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BUILDING DEVELOPMENT CENTER

Wetland Delineation Report

Fish Trap & Lift Facility

Centralia Hydro Dam

Thurston County

REPORT CERTIFICATION

This report, including delineation details and conclusions, has been prepared by the person named below.

Date 08/27/2021

Signature

Kaitlyn Kiehart

Name: Kaitlyn M. Kiehart, PWS

Title: Environmental Planner
WDFW CAMP

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EXECUTIVE SUMMARY

This Wetland Delineation Report has been prepared to facilitate design and permitting of the Centralia Hydro Dam Fish Trap Lift & Facility (Project). Wetland delineation activities consisted of a desktop review and a site visit which took place on February 3, 2021 by Kaitlyn Kiehart, PWS of the Washington Department of Fish and Wildlife (WDFW) Capital and Asset Management Program (CAMP). One (1) wetland habitat was identified during the site visit. Delineation methodology and results are described in detail in the applicable sections of the following report. A summary table of aquatic resources identified on site has been provided below.

TABLE 1: AQUATIC RESOURCES SUMMARY					
Feature Name	Cowardin Classification	HGM Classification	Wetland Rating ¹ / Stream Type	Applicable Buffer ² (ft)	Delineated size (sq ft)
Wetland A	PEM	Riverine	CAT II	280	37,614.19

Notes:

1. Wetland rating was calculated using the *Washington State Wetlands Rating System for Western Washington* (Hruby, 2014).
2. Buffers were calculated using Thurston County Code (TCC) 24.30.045.

WETLAND DELINEATION REPORT

1.0 INTRODUCTION

CAMP staff conducted wetland delineations for the proposed Centralia Hydro Dam Fish Trap Lift & Facility (Project) area on February 3, 2021. The area of interest (AOI) is located in Thurston County, Washington and appears on the Harts Lake 7.5-minute United States Geological Survey (USGS) quadrangle map as depicted on the Vicinity Map (**Figure 1**). The AOI for this investigation encompassed approximately 10 acres around the existing Centralia Hydro Dam site. This Project proposes to construct an adult salmon trap within the existing fish ladder at the Centralia Hydro Dam. It is a key element of the Salmon Recovery Plan from the Nisqually Tribe and WDFW. Two gates will block fish passage up the fish ladder directing fish into the trap area. The trap area will have a floor that lifts to allow staff to capture the fish with nets and put them into a cable lift system to a roofed 17' x 14' sorting facility on a cement slab. The sorting area includes fish troughs for handling, enumerating, scientific sampling, and tagging. There will be return pipes back to the fish ladder for returning fish upstream. A small 10' x 20' mobile office, portable toilet, and hand washing station will also be present on site.

The following report documents current site conditions and the protocol used in determining the occurrence of wetland and aquatic habitats. Findings provided in this report are representative of conditions that were documented at the time of the field investigation. Aquatic resources identified within the AOI are described in **Section 4** and **Appendix A**.

2.0 WETLAND DELINEATION METHODOLOGY

Prior to the field evaluation, a desktop review of the AOI was conducted to aid in the assessment of aquatic resources and to provide background and historical information relating to the site. Current and historical aerial photographs, existing databases, and other public resources were reviewed including USGS 7.5-minute topographic maps, United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) maps, Federal Emergency Management Agency (FEMA) 100-Year floodplain maps, and soil survey maps from the Natural Resources Conservation Service (NRCS). A summary of information obtained from the desktop review is provided in **Section 3.0**.

Wetland delineations were conducted by qualified personnel in accordance with the *US Army Corps of Engineers (USACE) Wetlands Delineation Manual* (Environmental Laboratory, 1987) and the applicable *Western Mountains, Valleys, and Coast Region Version 2.0* (USACE, 2010). Potential wetland areas were assessed using a three-parameter approach which includes

collecting detailed information relating to vegetation, soils, and hydrology at each sample point location.

The information obtained at sampling locations was documented on data forms as per the 1987 USACE Manual protocol. Upland and wetland data forms are provided in **Appendix B**. Nomenclature and indicator status of vegetative species were identified using *The National Wetland Plant List* (USACE, 2018). Delineated resources were classified according to *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al., 1979). A hand shovel was used to obtain samples from the upper soil horizons at representative plots throughout the Site. Soil colors were recorded using standard hue, value, and chroma notations provided by Munsell Soil Color Charts (Munsell, 2009). Indicators of hydric soils are described in the Regional Supplement and in *Field Indicators of Hydric Soils in the United States, Version 8.2* (NRCS, 2018).

3.0 BACKGROUND INFORMATION

3.1 Site Description

The Project area is located within Thurston County at the Centralia Hydro Dam along the banks of the Nisqually River. The land cover of the AOI consists of open maintained field, forested riparian areas, riverine wetland habitat, and adjacent rural and agricultural areas. Land use within the AOI and the surrounding area is zoned as Rural Residential Resource in the Thurston County Online Permitting Map.

3.2 Soils Information

The NRCS Web Soil Mapper identified two soil units occurring within the AOI as shown in **Table 2**.

TABLE 2: MAPPED SOIL UNITS WITHIN THE PROJECT AREA			
MAP UNIT SYMBOL	NAME	SLOPE	HYDRIC RATING
8	Baldhill very stony sandy loam	30 to 60 percent	0
89	Puyallup Silt Loam	0 to 3 percent	3

Soils information specific to wetlands identified is located within data forms in **Appendix B**.

3.3 Desktop Review Summary

The NWI Program administered by the USFWS is responsible for the mapping and inventory of major wetlands and wetland systems within the United States. The USFWS Wetlands Mapper was used to review NWI wetlands within the AOI. Based on USFWS Wetlands Mapper, two (2) NWI wetlands were identified within the AOI. The R3UBH wetland (riverine, upper perennial, unconsolidated bottom, permanently flooded) consists of the Nisqually River. The PFOC wetland (palustrine, forested, seasonally flooded) appears much larger than the forested Wetland A identified on site but is located in roughly the same area.

The applicable FEMA Flood Insurance Rate Map (FIRM) depicting the Project area was reviewed to aid in the evaluation of habitat on site. Panel No. 53067C0390E depicts the Project area as Zone A, a special flood hazard area with no base flood elevations determined.

According to the Washington State Department of Ecology's Water Quality Atlas, the reach of the Nisqually River adjacent to Wetland A is not listed on the 303(d) list. A total maximum daily load (TMDL) for temperature is present for the Nisqually River near its confluence with the Puget Sound. This same reach of the Nisqually River is listed as a Category 2 water, or water of concern, for Chromium and a Category 4C water, which corresponds with an impaired water that does not require a TMDL, for the identification of Brazilian Elodea (*Egeria densa*) an invasive and non-native aquatic plant. The Nisqually River is listed as a Category 2 Water for Bacteria approximately 3 miles north of the Project area in McKenna. The Project area is located in the 171100150301 – Murray Creek – Nisqually River HUC 12 watershed. Nearby Harts Lake is also located within this watershed and is listed on the 303(d) list for Total Phosphorus. There are no approved or in development water quality improvement projects located within this watershed. The closest water quality improvement project is the Deschutes, Percival, and Budd Inlet Watersheds TMDL.

