



Return To:

Jacob Korsness
215 W 4th St
STE 200
Vancouver, WA 98660

HABITAT CONSERVATION AREA NOTICE

Grantor: Port of Skamania County

Grantee: The Public

Tax Parcel #: 02750622010000

Legal Description: _____

Lots 31 and 32 of Block Two of RIVERVIEW ADDITION according to the official plat thereof on file and of record at page 21 of Book A of Plats, Records of Skamania County, Washington.

NOTICE: This site contains a habitat conservation area. Restrictions on use or alteration of the site may exist. For more information contact the City of Stevenson Planning Department.

Habitat Mitigation Plan Recording #: _____

**CITY OF STEVENSON
SMC 18 SHORELINE MANAGEMENT**

Regarding a request by the City of Stevenson Public Works)	
Department to perform "normal repair" of the Kanaka Pump)	SHORELINE MINOR
Station, a wastewater facility categorized as a Non-Water-)	PROJECT AUTHORIZATION
Oriented Utility (Parallel) use. The project is located on a site of)	
~4,000 square feet near 40 SW Cascade Avenue on land owned by)	April 28 th , 2023
the Port of Skamania, Assessor's Tax Parcel 02-75-06-2-2-0100-00,)	
a parcel of approximately 6.31 acres in the City of Stevenson,)	
Skamania County, Washington.)	

PROPOSAL: The applicant requests a minor project authorization (MPA) under the Stevenson Shoreline Master Program (MPA) based on the proposed "normal repair" of the Kanaka pump station.

APPLICANT: Jacob Korsness, P.E. Wallis Engineering 215 W 4 th Street, Suite 200 Vancouver, WA 98660 (360) 852-9169	FOR: Carolyn Sourek, Public Works Director City of Stevenson 7121 East Loop Road PO Box 371 Stevenson, WA 98648 (509) 427-5970
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OWNER: Port of Skamania County
212 SW Cascade Avenue
PO Box 1099
Stevenson, WA 98648
(509) 427-5484

LOCATION: Near 40 SW Cascade Avenue. The site has been assigned the Tax Lot Number 02-75-36-2-2-0100-00 by the County Assessor.

SHORELINE WATERBODY:	Columbia River
SHORELINE ENVIRONMENT DESIGNATION:	Active Waterfront
SHORELINE USE PROPOSED:	Utilities (Non-Water-Oriented, Parallel)
SHORELINE MODIFICATION PROPOSED:	Vegetation Removal

BACKGROUND: The Kanaka Pump Station was originally constructed in 1972 and upgraded in 1993. The pump station piping is badly corroded, and the mechanical and electrical components are obsolete and have reached the end of their useful life. The pump station can no longer provide reliable service and needs repair. The existing configuration with self-priming pumps housed aboveground is dated and does not represent the current industry standard.

STANDARDS, FINDINGS AND CONCLUSIONS

SMC 18 SHORELINE MANAGEMENT

Chapter 18.08 of the Stevenson Municipal Code is separated into 17 sections relating to management of

shoreline water bodies (Columbia River, Rock Cove, Rock Creek). These sections adopt the Stevenson Shoreline Master Program (SMP) and detail procedures for obtaining approvals under the SMP. The SMP contains 7 chapters detailing submittal requirements, policies and regulations applicable when review activities are proposed in Shoreline Jurisdiction. Certain review activities require approval by the Shoreline Administrator, others require approval by the Stevenson Planning Commission, still others require approval by the Stevenson Planning Commission and the Washington Department of Ecology. The sections below relate to Shoreline Minor Project Authorizations, the mechanism involved when the Shoreline Administrator approves review activities.

AUTHORITY TO PROCEED AS A SHORELINE MINOR PROJECT AUTHORIZATION

- REVIEW CRITERIA:**
1. The following 10 sections of Stevenson Municipal Code (SMC) Chapter 18.08, Shoreline Management relate to proposals reviewed as a Minor Project Authorization: SMC 18.08.010, SMC 18.08.020, SMC 18.08.050, SMC 18.08.080, SMC 18.08.100, SMC 18.08.120, SMC 18.08.185, SMC 18.08.190, SMC 18.08.205, and SMC 18.08.220.
 2. The following Stevenson Shoreline Master Program sections relate to this proposal as a Minor Project Authorization: SMP 1.3, SMP 1.4, SMP 1.5, SMP 1.6, SMP 1.7, SMP 2.3, SMP 2.4, SMP 2.5, SMP 3.2, SMP 4.2, SMP 4.3, SMP 4.4, SMP 4.5, SMP 4.6, SMP 4.7, SMP 4.8, SMP 5.3, SMP 5.4, SMP 6.2, SMP 6.3, SMP 6.4, SMP 7.1 and SMP 7.2.
 3. The project is also subject to review and approval under SMC Title 17, Zoning, SMC Chapter 18.04, Environmental Policy, and, as specifically referenced in the SMP, SMC Chapter 18.13, Critical Areas and Natural Resource Lands.

