	Entire wetland is in the Flats class	points = 5	

Total for D 4	Add the points in the boxes above	**7**

Rating of Value 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 function of the site?

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

Rating of Value If score is: ___ **3 = H** ___ **1 - 2 = M** **X** **0 = L** *Record the rating on the first page*

D 6.0. Are the hydrologic functions provided by the site valuable to society?

D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*

The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):

	Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	**0**
	Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
	Flooding from groundwater is an issue in the sub-basin.	points = 1	
	The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. *Explain why* _____	points = 0	
X	There are no problems with flooding downstream of the wetland.	points = 0	

D 6.2.	Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	**0**
Total for D 6		Add the points in the boxes above	**0**

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

Wetland name or number OWS 6-2

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

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

If the unit has a Forested class, check if :

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

H 1.2. Hydroperiods

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

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

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

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

0

If you counted: > 19 species — points = 2

5 - 19 species — points = 1

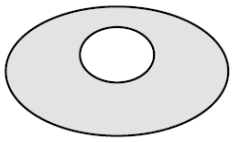
< 5 species — points = 0

H 1.4. Interspersion of habitats

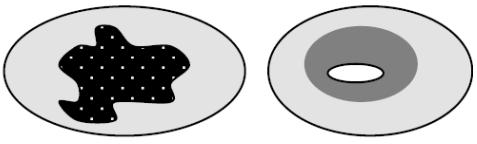
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always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

0

None = 0 points



Low = 1 point



Moderate = 2 points

All three diagrams in this row are HIGH = 3 points

Wetland name or number OWS 6-2

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) ___ Standing snags (dbh > 4 in) within the wetland ___ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) **OR** signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ___ At least 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*) X Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	2
Total for H 1 Add the points in the boxes above	**3**

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

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (*include only habitat that directly abuts wetland unit*). *Calculate:* **95** % undisturbed habitat + (**5** moderate & low intensity land uses / 2) = **97.5** If 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	**3**
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* **95** % undisturbed habitat + (**5** moderate & low intensity land uses / 2) = **97.5** Undisturbed habitat > 50% of Polygon points = 3 ___ Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 ___ Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	**3**
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	**6**

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

H 3.0. Is the habitat provided by the site valuable to society?	
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 ___ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan ___ Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	**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 OWS 6-2

WDFW Priority Habitats

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

PDF here: https://wdfw.wa.gov/sites/default/files/publications/00165/wdfw00165.pdf or access the file from here: http://wdfw.wa.gov/conservation/phs/list/

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

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

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

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

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

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

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

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

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

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

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

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

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

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.

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

Wetland name or number OWS 6-2

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List 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** **X** No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ___ Yes = **Category I** ___ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ___ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina* , see page 25) ___ At least 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**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? **X** Yes - Go to **SC 2.2** ___ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ___ Yes = **Category I** **X** No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? Updated WA Wetlands of High Conservation Value Web Map (WA DNR) [ORIGINAL DOC] ___ Yes - **Contact WNHP/WDNR and to SC 2.4** **X** No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ___ Yes = **Category I** ___ No = **Not WHCV**	
SC 3.0. 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** **X** 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** **X** No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ___ Yes = **Is a Category I bog** ___ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ___ Yes = **Is a Category I bog** ___ No = **Is not a bog**	

Wetland name or number OWS 6-2

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 **X** No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

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

___ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

___ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

___ Yes - Go to **SC 5.1** **X** No = **Not a wetland in a coastal lagoon**

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

___ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

___ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

___ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

___ Yes = **Category I** ___ No = **Category II**

SC 6.0. Interdunal Wetlands

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

In practical terms that means the following geographic areas:

___ Long Beach Peninsula: Lands west of SR 103

___ Grayland-Westport: Lands west of SR 105

___ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

___ Yes - Go to **SC 6.1** **X** No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? ___ Yes = **Category I** ___ No - Go to **SC 6.2**

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

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

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

___ Yes = **Category III** ___ No = **Category IV**

Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	**NOT APPLICABLE**

Wetland name or number OWS 6-3

RATING SUMMARY – Western Washington

Name of wetland (or ID #): OWS 6-3 Date of site visit: 03/11/22

Rated by Mallory Phillips Trained by Ecology? ___ Yes X No Date of training _____

HGM Class used for rating **Slope** Wetland has multiple HGM classes? ___ Yes X No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map _____

OVERALL WETLAND CATEGORY **III** (based on functions ___ or special characteristics ___)

1. Category of wetland based on FUNCTIONS

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

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
Appropriate ratings incl. ("H" - High, "M" - Medium, "L" - Low)				
Site Potential	**L**	**L**	**L**	
Landscape Potential	**M**	**L**	**H**	
Value	**H**	**L**	**H**	**Total**
Score Based on Ratings	**6**	**3**	**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	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	**X**

Wetland name or number OWS 6-3

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

Riverine Wetlands

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

Lake Fringe Wetlands

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

Slope Wetlands

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

Wetland name or number OWS 6-3

HGM Classification of Wetland in Western Washington

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

1. Are the water levels in the entire unit usually controlled by tides except during floods?

   X 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.

   X 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).

   X 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 sheetflow, or in a swale without distinct banks.

   X The water leaves the wetland **without being impounded.**

   X NO - go to 5 **X YES** - The wetland class is **Slope**

   NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit meet all of the following criteria?

   ___ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,

   ___ The overbank flooding occurs at least once every 2 years.

Wetland name or number OWS 6-3

X 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.