Wetland A is not listed as a wetland of high conservation value on the Washington State Department of Natural Resources (DNR) Wetlands of High Conservation Value Map Viewer. The adjacent Nisqually River is listed on the DNR Forest Practices Water Typing Mapper as Type S, a shoreline of the state. The adjacent Centralia Canal is listed on the DNR Forest Practices Water Typing Mapper as Type N, a non-fish bearing stream. According to the WDFW Priority Habitat and Species database, the Project area is mapped as priority habitat due to the presence of freshwater forested/shrub wetland, riverine aquatic habitat, and terrestrial habitat biodiversity areas and corridors. According to the WDFW SalmonScape fish distribution database, Fall Chinook Salmon, Coho Salmon, Winter Chum Salmon, Sockeye Salmon, Dolly Varden/Bull Trout, Resident Coastal Cutthroat Trout, Winter Steelhead, and Pink Odd Year Salmon are listed as documented in the Nisqually River. According to the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) database, the Nisqually River is mapped as essential

fish habitat for Chinook Salmon, Coho Salmon, and Puget Sound Pink Salmon. The Nisqually River is designated as critical habitat by the NOAA Fisheries Protected Resources App for Chinook and Steelhead.

The Project area was also reviewed using the USFWS Information for Planning and Consultation (IPaC) which identified ten threatened or endangered species that could potentially be affected by activities at this location; additionally, critical habitat for the Bull Trout was mapped within the Nisqually River. The threatened and endangered species are the Olympia Pocket Gopher, Tenino Pocket Gopher, Yelm Pocket Gopher, Marbled Murrelet, Streaked Horned Lark, Yellow-billed Cuckoo, Oregon Spotted Frog, Bull Trout, and the Golden Paintbrush and Water Howellia, which are flowering plants. There are no migratory birds of conservation concern expected to occur at this location.

4.0 WETLAND DELINEATION RESULTS

One (1) wetland habitat was identified within the AOI. A summary of documented habitat conditions within this aquatic resource as well as upland habitats is provided in **Sections 4.1, 4.2, and 4.3** below. An Aquatic Resource Summary Table has been provided in **Appendix A**. Refer to the Field Results Map (**Figure 2**) for the location of mapped features and sample point locations. Habitat and biological conditions specific to the wetland identified on site are found on data forms and rating forms in **Appendix B** and **Appendix C**, respectively. Photographs of each aquatic resource within the AOI are presented in **Appendix D**.

4.1 Wetlands

Wetland A identified on site is a riverine wetland characterized by forested and emergent vegetation. Dominant species within this wetland include Red Alder (*Alnus rubra*), Reed Canary Grass (*Phalaris arundinacea*), Himalayan Blackberry (*Rubus armeniacus*), and Sedges (*Carex species*). Soils had a sandy texture. Hydrology indicators found in the wetland included saturation, sediment deposits, drift deposits, drainage patterns, and the FAC-neutral test. Additional information specific to data collected at sampling locations within the wetland can be found in the Aquatic Resource Summary Table in **Appendix A**.

4.2 Upland Habitats

Upland communities observed onsite consisted of maintained areas associated with the Centralia Hydro Dam and forested riparian areas.

Sample points not exhibiting hydrophytic vegetation, hydric soil, and/or wetland hydrology were classified as upland. Refer to the field data sheets provided in **Appendix B** for additional information specific to the upland conditions documented within the AOI.

4.3 Streams and Other Aquatic Resources

The Nisqually River and the Centralia Canal are both perennial resources that are adjacent to the Project area. No other streams or aquatic resources were identified on site at the time of the investigation.

5.0 CONCLUSIONS AND LIMITATIONS

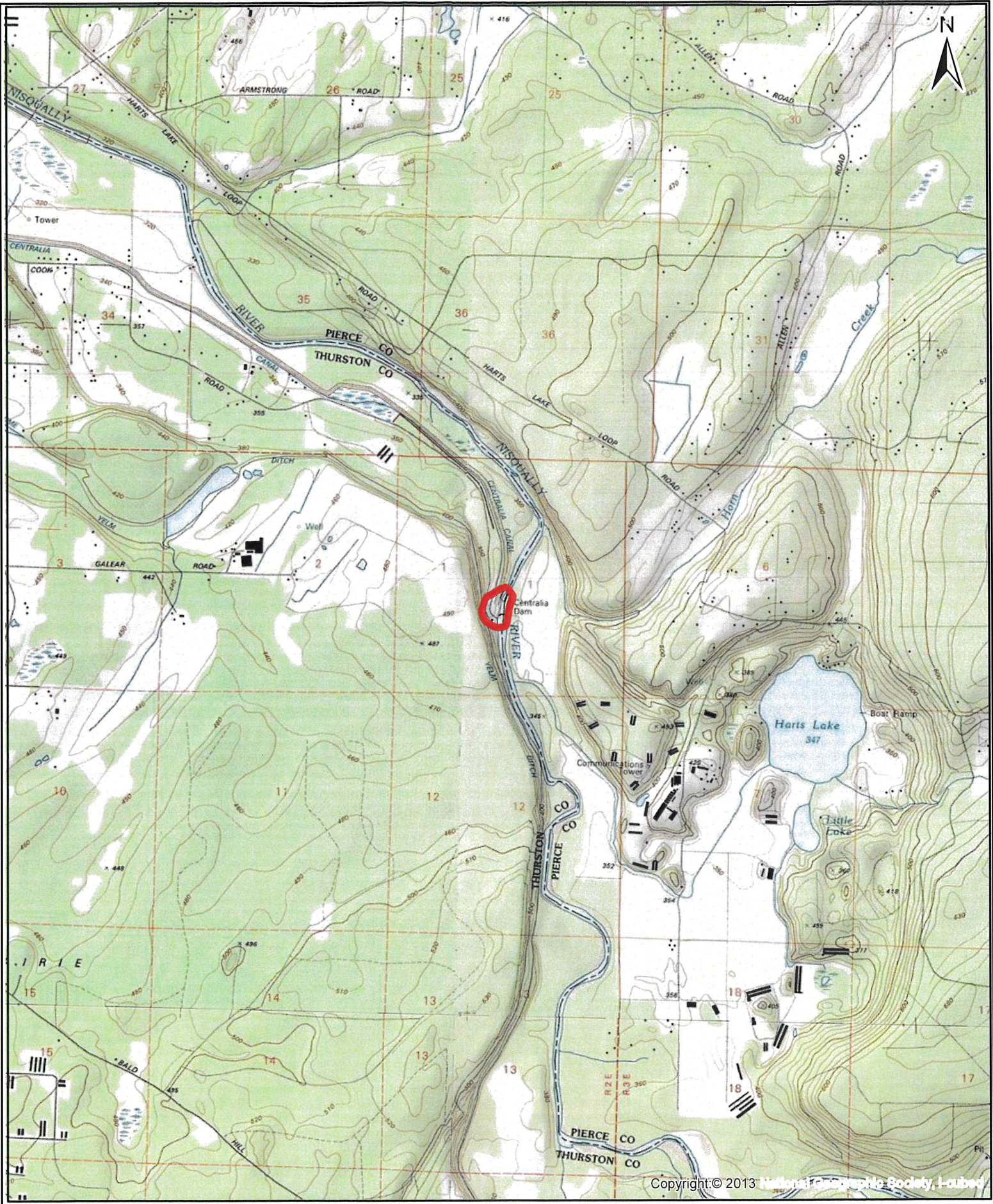
This report presents a determination of aquatic resources present on site based on the author's best professional judgment and scientific opinion. All depictions and accounts described within this report are based on field observations made at the time of the investigation. The author acknowledges that seasonal variations can cause a fluctuation of indicators present and able to be observed on site. Therefore, the appropriate level of care has been taken to consider normal conditions and any deviations from them. This work was performed in a manner consistent with that level of care and skill exercised by other members of this profession performing similar work under similar conditions at the time of the investigation.