- FINDING(S):**
1. The application contains detailed narratives and reports contending consistency with SMC 18.08 and the SMP.
 2. The application contains detailed narratives and reports contending consistency with SMC Title 17, SMC 18.04, and SMC 18.13.
 3. Through the narratives and reports above, the applicant contends and the Shoreline Administrator agrees that this proposal should be processed for approval as a Minor Project Authorization under WAC 173-27-040(2)(b).
 4. The Shoreline Administrator reviewed the applicant's contentions of consistency with relevant codes and—except as specifically found below—agrees.
 5. The applicant's narrative responding to SMP 4.2 Cultural Resources references Mitigation Measure #14 of the SEPA Determination of Nonsignificance. The applicant goes on to explain its intent to implement an inadvertent discovery policy and conduct monitoring "for excavation that will extend past the depth of fill materials". Additional measures are appropriate for this project based on federal tribal consultation related to the project's funding source. An Archaeological Monitoring and Inadvertent Discovery Plan was developed for an earlier phase of this project. In that Plan, it described the City's intent to provide updated information for this and other project phases. An updated plan was not submitted with this application.
 6. In the applicant's narratives and reports responding to SMP 4.3, SMP 4.4, and SMC 18.13 result in protective buffers from the Columbia River. However, the submittals do not document the project's consistency with SMC 18.13.057(A-C)
 7. The applicable review criteria of this proposal contain informative and procedural

provisions applicable to this proposal throughout the City's review and the project's implementation.

8. Conditions are necessary to ensure consistency with relevant criteria. The Comprehensive Plan was referred to for interpretation and guidance in the review of this proposal.

CONCLUSIONS OF LAW: This project will comply with SMC 18.08, the SMP along with its reference to SMC 18.04 and SMC 18.13 upon satisfaction of the conditions below.

CONDITIONS:

1. **Prior to the Start of Construction** the applicants shall update the Archaeological Monitoring and Inadvertent Discovery Plan to address this project phase and, where appropriate, incorporate it into project construction documents.
2. **Prior to the Start of Construction** the applicants shall update the Critical Areas Report and Buffer Enhancement Plan to include construction staking and permanent demarcation of the functionally isolated buffer consistent with SMC 18.13.057(A and C) and, where appropriate, incorporate it into project construction documents.
3. **Prior to the Start of Construction** the applicants shall provide construction documents for approval by the Shoreline Administrator. The review shall be limited, ensuring the project's consistency with the proposal and ensuring the conditions of City permits have been appropriately incorporated. Should the Administrator fail to respond within 7 days of receipt, the construction documents shall be presumptively approved.
4. **Prior to the Start of Construction** the property owner shall record a deed notice related to the critical habitat area. This approval, together with the updated Critical Areas Report and Buffer Enhancement Plan shall be attached to the notice.
5. **Construction pursuant to this Approval shall not begin** and is not authorized until 21 days from the date of filing with Ecology, per WAC 173-27-190 or as subsequently amended, or until all review proceedings initiated within 21 days from the date of such filing have been terminated.
6. **Prior to the start of construction**, the proponent shall submit to the Shoreline Administrator documentation sufficient to establish an accurate timeline of any activity justifying a delay of the effective date under SMC 18.08.220(D). No such documentation will be accepted by the Administrator after construction commences. If no such documentation is submitted, the Date of Filing shall be considered the effective date of this approval.
7. **Within 2 years of the effective date of this Approval**, construction activities associated with this permit shall commence or a written request for a maximum 1-year extension shall be submitted to the City. If construction activities do not commence accordingly, the permit shall expire.
8. **Within 5 years of the effective date of this Approval**, all development activities associated with this permit shall terminate or a written request for a maximum 1-year extension shall be submitted to the City.
9. **Throughout the Duration of Construction**, the proponents shall provide reasonable access to the Shoreline Administrator to ensure enforcement of this approval and the SMP.
10. **Throughout the Duration of Construction**, the proponents shall contact the Shoreline Administrator prior to constructing any change to the proposal to determine whether the change should be permitted and whether the permission should be through a revision to this

Minor Project Authorization or through a Shoreline Permit.