X 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.

X 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 OWS 6-3

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 drop in elevation for every 100 ft of horizontal distance*)	**2**
___	Slope is 1% or less — points = 3	
X	Slope is > 1% - 2% — points = 2	
___	Slope is > 2% - 5% — points = 1	
___	Slope is greater than 5% — points = 0	
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.*	**1**
___	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	
X	Dense, uncut, herbaceous plants > ¼ of area — points = 1	
___	Does not meet any of the criteria above for plants — points = 0	
Total for S 1	Add the points in the boxes above	**3**

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	**1**
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	**1**

Rating of Landscape Potential If score is: **X** **1 - 2 = M** ___ **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	**0**
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	**0**
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 for the basin in which the unit is found?* Yes = 2 No = 0	**2**
Total for S 3	Add the points in the boxes above	**2**

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

Wetland name or number OWS 6-3

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 X 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 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 down-gradient 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 down-gradient points = 1 X No flooding problems anywhere downstream points = 0	**0**
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	**0**

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

NOTES and FIELD OBSERVATIONS:

Wetland name or number OWS 6-3

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

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

If the unit has a Forested class, check if :

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

H 1.2. Hydroperiods

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

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

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

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

1

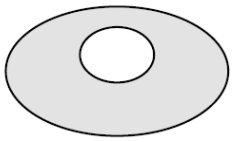
If you counted:	> 19 species	points = 2
	5 - 19 species	points = 1
	< 5 species	points = 0

H 1.4. Interspersion of habitats

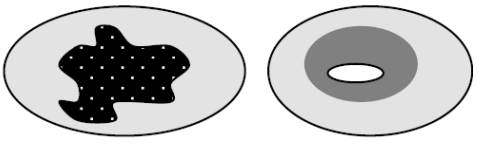
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always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

0

None = 0 points

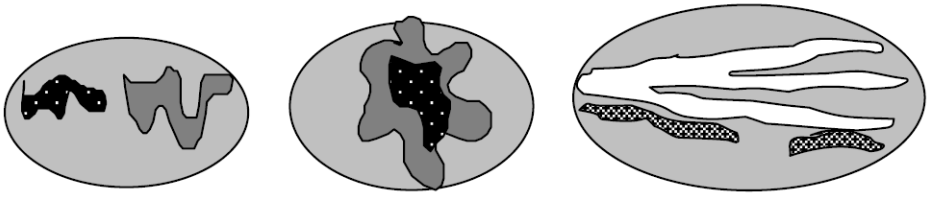


Low = 1 point



Moderate = 2 points

All three diagrams in this row are HIGH = 3 points



Wetland name or number OWS 6-3

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) ___ Standing snags (dbh > 4 in) within the wetland ___ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) **OR** signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ___ At least 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 for list of strata*)	**1**
Total for H 1 Add the points in the boxes above	**2**

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

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (*include only habitat that directly abuts wetland unit*). *Calculate:* **95** % undisturbed habitat + (**5** moderate & low intensity land uses / 2) = **97.5** If 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	**3**
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* **95** % undisturbed habitat + (**5** moderate & low intensity land uses / 2) = **97.5** Undisturbed habitat > 50% of Polygon points = 3 ___ Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 ___ Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	**3**
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	**0**
Total for H 2 Add the points in the boxes above	**6**

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

H 3.0. Is the habitat provided by the site valuable to society?	
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 ___ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan ___ Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	**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 OWS 6-3

WDFW Priority Habitats

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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.

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

Wetland name or number OWS 6-3

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List 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** **X** No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ___ Yes = **Category I** ___ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ___ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina* , see page 25) ___ At least 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**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? **X** Yes - Go to **SC 2.2** ___ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ___ Yes = **Category I** **X** No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? Updated WA Wetlands of High Conservation Value Web Map (WA DNR) [ORIGINAL DOC] ___ Yes - **Contact WNHP/WDNR and to SC 2.4** ___ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ___ Yes = **Category I** ___ No = **Not WHCV**	
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** **X** 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** **X** No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ___ Yes = **Is a Category I bog** ___ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ___ Yes = **Is a Category I bog** ___ No = **Is not a bog**	

Wetland name or number OWS 6-3

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 **X** No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

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

___ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

___ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

___ Yes - Go to **SC 5.1** **X** No = **Not a wetland in a coastal lagoon**

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

___ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

___ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

___ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

___ Yes = **Category I** ___ No = **Category II**

SC 6.0. Interdunal Wetlands

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

In practical terms that means the following geographic areas:

___ Long Beach Peninsula: Lands west of SR 103

___ Grayland-Westport: Lands west of SR 105

___ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

___ Yes - Go to **SC 6.1** **X** No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? ___ Yes = **Category I** ___ No - Go to **SC 6.2**