6.0 REFERENCES

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- Washington State Department of Fish and Wildlife. 2020. Priority Habitats and Species on the Web. Accessed February 6, 2021. <https://geodataservices.wdfw.wa.gov/hp/phs/>
- Washington State Department of Natural Resources. 2020. Wetlands of High Conservation Value Map Viewer. Accessed February 6, 2021. <https://www.dnr.wa.gov/NHPwetlandviewer>

FIGURE 1

Vicinity Map



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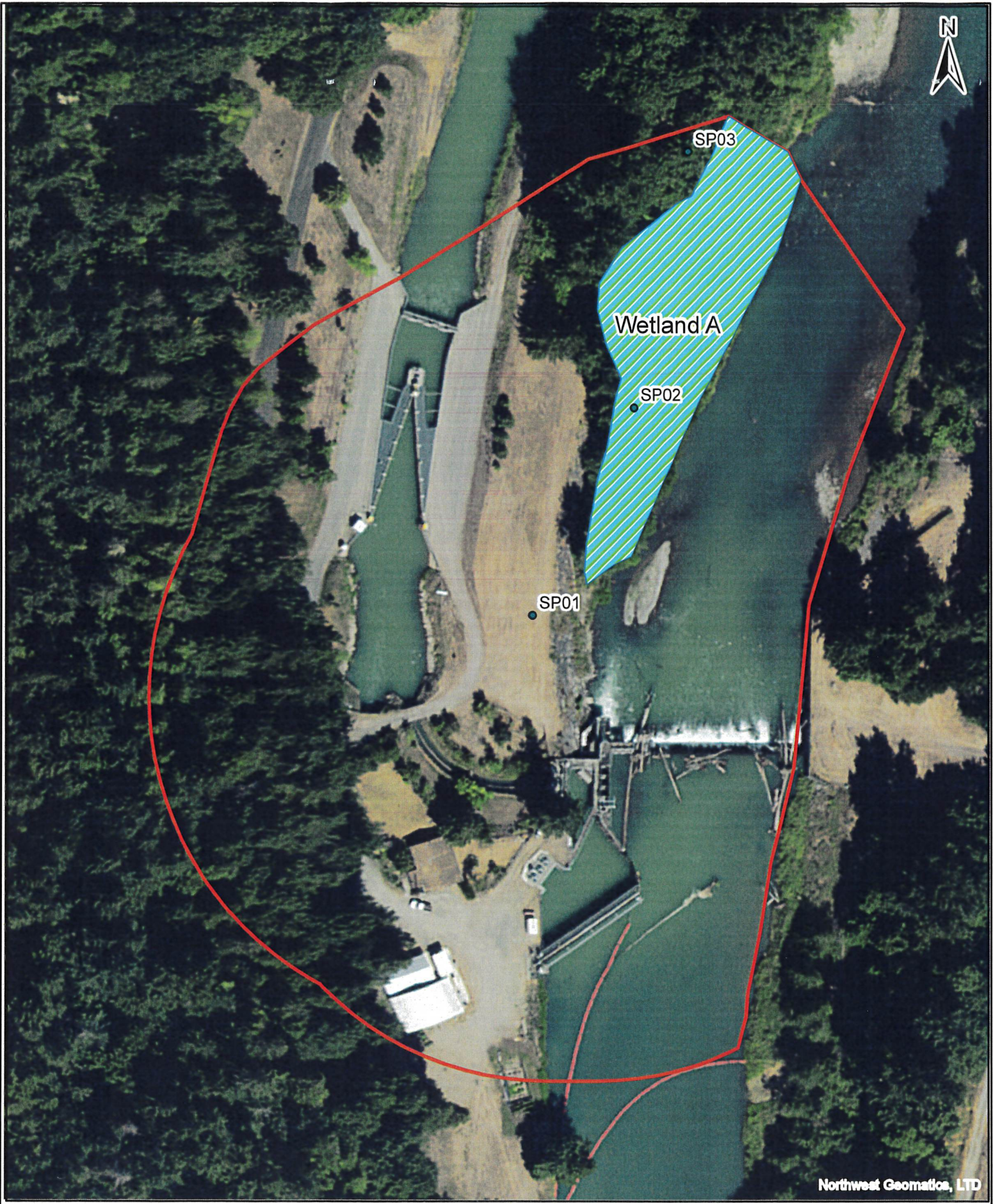
**Centralia Hydro Dam
Fish Trap Lift & Facility**

0 0.1250.25 0.5 0.75 1 Miles

**Figure 1:
Vicinity Map**

FIGURE 2

Field Results Map



- Legend**
- Sample Points
 - ▨ Wetlands
 - ▭ AOI


**Centralia Hydro Dam
Fish Trap Lift & Facility**

0 25 50 100 150 200
Feet

**Figure 2:
Field Results Map**

APPENDIX A

Aquatic Resource Summary Tables

WETLAND A – INFORMATION SUMMARY		
	Local Jurisdiction	Thurston County
	Ecology Rating (2014)	CAT II
	Thurston County Buffer Width	280 feet
	Wetland Size (within the AOI)	37,614.19 sq ft
	Cowardin Class	PFO/PEM
	HGM Class	Riverine
	Wetland Data Sheet(s)	SP02
	Upland Data Sheet(s)	SP01
Wetland Delineation		
Dominant Vegetation	Red Alder (<i>Alnus rubra</i>), Reed Canary Grass (<i>Phalaris arundinacea</i>), Himalayan Blackberry (<i>Rubus armeniacus</i>), and Sedges (<i>Carex species</i>)	
Soils	Soil matrices of 10YR 4/2 with redoximorphic concentrations were observed throughout the upper portion of the soil profile. Indicator Sandy Redox (S5) was met.	
Hydrology	Seasonal flooding from the Nisqually River provides the hydrology for this wetland. Indicators Saturation (A3), Sediment Deposits (B2), Drift Deposits (B3), Drainage Patterns (B10), and the FAC-Neutral Test (D5) were met.	
Wetland Rating and Functions		
Rationale for Rating	The Thurston County Code classifies wetlands based on the Washington State Wetland Rating System. Wetland A rates as a Category II.	
Functions	In general, moderate water quality and hydrologic, and high habitat functions are provided by this wetland.	
Wetland Buffers		
Buffer Condition	The existing wetland buffer area consists of the Centralia Hydro Dam and forested riparian areas.	

APPENDIX B

Wetland & Upland Data Forms

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

Project/Site: Centralia Hydro Dam Fish Trap & Lift Facility City/County: Thurston County Sampling Date 2/3/21
 Applicant/Owner: WDFW State: WA Sampling Point: SP01
 Investigator(s): K. Kiehart Section, Township, Range: S01 T162E
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none Slope (%): 2
 Subregion (LRR): LRR A Lat: 46.899613 Long: -122.498117 Datum: NAD83HARN
 Soil Map Unit Name: Puyallup Silt Loam NWI classification: N/A

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

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

Hydrophytic Vegetation Present?	Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present?	Yes <u> </u> No <u>X</u>	
Wetland Hydrology Present?	Yes <u> </u> No <u>X</u>	
Remarks: This sample point is representative of the maintained upland areas associated with the Centralia Hydro Dam that surround Wetland A.		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30' radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B) Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: OBL species <u> </u> x 1 = <u> </u> FACW species <u> </u> x 2 = <u> </u> FAC species <u> </u> x 3 = <u> </u> FACU species <u> </u> x 4 = <u> </u> UPL species <u> </u> x 5 = <u> </u> Column Totals: <u> </u> (A) <u> </u> (B) Prevalence Index = B/A = <u> </u>
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
<u> </u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15' radius</u>)				
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
<u> </u> = Total Cover				
Herb Stratum (Plot size: <u>5' radius</u>)				
1. <u>Trifolium repens</u>	<u>40</u>	<u>Yes</u>	<u>FAC</u>	
2. <u>Grass sp.</u>	<u>40</u>	<u>Yes</u>	<u>N/A</u>	
3. <u>Taraxacum officinale</u>	<u>20</u>	<u>Yes</u>	<u>FACU</u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
6. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
7. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
8. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
9. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
10. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
11. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>30' radius</u>)				
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
<u> </u> = Total Cover				
% Bare Ground in Herb Stratum <u>0</u>				

Remarks:
 Vegetation did not meet the criteria to be considered hydrophytic. Grass species could not be identified due to a lack of distinguishable characteristics.