FINAL ORDER

The preceding discussion describes the administrator's review of the information relevant to the SHOR2023-01 "Kanaka Pump Station". The findings and conclusions of this document justify issuance of this Minor Project Authorization under SMC 18.08.185. The project will be consistent with the policy and provisions of the SMA and the SMP upon satisfactions of the conditions listed herein.

Any person aggrieved by the administrator's granting of this Minor Project Authorization may seek review from the Planning Commission pursuant to SMC 18.08.205. Such appeal must be filed as a request for the same within 21 days of receipt of the administrator's decision.

DATED this 18 day of April 2023

APR 28 2023


Ben Spumaker, Shoreline Administrator
City of Stevenson Community Development Director

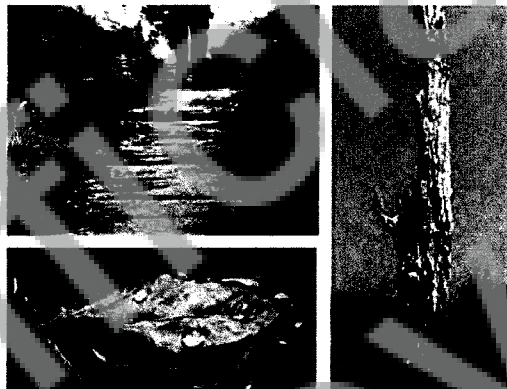
Attachments

- 1- Deed Notice Template (1 pages)



CRITICAL AREAS REPORT AND BUFFER ENHANCEMENT PLAN

Updated May 8, 2023



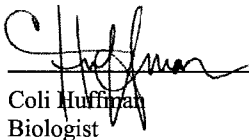
Kanaka and Cascade Avenue Pump Station Updates *Stevenson, Washington*

Prepared for
Wallis Engineering
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215 W 4th Street , Ste 200
Vancouver, WA 98660
(360) 852-9169

Prepared by
Ecological Land Services, Inc.
1157 3rd Avenue, Suite 220A • Longview, WA 98632
(360) 578-1371

SIGNATURES

The information and data in this report was compiled and prepared by the undersigned:


Coli Huffman
Biologist

Statement of Qualifications

Name	Title	Activity Performed	Date of Fieldwork	Qualifications
Coli Huffman	Biologist V	-Wetland Delineation -OHWM Determination -Data collection and report author	January 13, 2020 August 18, 2020 February 9, 2023	-5+ years wetland delineation and OHWM determination experience -BA Env. Studies -Graduate Cert. Wetland Science and Mgmt.

TABLE OF CONTENTS

INTRODUCTION	1
METHODOLOGY	1
STUDY AREA AND PROJECT DESCRIPTIONS	2
SOILS	3
VEGETATION	4
HYDROLOGY	5
NATIONAL WETLANDS INVENTORY	5
PRIORITY HABITAT AND SPECIES INVENTORY	6
CRITICAL AREAS SUMMARY	6
WETLAND BUFFER ENHANCEMENT PLAN	9
RESPONSIBLE PARTIES	12
IMPLEMENTATION PLAN	12
MONITORING PLAN	14
ADAPTIVE MANAGEMENT PLAN	15
LIMITATIONS	15
REFERENCES	17

Figures

Figure 1	Vicinity Map
Figure 2	Kanaka Pump Station Proposed Conditions
Figure 3	Cascade Avenue Pump Station Proposed Conditions
Figure 4	Cascade Avenue Pump Station Planting Plan
Figure 5	NRCS Soil Survey
Figure 6	USFWS National Wetlands Inventory
Figure 7	DNR Water Type Map
Figure 8	SalmonScape and PHS Map

Photoplates 1-2

Appendix A

Wetland Determination Data Forms

Appendix B

Wetland Rating Forms for Western Washington

Figure 9	Wetland Rating Figure – 150' Offset
Figure 10	Wetland Rating Figure – 1KM Offset
Figure 11	303(d) and TMDLs

INTRODUCTION

This May 2023 update reflects changes to the scope of work associated with the previously submitted and approved "Critical Areas Report: Stevenson WWTP Improvements" (ELS, November 25, 2020). During design review, it was found that two of the pump stations associated with the Wastewater Treatment Plant project (WWTP), Kanaka and Cascade Avenue, would require work outside of their previously defined study areas. Ecological Land Services, Inc. (ELS) revisited both pump station locations on February 9, 2023, to assess the updated scope of work in association with critical areas. The Kanaka Pump Station will now include additional structures, including an electrical conduit that will extend approximately 150 feet south from the pump station within an existing parking area and east to an existing transformer (Figure 2). Additionally, due to utility and topographical constraints, the Cascade Avenue Pump Station upgrades will now require a short retaining wall immediately south of the proposed pump station. The retaining wall will impact approximately 68 square feet of the buffer of Wetland A, which will be mitigated onsite and is further described in this report (Figure 4). This report has been updated to address only the two pump stations requiring project revisions, while the other aspects of the WWTP project will remain consistent with the original critical areas report and approved permit.