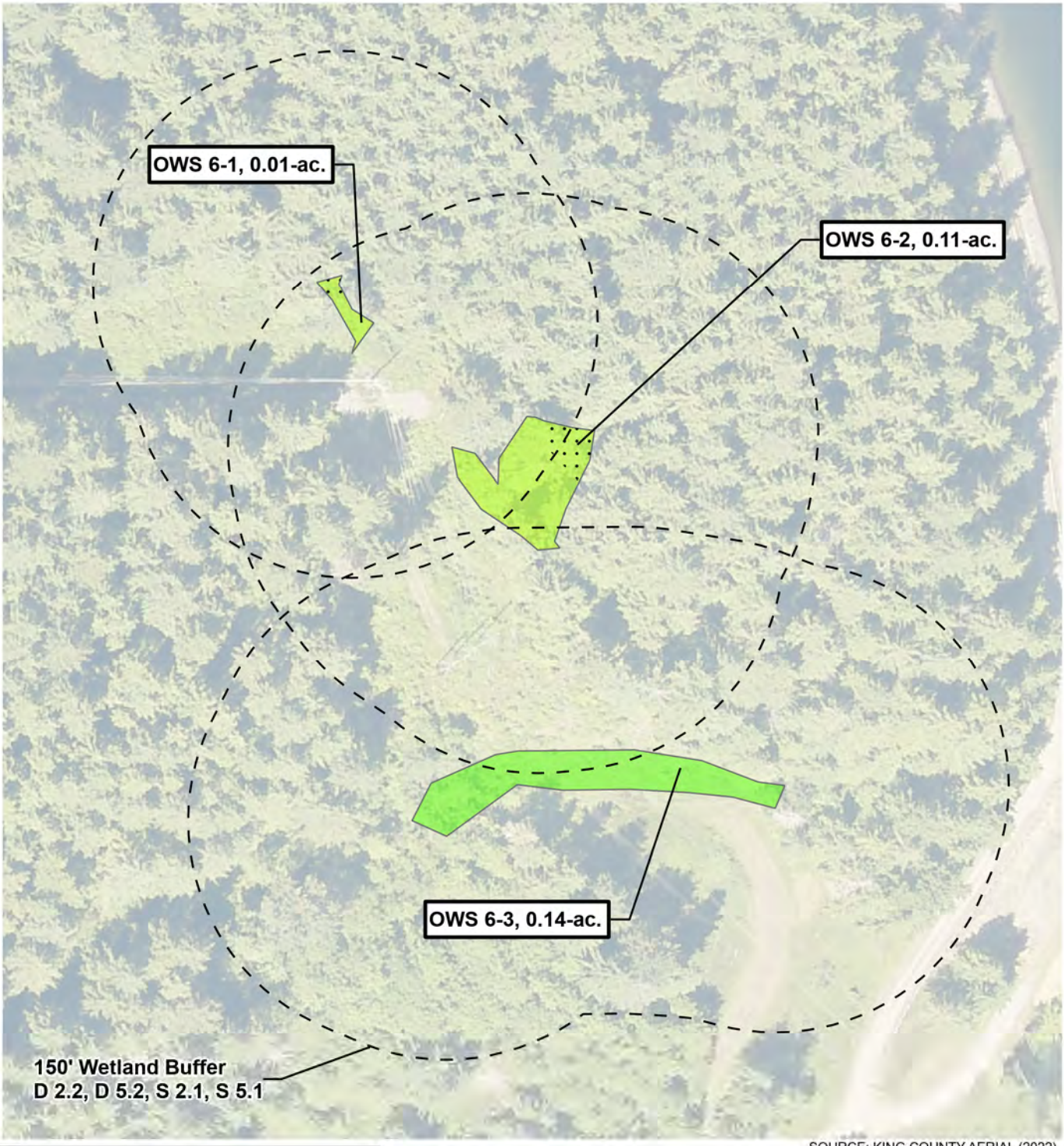
SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

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

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

___ Yes = **Category III** ___ No = **Category IV**

Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	**NOT APPLICABLE**



SOURCE: KING COUNTY AERIAL (2022).

Legend

- 150' Buffers
- Dense, uncut, herbaceous plants
- Emergent
- Scrub-Shrub

SCALE: 1" = 100' (8.5X11 SHEET)

0' 50' 100' 200'