SOIL

Sampling Point: SP01

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 3/3	100					SL	
8+								Rock Refusal

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

²Location: PL=Pore Lining, M=Matrix.

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

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

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

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☒

Remarks:

Soils did not meet the criteria to be considered hydric.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches):

Water Table Present? Yes ☐ No ☒ Depth (inches):

Saturation Present? Yes ☐ No ☒ Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

No indicators of wetland hydrology were present at the time of the investigation.

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

Project/Site: Centralia Hydro Dam Fish Trap & Lift Facility City/County: Thurston County Sampling Date 2/3/21
 Applicant/Owner: WDFW State: WA Sampling Point: SP02
 Investigator(s): K. Kiehart Section, Township, Range: S01 T162E
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 2
 Subregion (LRR): LRR A Lat: 46.900145 Long: -122.497755 Datum: NAD83HARN
 Soil Map Unit Name: Puyallup Silt Loam NWI classification: PFOC

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

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

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u> </u>	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No <u> </u>
Hydric Soil Present?	Yes <u>X</u>	No <u> </u>			
Wetland Hydrology Present?	Yes <u>X</u>	No <u> </u>			
Remarks: This sample point is representative of Wetland A, a riverine wetland characterized by forested and emergent vegetation.					

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. <u>Alnus rubra</u>	<u>60</u>	<u>Yes</u>	<u>FAC</u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
<u>60</u> = Total Cover				Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> 5 - Wetland Non-Vascular Plants ¹ <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Sapling/Shrub Stratum (Plot size: <u>15'</u> radius) 1. <u>Rubus armeniacus</u> <u>10</u> <u>Yes</u> <u>FAC</u> 2. <u> </u> <u> </u> <u> </u> <u> </u> 3. <u> </u> <u> </u> <u> </u> <u> </u> 4. <u> </u> <u> </u> <u> </u> <u> </u> 5. <u> </u> <u> </u> <u> </u> <u> </u> <u>10</u> = Total Cover				
Herb Stratum (Plot size: <u>5'</u> radius) 1. <u>Phalaris arundinacea</u> <u>50</u> <u>Yes</u> <u>FACW</u> 2. <u>Carex species</u> <u>20</u> <u>Yes</u> <u>N/A</u> 3. <u> </u> <u> </u> <u> </u> <u> </u> 4. <u> </u> <u> </u> <u> </u> <u> </u> 5. <u> </u> <u> </u> <u> </u> <u> </u> 6. <u> </u> <u> </u> <u> </u> <u> </u> 7. <u> </u> <u> </u> <u> </u> <u> </u> 8. <u> </u> <u> </u> <u> </u> <u> </u> 9. <u> </u> <u> </u> <u> </u> <u> </u> 10. <u> </u> <u> </u> <u> </u> <u> </u> 11. <u> </u> <u> </u> <u> </u> <u> </u> <u>70</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>30'</u> radius) 1. <u> </u> <u> </u> <u> </u> <u> </u> 2. <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> = Total Cover				
% Bare Ground in Herb Stratum <u>30</u>				
Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>				
Remarks: Vegetation met the criteria to be considered hydrophytic. Carex species could not be identified due to a lack of distinguishable characteristics.				

SOIL

Sampling Point: SP02

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 4/2	95	7.5YR 4/6	5	C	M	S	
8+								Rock refusal

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

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

Indicators for Problematic Hydric Soils³:

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

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

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

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Soils met the criteria to be considered hydric.

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____Water Table Present? Yes ☐ No ☒ Depth (inches): _____Saturation Present? Yes ☒ No ☐ Depth (inches): 0

(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

Multiple indicators of wetland hydrology were present at the time of the investigation.

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

Project/Site: Centralia Hydro Dam Fish Trap & Lift Facility City/County: Thurston County Sampling Date 2/3/21
 Applicant/Owner: WDFW State: WA Sampling Point: SP03
 Investigator(s): K. Kiehart Section, Township, Range: S01 T162E
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 2
 Subregion (LRR): LRR A Lat: 46.900796 Long: -122.497572 Datum: NAD83HARN
 Soil Map Unit Name: Puyallup Silt Loam NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	
Remarks: This sample point is representative of the upland riparian forested areas surrounding Wetland A.		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66</u> (A/B)
1. <u>Acer macrophyllum</u>	<u>60</u>	<u>Yes</u>	<u>FACU</u>	
2. <u>Alnus rubra</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<u>70</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15'</u> radius) 1. <u>Rubus armeniacus</u> <u>10</u> <u>Yes</u> <u>FAC</u> 2. _____ 3. _____ 4. _____ 5. _____ <u>10</u> = Total Cover				
Herb Stratum (Plot size: <u>5'</u> radius) 1. <u>Ranunculus repens</u> <u>20</u> <u>Yes</u> <u>FAC</u> 2. <u>Phalaris arundinacea</u> <u>20</u> <u>Yes</u> <u>FACW</u> 3. <u>Polystichum munitum</u> <u>10</u> <u>Yes</u> <u>FACU</u> 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ 11. _____ <u>50</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>30'</u> radius) 1. _____ 2. _____ _____ = Total Cover				Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
% Bare Ground in Herb Stratum <u>50</u>				
Remarks: Vegetation met the criteria to be considered hydrophytic.				Hydrophytic Vegetation Present? Yes <u>X</u> No _____

SOIL

Sampling Point: SP03

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 3/2	100					SL	
8+								Rock Refusal

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

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

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

Indicators for Problematic Hydric Soils³:

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

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

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☒

Remarks:

Soils did not meet the criteria to be considered hydric.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ 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 ☒ Depth (inches):

Water Table Present? Yes ☐ No ☒ Depth (inches):

Saturation Present? Yes ☐ No ☒ Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

No indicators of wetland hydrology were present at the time of the investigation.