This update also includes revised project descriptions and performance standards to incorporate the conditions outlined in the Critical Areas Permit and Minor Project Authorization issued by the City of Stevenson on April 28, 2023.

ELS has completed this updated critical areas report and enhancement plan on behalf of Wallis Engineering for the purpose of modifying the proposed work areas and subsequent critical areas impacts for the Kanaka and Cascade Avenue Pump Stations as part of the City of Stevenson, Washington's sanitary sewer collection system upgrades. The pump station study areas are located on or adjacent to Skamania County Tax Parcels 02070111710000, 02750622050000 and 02750622010000 and associated City rights-of-way (ROW) in Stevenson, Washington (Figure 1). The study areas are located within portions of Section 1, Township 2 North, and Range 7 East, and Section 36, Township 3 North, Range 7 East, of the Willamette Meridian (Figure 1).

This report summarizes the findings of critical areas within the study areas in accordance with the Stevenson Municipal Code (SMC) *Chapter 18.13 Critical Areas and Natural Resource Lands* (October 2018) which is deferred to as the applicable regulations by the *City of Stevenson Shoreline Master Program (SMP)* (Updated March 2022).

METHODOLOGY

The study areas were evaluated for the presence of wetlands using the Routine Determination Method according to the U.S. Army Corps of Engineers' 1987 *Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers' Wetland Delineation Manual* (Environmental Laboratory); *Western Mountains, Valleys, and Coast Region (Version 2.0)* (Corps 2010). The Routine Determination Method examines three parameters—vegetation, soils, and hydrology—to determine if wetlands exist in a given area. Hydrology is critical in determining what is wetland but is often difficult to assess because hydrologic conditions can change periodically (hourly, daily, or seasonally). Consequently, it is necessary to determine if hydrophytic vegetation and hydric soils are present, which would indicate that water is present for long enough duration to support a

wetland plant community. By definition, wetlands are those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands are regulated as “Waters of the United States” by the U.S. Army Corps of Engineers (Corps), as “Waters of the State” by the Washington Department of Ecology (Ecology), and locally by the City of Stevenson (SMC).

ELS biologists originally conducted site visits on January 13 and August 18, 2020 and returned on February 9, 2023 to verify the presence or absence of wetlands, waterbodies, and other critical areas within the expanded Kanaka and Cascade Avenue Pump Station study areas. Prior to conducting the site visit, an ELS biologist reviewed current and historic aerial photographs and reviewed database information regarding soils, topography, wetlands, and habitat conservation areas. Vegetation, soil, and hydrology information was collected from two test plots to determine the presence or absence of wetlands onsite (Appendix A). One wetland, Wetland A, was partially delineated in a large depression where its boundary was adjacent to the Cascade Avenue Pump Station study area. Wetland A’s delineated boundary was demarcated using consecutively numbered flagging and was subsequently professionally surveyed by Wallis Engineering (Figure 3).

The ordinary high water mark (OHWM) of the Columbia River adjacent to the Kanaka and Cascade Avenue project study areas was determined using standard methodology as described in the Ecology’s manual: *Determining the Ordinary High Water Mark on Streams in Washington State* (Olson and Stockdale 2010). The OHWM was determined in the field through the presence of bank scour, sediment and wrack deposits, changes in vegetation and topography. The OHWM was demarcated with orange flagging and professionally surveyed by Wallis Engineering (Figures 2-3).

Only the portions of the project improvements that are adjacent to critical areas including waterbodies, wetlands, and their associated buffers have been included in this report. Work being performed outside of shoreline jurisdiction or critical areas buffers will be detailed further in the engineering and/or shoreline project narrative.

STUDY AREA AND PROJECT DESCRIPTIONS

Kanaka Pump Station

The Kanaka Pump Station study area is located on Parcel 02750622010000, just southeast of SW Cascade Avenue. The existing pump station consists of a small structure with two self-priming pumps in a fiberglass enclosure over a wet well (Figure 2). The pump station is surrounded on all sides by a paved parking area, road, and walking path, with a large commercial structure directly to the southwest and a boat launch to the northeast. The area surrounding the existing pump station structures contains landscaping boulders, bark dust and planted ornamental vegetation species. The pump station is located on a small rise, approximately 20 feet above the Columbia River.