PREPARED FOR: ADCOMM ENGINEERING

PBS

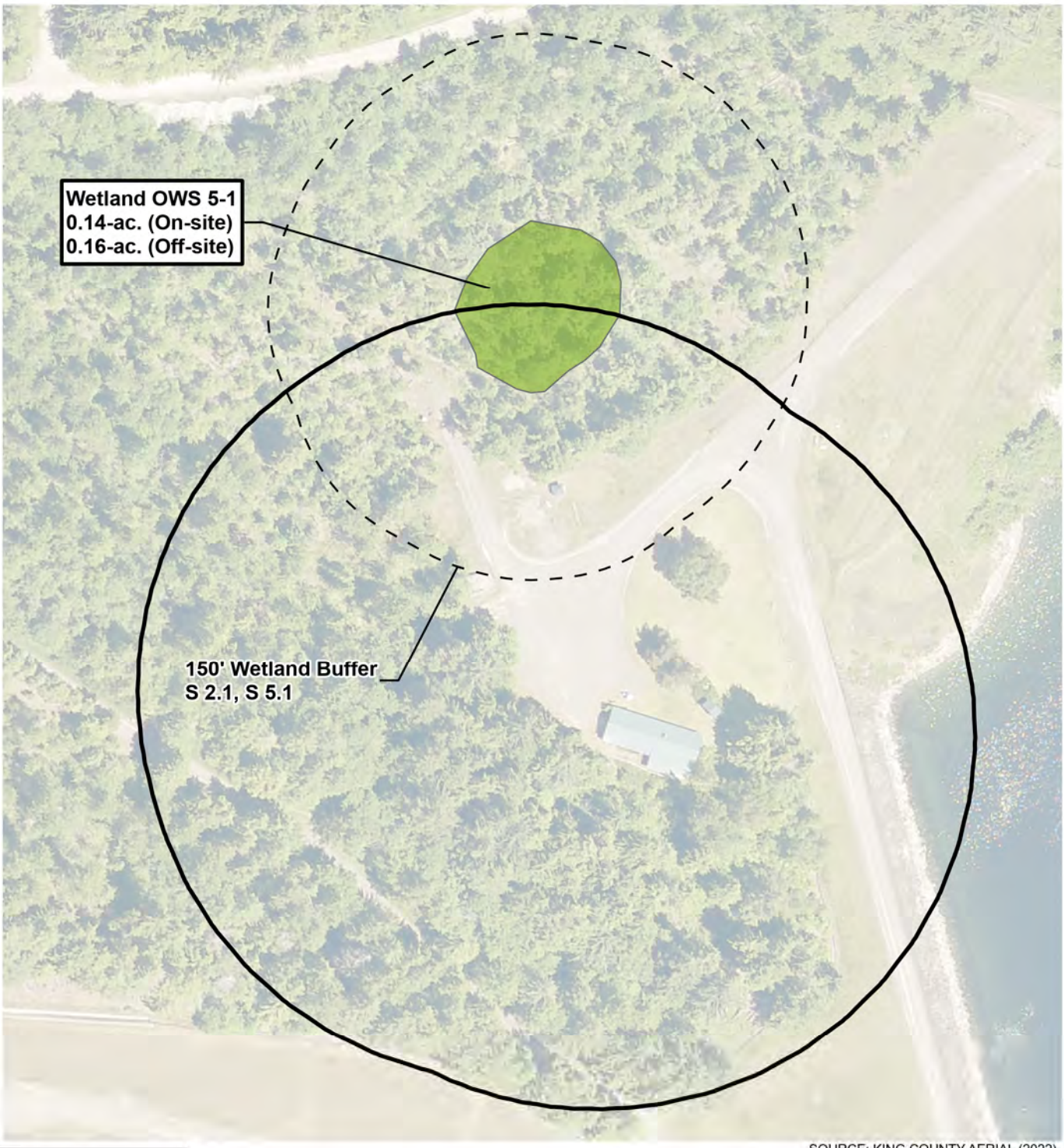
WETLAND RATING FIGURE - OWS 6-1, 6-2, AND 6-3

TEWS REPLACEMENT PERMITTING
KING COUNTY, WASHINGTON

41747.000
JUL 2022

FIGURE
A-1

Filename: L:\Projects\41000\41747 ADCOMM Engineering\41747.000 TEWS Replacement Permitting\NR\GIS\APRX\TEWS_Replacement_Wetland_Figures\TEWS_Replacement_Wetland_Figures.aprx Plot Date/Time: 7/29/2022 2:07 PM



SOURCE: KING COUNTY AERIAL (2022).

Legend
- 150' Buffers
- Study Area
- Forested

SCALE: 1" = 120' (8.5X11 SHEET)

0' 60' 120' 240'