APPENDIX C

Wetland Rating Forms

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland ADate of site visit: 2/3/2021Rated by K. KiehartTrained by Ecology? ☒ Yes ☐ NoDate of training 10/7/2020HGM Class used for rating Riverine & Fresh Water TidalWetland has multiple HGM classes? ☐ Yes ☒ No**NOTE: Form is not complete with out the figures requested (figures can be combined).**Source of base aerial photo/map Google Earth, ESRI**OVERALL WETLAND CATEGORY** II (based on functions ☒ or special characteristics ☐)**1. Category of wetland based on FUNCTIONS**

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

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
<i>List appropriate rating (H, M, L)</i>				
Site Potential	M	M	M	
Landscape Potential	H	M	H	
Value	L	H	H	Total
Score Based on Ratings	6	7	8	21

**Score for each
function based
on three
ratings**

(order of ratings
is not
important)

9 = H, H, H

8 = H, H, M

7 = H, H, L

7 = H, M, M

6 = H, M, L

6 = M, M, M

5 = H, L, L

5 = M, M, L

4 = M, L, L

3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

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

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

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

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	1
Hydroperiods	H 1.2	2
Ponded depressions	R 1.1	3
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	R 2.4	1
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	1
Width of unit vs. width of stream (<i>can be added to another figure</i>)	R 4.1	2
Map of the contributing basin	R 2.2, R 2.3, R 5.2	4
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	5
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	6
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	7

Lake Fringe Wetlands

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

Slope Wetlands

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

HGM Classification of Wetland in Western Washington

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

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

☒ NO - go to 2

☐ YES - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ NO - **Saltwater Tidal Fringe (Estuarine)**

☐ YES - **Freshwater Tidal Fringe**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands.*

*If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it.
Groundwater and surface water runoff are NOT sources of water to the unit.

☒ NO - go to 3

☐ YES - The wetland class is **Flats**

*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

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

☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;

☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☒ NO - go to 4

☐ YES - The wetland class is **Lake Fringe** (Lacustrine Fringe)

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

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

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

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

☒ NO - go to 5

☐ YES - The wetland class is **Slope**

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

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

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

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

☐ NO - go to 6

☒ YES - The wetland class is **Riverine**

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

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

☐ NO - go to 7

☐ YES - The wetland class is **Depressional**

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

☐ NO - go to 8

☐ YES - The wetland class is **Depressional**

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

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

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

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

NOTES and FIELD OBSERVATIONS:

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS**Water Quality Functions** - Indicators that the site functions to improve water quality

R 1.0. Does the site have the potential to improve water quality?

R 1.1. Area of surface depressions within the Riverine wetland that can trap sediments during a flooding event:

Depressions cover $> \frac{3}{4}$ area of wetland	points = 8	2
Depressions cover $> \frac{1}{2}$ area of wetland	points = 4	
Depressions present but cover $< \frac{1}{2}$ area of wetland	points = 2	
No depressions present	points = 0	

R 1.2. Structure of plants in the wetland (areas with $> 90\%$ cover at person height, **not** Cowardin classes)

Trees or shrubs $> \frac{2}{3}$ area of the wetland	points = 8	6
<input checked="" type="checkbox"/> Trees or shrubs $> \frac{1}{3}$ area of the wetland	points = 6	
<input type="checkbox"/> Herbaceous plants (> 6 in high) $> \frac{2}{3}$ area of the wetland	points = 6	
Herbaceous plants (> 6 in high) $> \frac{1}{3}$ area of the wetland	points = 3	
Trees, shrubs, and ungrazed herbaceous $< \frac{1}{3}$ area of the wetland	points = 0	

Total for R 1

Add the points in the boxes above

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

R 2.0. Does the landscape have the potential to support the water quality function of the site?

R 2.1. Is the wetland within an incorporated city or within its UGA? Yes = 2 No = 0 0

R 2.2. Does the contributing basin to the wetland include a UGA or incorporated area? Yes = 1 No = 0 1

R 2.3. Does at least 10% of the contributing basin contain tilled fields, pastures, or forests that have been clearcut within the last 5 years? Yes = 1 No = 0 1

R 2.4. Is $> 10\%$ of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0 1

R 2.5. Are there other sources of pollutants coming into the wetland that are not listed in questions R 2.1 - R 2.4? Yes = 1 No = 0 0

Other Sources

Total for R 2

Add the points in the boxes above

3**Rating of Landscape Potential** If score is: ☒ 3 - 6 = H ☐ 1 or 2 = M ☐ 0 = L Record the rating on the first page

R 3.0. Is the water quality improvement provided by the site valuable to society?

R 3.1. Is the wetland along a stream or river that is on the 303(d) list or on a tributary that drains to one within 1 mi? Yes = 1 No = 0 0

R 3.2. Is the wetland along a stream or river that has TMDL limits for nutrients, toxics, or pathogens? Yes = 1 No = 0 0

R 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? (answer YES if there is a TMDL for the drainage in which the unit is found) Yes = 2 No = 0 0

Total for R 3

Add the points in the boxes above

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

Record the rating on the first page

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS**Hydrologic Functions** - Indicators that site functions to reduce flooding and stream erosion

R 4.0. Does the site have the potential to reduce flooding and erosion?

R 4.1. Characteristics of the overbank storage the wetland provides:

Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of wetland)/(average width of stream between banks).

If the ratio is more than 20	points = 9	1
If the ratio is 10 - 20	points = 6	
If the ratio is 5 - < 10	points = 4	
If the ratio is 1 - < 5	points = 2	
If the ratio is < 1	points = 1	

R 4.2. Characteristics of plants that slow down water velocities during floods: *Treat large woody debris as forest or shrub. Choose the points appropriate for the best description (polygons need to have >90% cover at person height. These are NOT Cowardin classes).*

Forest or shrub for > $\frac{1}{3}$ area OR emergent plants > $\frac{2}{3}$ area	points = 7	7
Forest or shrub for > $\frac{1}{10}$ area OR emergent plants > $\frac{1}{3}$ area	points = 4	
Plants do not meet above criteria	points = 0	

Total for R 4 Add the points in the boxes above **8**

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

R 5.0. Does the landscape have the potential to support the hydrologic functions of the site?

R 5.1. Is the stream or river adjacent to the wetland downcut? Yes = 0 No = 1 1

R 5.2. Does the up-gradient watershed include a UGA or incorporated area? Yes = 1 No = 0 0

R 5.3 Is the up-gradient stream or river controlled by dams? Yes = 0 No = 1 0

Total for R 5 Add the points in the boxes above **1**

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

R 6.0. Are the hydrologic functions provided by the site valuable to society?

R 6.1. Distance to the nearest areas downstream that have flooding problems?

Choose the description that best fits the site.

The sub-basin immediately down-gradient of the wetland has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds)	points = 2	2
Surface flooding problems are in a sub-basin farther down-gradient	points = 1	
No flooding problems anywhere downstream	points = 0	

R 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 R 6 Add the points in the boxes above **2**

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

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

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

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

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

H 1.2. Hydroperiods

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

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

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft². *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*

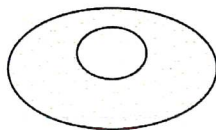
- | | | |
|-----------------|----------------|------------|
| If you counted: | > 19 species | points = 2 |
| | 5 - 19 species | points = 1 |
| | < 5 species | points = 0 |

H 1.4. Interspersion of habitats

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



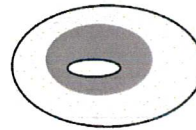
None = 0 points



Low = 1 point

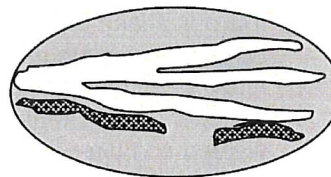
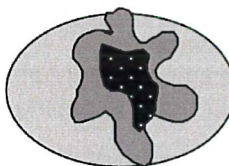
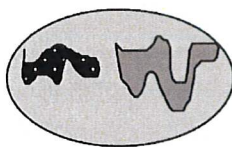


Moderate = 2 points



1

All three diagrams
in this row are
HIGH = 3 points



H 1.5. Special habitat features: Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i>		1
<input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) <input type="checkbox"/> Standing snags (dbh > 4 in) within the wetland <input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) <input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>) <input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>) <input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (see H 1.1 for list of strata)		
Total for H 1		
Add the points in the boxes above		
7		

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

H 2.0. Does the landscape have the potential to support the habitat function of the site?		
H 2.1 Accessible habitat (include only habitat that directly abuts wetland unit). Calculate: 22 % undisturbed habitat + (13 % moderate & low intensity land uses / 2) = 28.5%		
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		2
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. Calculate: 42 % undisturbed habitat + (58 % moderate & low intensity land uses / 2) = 71%		
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		5

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

H 3.0. Is the 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 <input checked="" type="checkbox"/> It has 3 or more priority habitats within 100 m (see next page) <input type="checkbox"/> It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) <input checked="" type="checkbox"/> It is mapped as a location for an individual WDFW priority species <input type="checkbox"/> It is a Wetland of High Conservation Value as determined by the Department of Natural Resources <input type="checkbox"/> It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan		2
Site has 1 or 2 priority habitats (listed on next page) within 100m points = 1		
Site does not meet any of the criteria above points = 0		

Rating of Value If Score is: ☒ 2 = H ☐ 1 = M ☐ 0 = L Record the rating on the first page

WDFW Priority Habitats

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

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

<http://wdfw.wa.gov/conservation/phs/list/>

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

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

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

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category	
<i>Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.</i>		
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? <input type="checkbox"/> The dominant water regime is tidal, <input type="checkbox"/> Vegetated, and <input type="checkbox"/> With a salinity greater than 0.5 ppt <div style="text-align: right;"> <input type="checkbox"/> Yes - Go to SC 1.1 <input checked="" type="checkbox"/> No = Not an estuarine wetland </div>		
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? <div style="text-align: right;"> <input type="checkbox"/> Yes = Category I <input type="checkbox"/> No - Go to SC 1.2 </div>		
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? <input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i> , see page 25) <input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or ungrazed or un-mowed grassland. <input type="checkbox"/> The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. <div style="text-align: right;"> <input type="checkbox"/> Yes = Category I <input type="checkbox"/> No = Category II </div>		
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? <div style="text-align: right;"> <input checked="" type="checkbox"/> Yes - Go to SC 2.2 <input type="checkbox"/> No - Go to SC 2.3 </div> SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? <div style="text-align: right;"> <input type="checkbox"/> Yes = Category I <input checked="" type="checkbox"/> No = Not WHCV </div> SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasetsearch/wnhpwetlands.pdf <div style="text-align: right;"> <input type="checkbox"/> Yes - Contact WNHP/WDNR and to SC 2.4 <input checked="" type="checkbox"/> No = Not WHCV </div> SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? <div style="text-align: right;"> <input type="checkbox"/> Yes = Category I <input type="checkbox"/> No = Not WHCV </div>		
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i> SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? <div style="text-align: right;"> <input type="checkbox"/> Yes - Go to SC 3.3 <input checked="" type="checkbox"/> No - Go to SC 3.2 </div> SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? <div style="text-align: right;"> <input type="checkbox"/> Yes - Go to SC 3.3 <input checked="" type="checkbox"/> No = Is not a bog </div> SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? <div style="text-align: right;"> <input type="checkbox"/> Yes = Is a Category I bog <input type="checkbox"/> No - Go to SC 3.4 </div> <p>NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog.</p> SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? <div style="text-align: right;"> <input type="checkbox"/> Yes = Is a Category I bog <input type="checkbox"/> No = Is not a bog </div>		

<p>SC 4.0. Forested Wetlands</p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i></p> <p><input type="checkbox"/> Old-growth forests (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.</p> <p><input type="checkbox"/> Mature forests (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).</p> <p><input type="checkbox"/> Yes = Category I <input checked="" type="checkbox"/> No = Not a forested wetland for this section</p>	
<p>SC 5.0. Wetlands in Coastal Lagoons</p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <p><input type="checkbox"/> The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks</p> <p><input type="checkbox"/> The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>)</p> <p><input type="checkbox"/> Yes - Go to SC 5.1 <input checked="" type="checkbox"/> No = Not a wetland in a coastal lagoon</p> <p>SC 5.1. Does the wetland meet all of the following three conditions?</p> <p><input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).</p> <p><input type="checkbox"/> At least $\frac{3}{4}$ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.</p> <p><input type="checkbox"/> The wetland is larger than $\frac{1}{10}$ ac (4350 ft²)</p> <p><input type="checkbox"/> Yes = Category I <input type="checkbox"/> No = Category II</p>	
<p>SC 6.0. Interdunal Wetlands</p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <p><input type="checkbox"/> Long Beach Peninsula: Lands west of SR 103</p> <p><input type="checkbox"/> Grayland-Westport: Lands west of SR 105</p> <p><input type="checkbox"/> Ocean Shores-Copalis: Lands west of SR 115 and SR 109</p> <p><input type="checkbox"/> Yes - Go to SC 6.1 <input checked="" type="checkbox"/> No = Not an interdunal wetland for rating</p> <p>SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?</p> <p><input type="checkbox"/> Yes = Category I <input type="checkbox"/> No - Go to SC 6.2</p> <p>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?</p> <p><input type="checkbox"/> Yes = Category II <input type="checkbox"/> No - Go to SC 6.3</p> <p>SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?</p> <p><input type="checkbox"/> Yes = Category III <input type="checkbox"/> No = Category IV</p>	
<p>Category of wetland based on Special Characteristics</p> <p>If you answered No for all types, enter "Not Applicable" on Summary Form</p>	

Figures for Rating Form - Wetland A:

Figure 1: Wetland A with 150-ft boundary. Green = Forested, 0.51 ac; Orange = Emergent, 0.35 ac. Total: 0.86 ac.



Figure 2: Hydroperiods and width of unit vs width of stream. Green = Permanently flooded or inundated, Blue = Seasonally flooded or inundated.



Figure 3: Ponded Depressions



Figure 4: Map of the contributing basin. Blue = tilled fields, pastures, or forests that have been clear cut within the last 5 years. Yellow X = Project area