PREPARED FOR: ADCOMM ENGINEERING

PBS

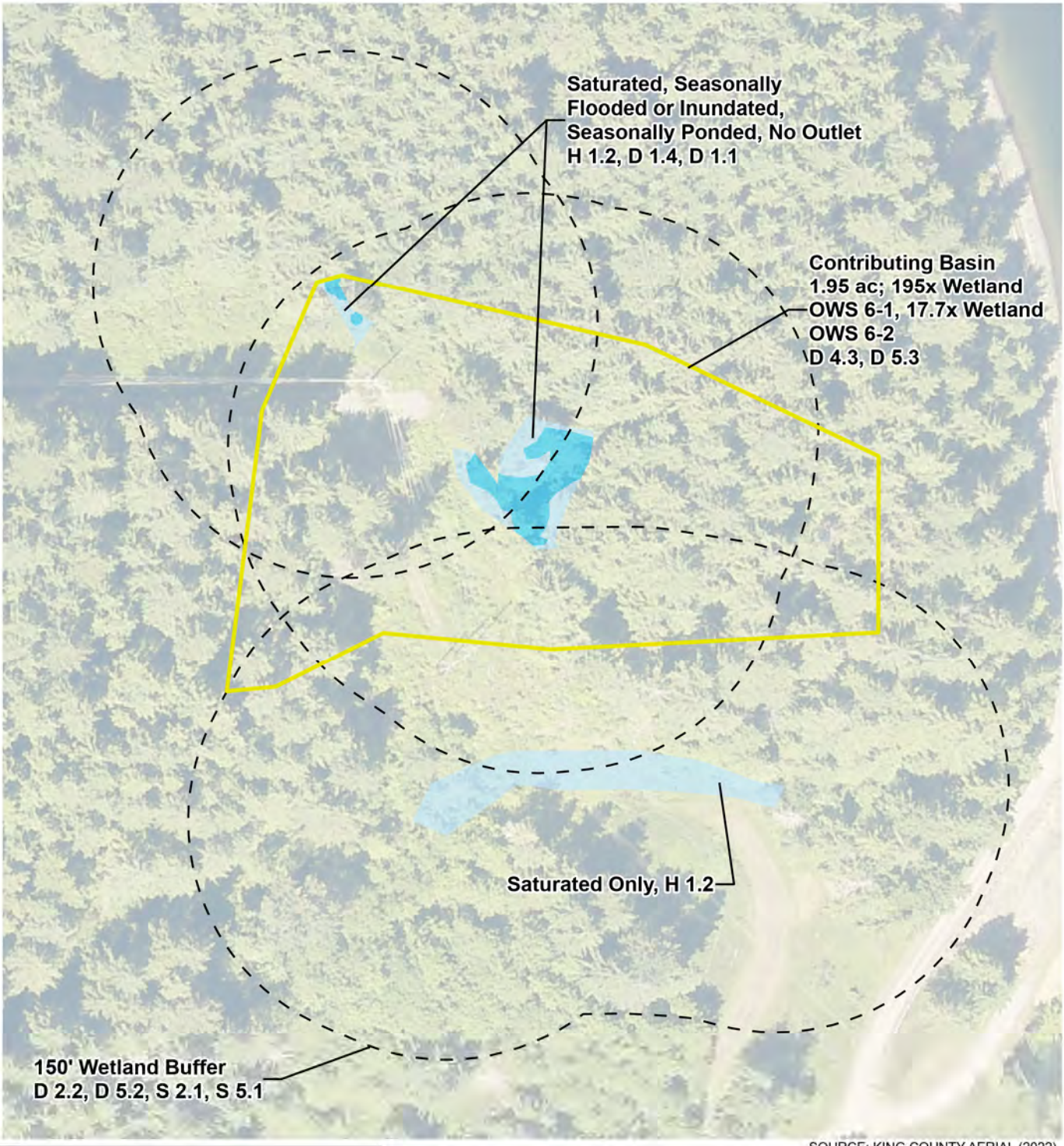
WETLAND RATING FIGURE - OWS 5-1

TEWS REPLACEMENT PERMITTING
KING COUNTY, WASHINGTON

41747.000
JUL 2022

FIGURE
B-1

Filename: L:\Projects\41000\41747 ADCOMM Engineering\41747.000 TEWS Replacement Permitting\NR\GIS\APRX\TEWS_Replacement_Wetland_Figures\TEWS_Replacement_Wetland_Figures.aprx Plot Date/Time: 7/29/2022 2:07 PM



SOURCE: KING COUNTY AERIAL (2022).

Legend

- 150' Buffers
- Contributing Basin
- Saturated Only
- Seasonally Flooded or Inundated

SCALE: 1" = 100' (8.5X11 SHEET)

0' 50' 100' 200'