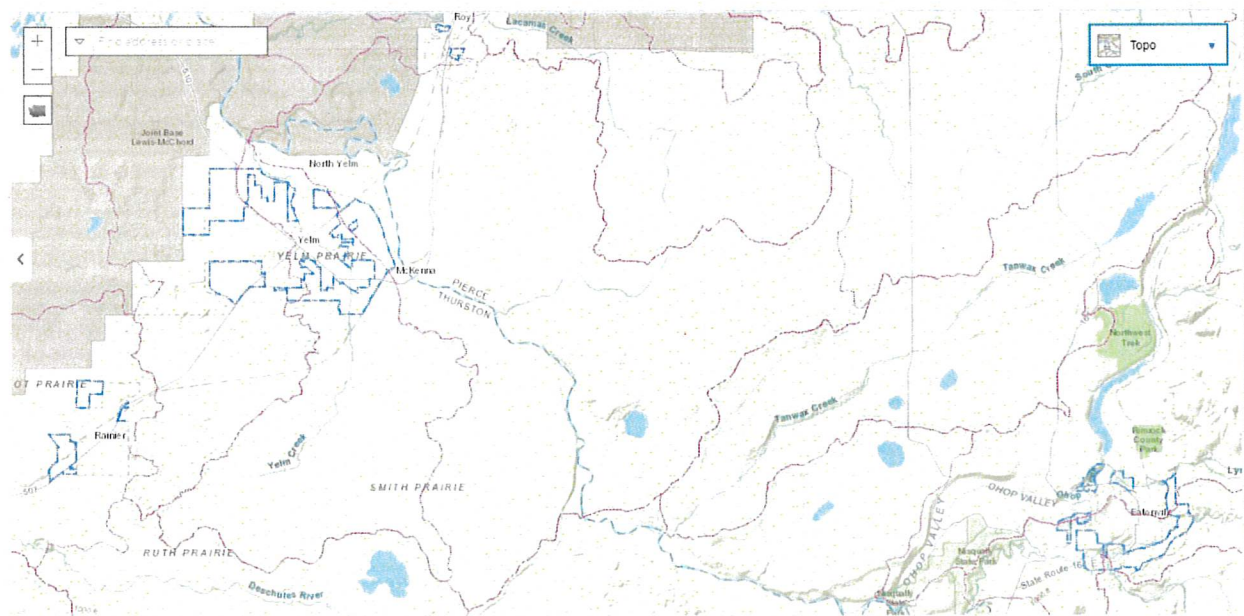
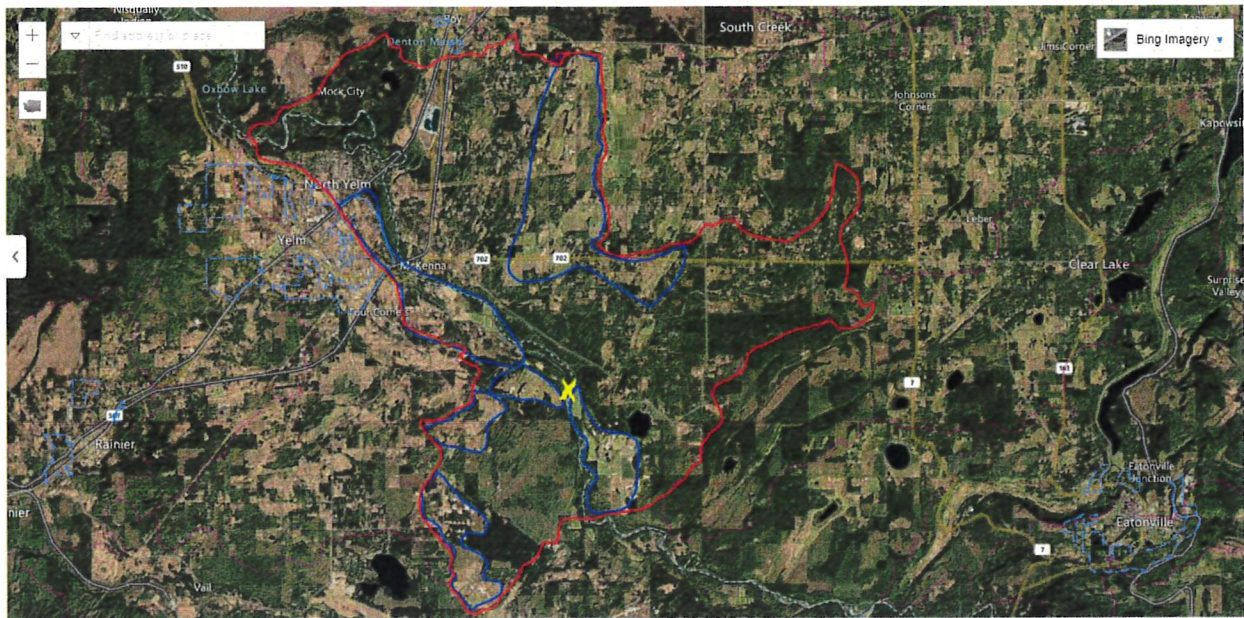


Figure 5: Wetland A and 1 km polygon. Blue = accessible and undisturbed (188ac/850 ac = 22%); Orange = accessible, moderate/low intensity (114/850 = 13%); Pink = other moderate/low intensity (378/850 = 45%); Yellow = other undisturbed (168/850 = 20%)