PREPARED FOR: ADCOMM ENGINEERING

PBS

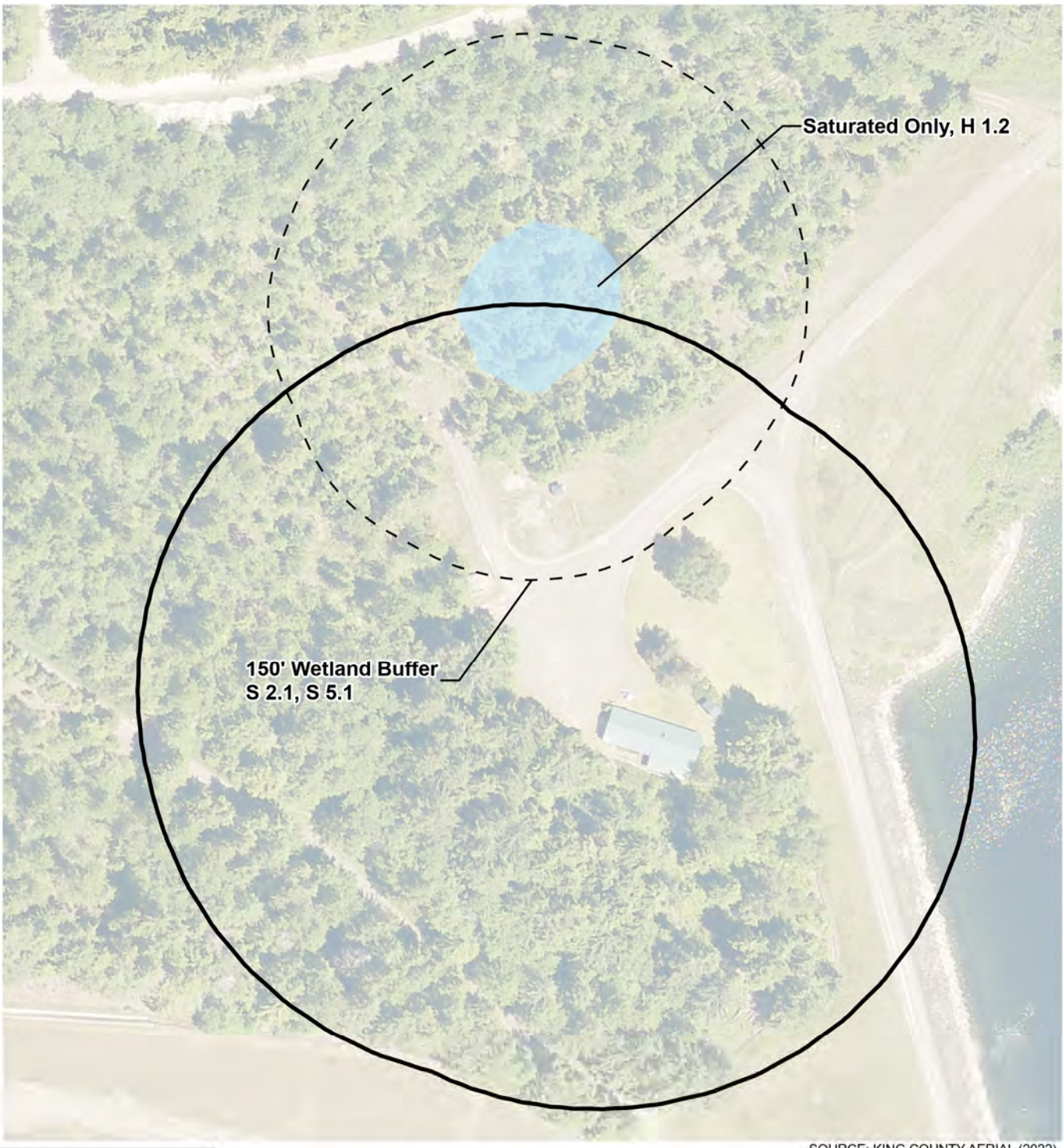
WETLAND RATING FIGURE - OWS 6-1, 6-2, AND 6-3

TEWS REPLACEMENT PERMITTING
KING COUNTY, WASHINGTON

41747.000
JUL 2022

FIGURE
A-2

Filename: L:\Projects\41000\41747 ADCOMM Engineering\41747.000 TEWS Replacement Permitting\NR\GIS\APRX\TEWS_Replacement_Wetland_Figures\TEWS_Replacement_Wetland_Figures.aprx Plot Date/Time: 7/29/2022 2:08 PM



SOURCE: KING COUNTY AERIAL (2022).

Legend
- Study Area
- 150' Buffers
- Saturated Only

SCALE: 1" = 120' (8.5X11 SHEET)

0' 60' 120' 240'

PREPARED FOR: ADCOMM ENGINEERING

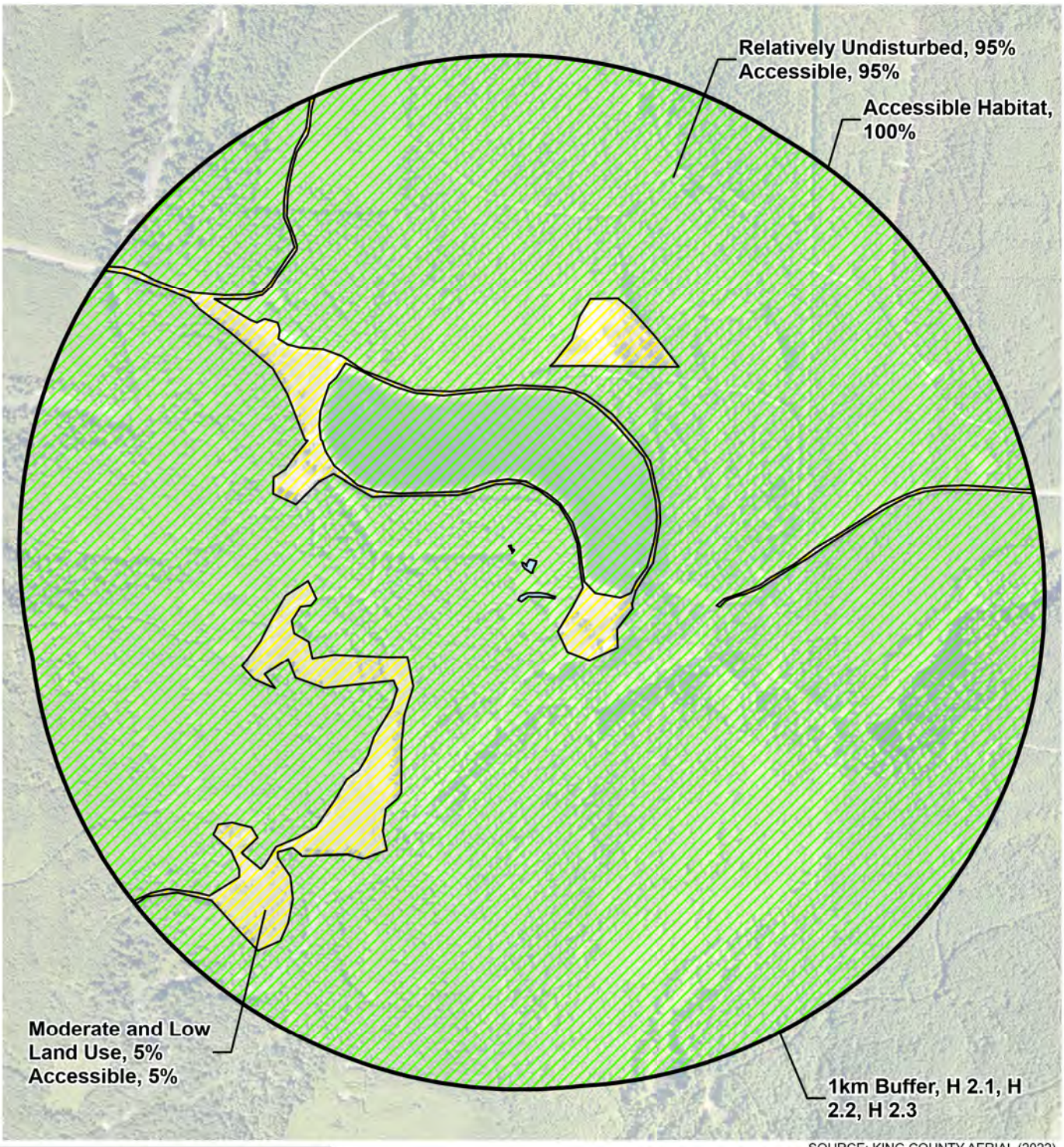
WETLAND RATING FIGURE - OWS 5-1

TEWS REPLACEMENT PERMITTING
KING COUNTY, WASHINGTON

41747.000
JUL 2022

FIGURE
B-2

Filename: L:\Projects\41000\41747 ADCOMM Engineering\41747.000 TEWS Replacement Permitting\NR\GIS\APRX\TEWS_Replacement_Wetland_Figures\TEWS_Replacement_Wetland_Figures.aprx Plot Date/Time: 7/29/2022 2:07 PM



SOURCE: KING COUNTY AERIAL (2022).