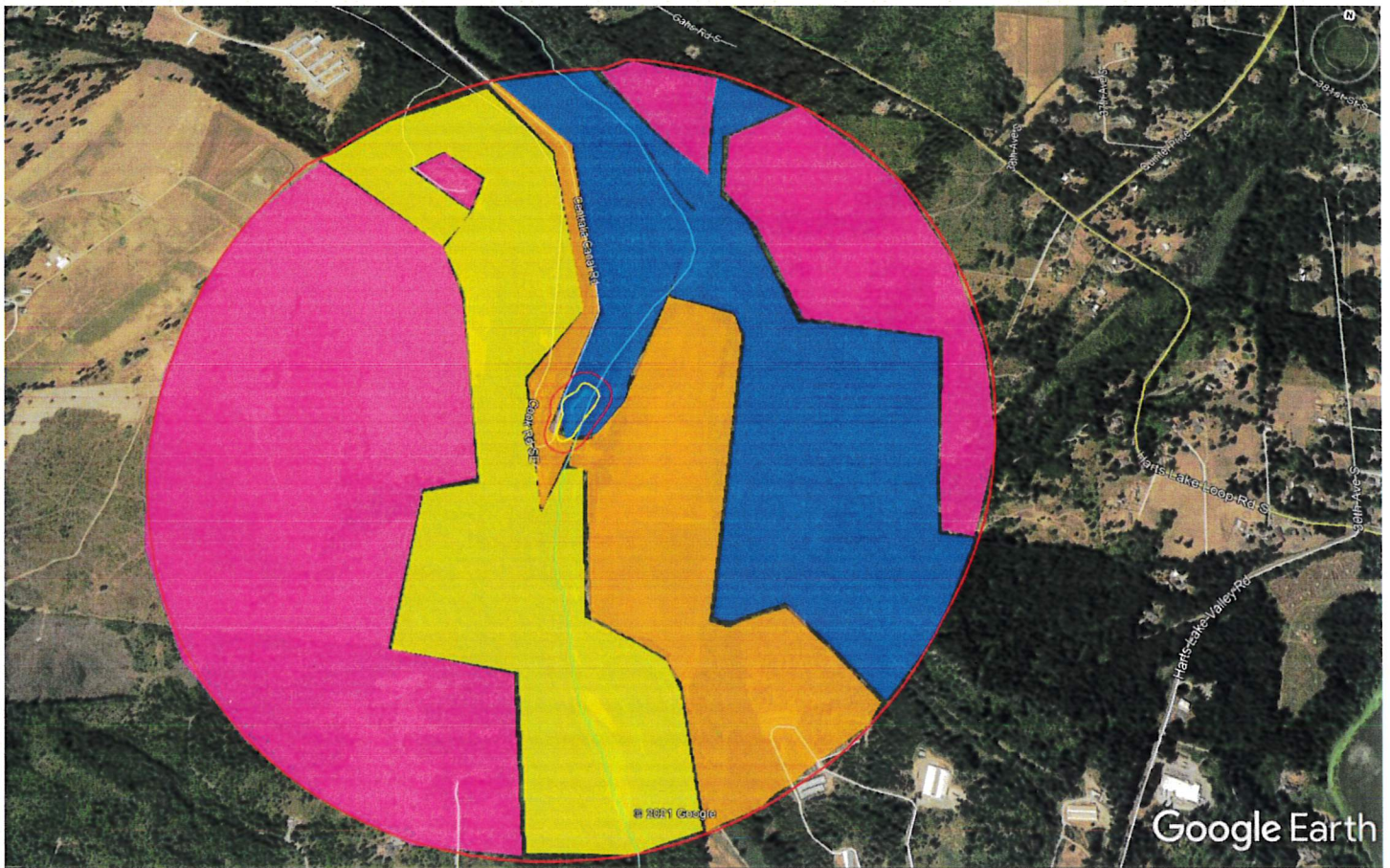


Figure 6: 303d waters in the basin

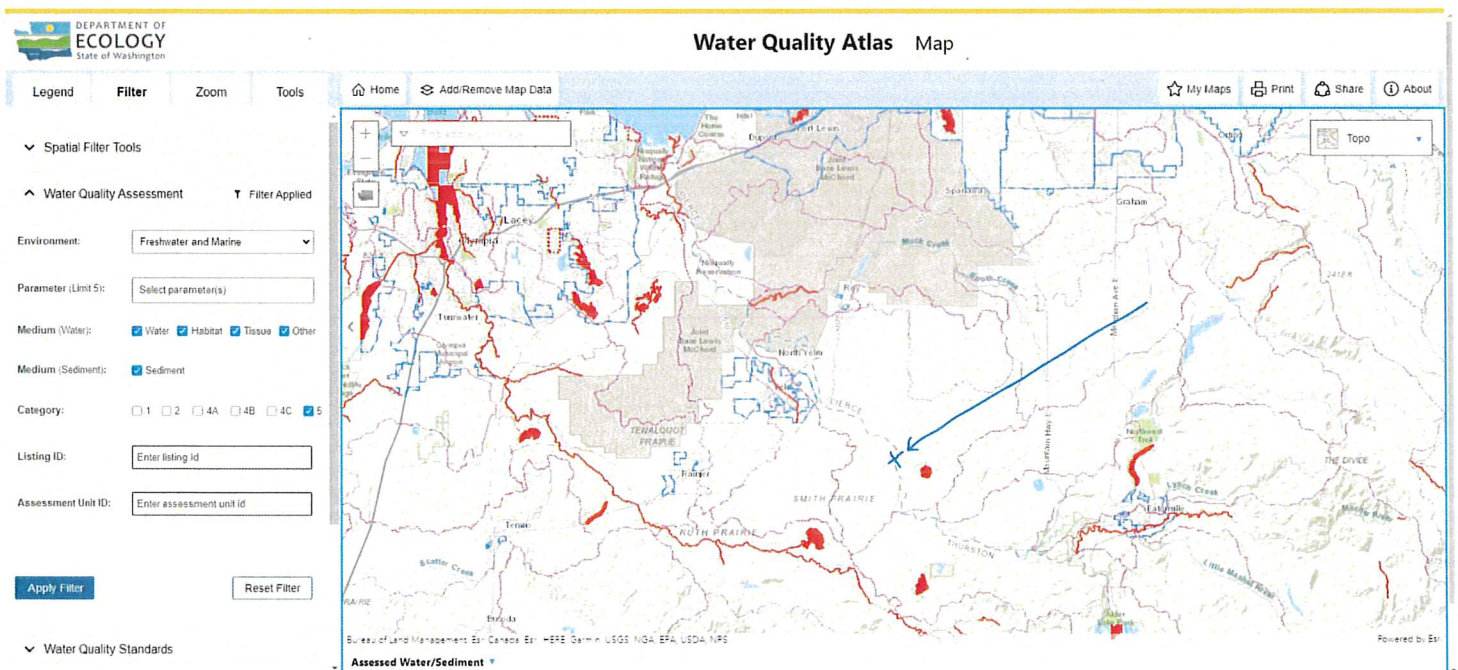
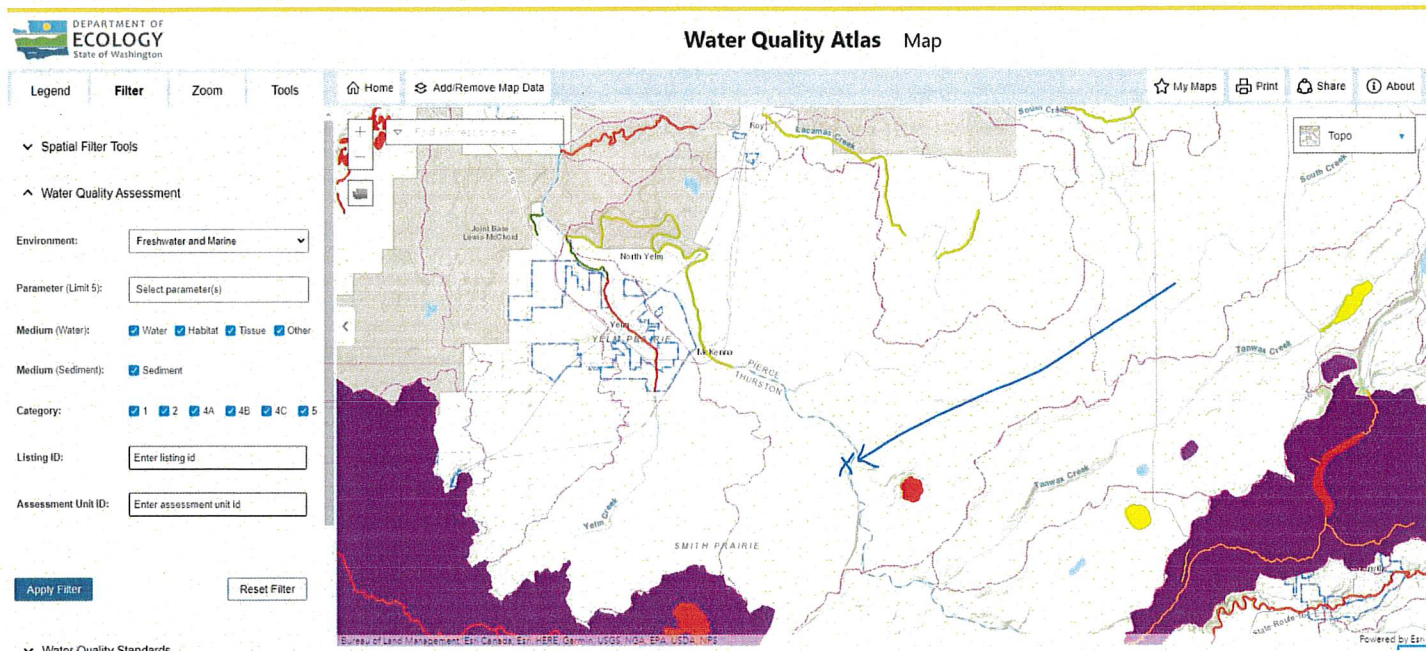


Figure 7: Water quality improvement projects in the basin



APPENDIX D

Site Photographs



Photograph 1: Overview of the Centralia Hydro Dam, looking Southeast.



Photograph 2: Overview of Wetland A and the Centralia Hydro Dam, looking North.



Photograph 3: View from upland SP01, looking North.



Photograph 4: View from upland SP01, looking East.



Photograph 5: View from upland SP01, looking South.



Photograph 6: View from upland SP01, looking West.



Photograph 7: View of Wetland A from SP02, looking North.



Photograph 8: View of Wetland A from SP02, looking East.



Photograph 9: View of Wetland A from SP02, looking South.



Photograph 10: View of Wetland A from SP02, looking West.



Photograph 11: View from upland SP03, looking North.



Photograph 12: View from upland SP03, looking East.



Photograph 13: View from upland SP03, looking South.



Photograph 14: View from upland SP03, looking West.



Photograph 15: View of the Nisqually River upstream of the dam, looking South.



Photograph 16: View of the Centralia Canal, looking Northwest.