Legend

- Wetland
- Accessible Habitat
- Moderate and Low Intensity
- Relatively Undisturbed

SCALE: 1" = 1,000' (8.5X11 SHEET)

0' 500' 1,000' 2,000'

PREPARED FOR: ADCOMM ENGINEERING

PBS

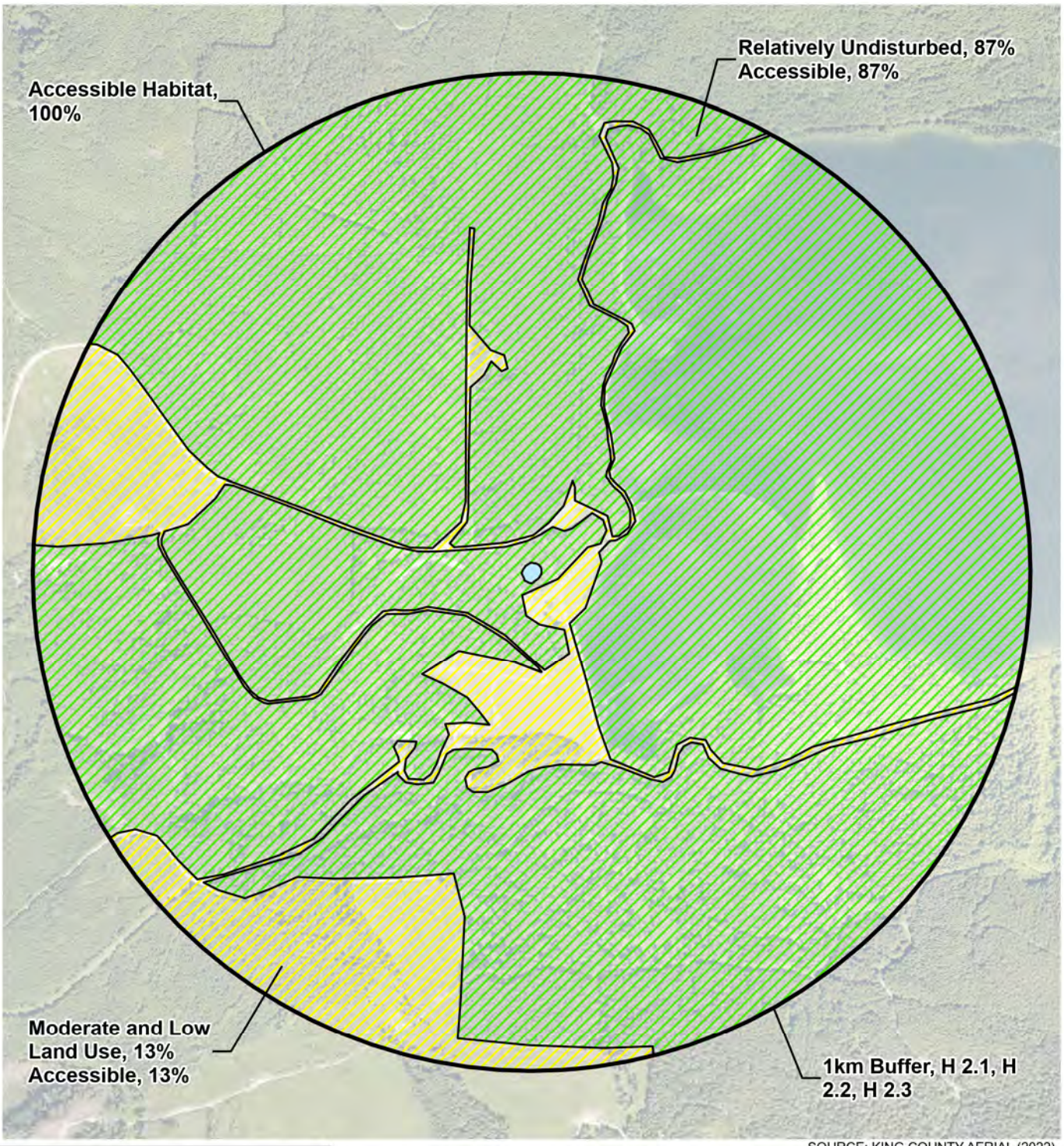
WETLAND RATING FIGURE - OWS 6-1, 6-2, AND 6-3

TEWS REPLACEMENT PERMITTING
KING COUNTY, WASHINGTON

41747.000
JUL 2022

FIGURE
A-3

Filename: L:\Projects\41000\41747 ADCOMM Engineering\41747.000 TEWS Replacement Permitting\NR\GIS\APRX\TEWS_Replacement_Wetland_Figures\TEWS_Replacement_Wetland_Figures.aprx Plot Date/Time: 7/29/2022 2:07 PM



SOURCE: KING COUNTY AERIAL (2022).

Legend

- Wetland
- Accessible Habitat
- Moderate and Low Intensity
- Relatively Undisturbed

SCALE: 1" = 1,000' (8.5X11 SHEET)

0' 500' 1,000' 2,000'

PREPARED FOR: ADCOMM ENGINEERING

PBS

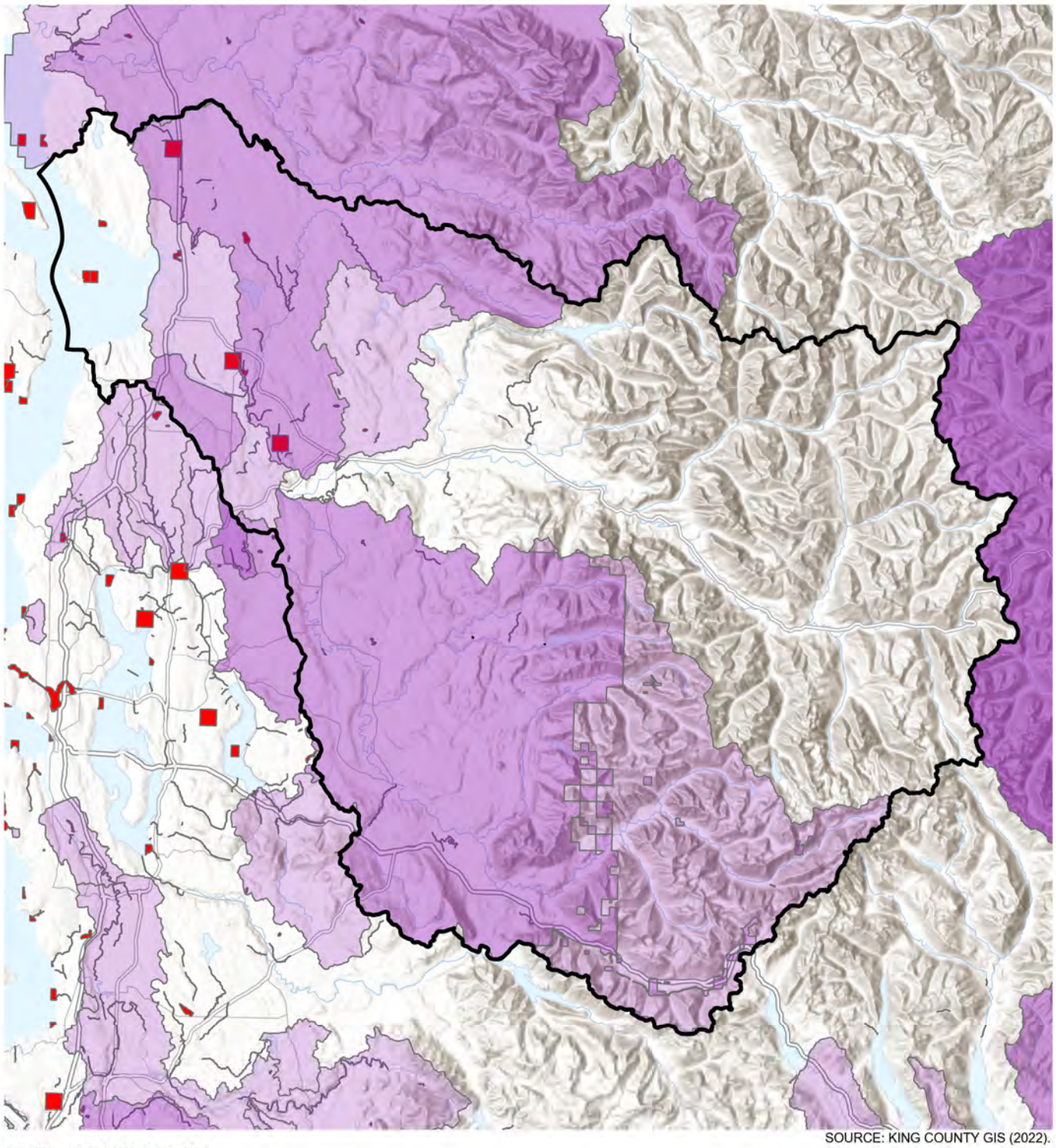
WETLAND RATING FIGURE - OWS 5-1

TEWS REPLACEMENT PERMITTING
KING COUNTY, WASHINGTON

41747.000
JUL 2022

FIGURE
B-3

Filename: L:\Projects\41000\41747 ADCOMM Engineering\41747.000 TEWS Replacement Permitting\NR\GIS\APRX\TEWS_Replacement_Wetland_Figures\TEWS_Replacement_Wetland_Figures.aprx Plot Date/Time: 7/29/2022 2:07 PM



SOURCE: KING COUNTY GIS (2022).

TMDL (2), D 3.3, S 3.3
303d (5), D 3.1, D 3.2, S 3.1, S 3.2

SCALE: 1" = 48,000' (8.5X11 SHEET)

0' 24,000' 48,000' 96,000'

PREPARED FOR: ADCOMM ENGINEERING

WETLAND RATING MAP

TEWS REPLACEMENT PERMITTING
KING COUNTY, WASHINGTON

41747.000
JUL 2022

FIGURE
A-4