Project work includes upgrading the existing pump station, constructing a new wet well and force main, converting an existing wet well into a sewer manhole and updating electrical service lines that span from the station to an existing electrical box approximately 150 feet to the south. Best

management practices (BMPs) will be implemented as necessary to further avoid and minimize riparian buffer impacts during project construction. BMPs may include erosion control measures such as silt fencing, sedimentation barriers, and/or sediment traps, defined construction access and staging areas, demarcation of grading limits and critical areas in the field and, re-seeding all bare areas following construction. In accordance with SMC 18.13.057.A, the outer edge of the riparian buffer adjacent to the Kanaka Pump Station will be staked, flagged, fenced with construction fencing, and maintained throughout the duration of construction activities to clearly define the buffer boundary. Following construction, logs will be installed along the length of the final onsite riparian buffer to serve as a permanent demarcation in accordance with SMC 18.13.057.C.

Cascade Avenue Pump Station

The Cascade Avenue Pump Station study area is located in the southern ROW of SW Cascade Avenue, just north of Parcel 02070111710000. The existing pump station facility consists of two pumps in a fiberglass enclosure over a circular concrete well. The pump station is located on existing, sparsely vegetated, gravel ROW adjacent to a concrete retaining wall and gravel parking area directly to the east (Figure 3). Immediately to the south and downslope of the pump station is Wetland A, an emergent, scrub-shrub wetland located in a large topographic depression. The existing pump station is located approximately 250 feet north of the OHWM of the Columbia River. Additional land use surrounding the pump station includes SW Cascade Avenue and a rail line to the north, a residential structure and Wetland A to the south and southwest, and a Port building to the east and southeast.

The proposed project consists of demolishing the existing pump station and replacing it with new pump station features slightly to the northwest in the gravel ROW of SW Cascade Avenue. An approximately 68-square-foot retaining wall will also be constructed south of the newly proposed pump station, within the buffer of Wetland A (Figure 3). The study area shown on Figures 3 and 4 has been extended to the southwest to include a proposed onsite mitigation area. BMPs will be implemented as necessary to further avoid and minimize wetland buffer impacts during project construction. BMPs may include erosion control measures such as silt fencing, sedimentation barriers, and/or sediment traps, defined construction access and staging areas, demarcation of grading limits and critical areas in the field, and re-seeding all bare areas following construction. Additionally, in accordance with SMC 18.13.057.A, the outer edge of the wetland buffer adjacent to the Cascade Avenue Pump Station will be staked, flagged, fenced with construction fencing, and maintained throughout the duration of construction activities to clearly define the buffer boundary. Following construction, logs will be installed along the length of the final onsite wetland buffer to serve as a permanent demarcation in accordance with SMC 18.13.057.C.

SOILS

Kanaka Pump Station

The Natural Resource Conservation Service (NRCS) maps soils within the Kanaka pump station study area as Stevenson loam 15 to 30 percent slopes (Unit 128) (Figure 5). Stevenson loam is characterized as a well-drained soil with an approximate depth to water table of more than 80 inches BGS. It typically forms on mountain slopes and a typical profile consists of loam from 0 to 60 inches and is not considered hydric (NRCS, 2023).

Cascade Avenue Pump Station

Soils mapped by the NRCS within the Cascade Avenue pump station study area consist of Stevenson loam 2 to 15 percent slopes (Unit 127), which contains the same characteristics as Stevenson loam 15 to 30 percent slopes described above and is not considered hydric (Figure 5). Test plots were taken in the study area to delineate the boundary of Wetland A with their soils described below.

Wetlands

Evaluated wetland soils consisted of silt loams with very dark grayish brown (10YR 3/2) and very dark gray (10YR 3/1) hues. Redoximorphic features with strong brown (7.5YR 4/6) hues were observed as concentrations in the matrix. These profiles matched hydric indicator F6, Redox Dark Surface.

Uplands

Evaluated upland soils consisted of silt loams with dark brown (10YR 3/3) hues. No redoximorphic features were present in upland soil pits. Soil information gathered during the field visit can be found on the wetland determination data sheets found in Appendix A.

VEGETATION

The dominant species of vegetation in each test plot have been recorded on the attached wetland delineation data sheets (Appendix A). The indicator categories following the common and scientific names indicate the likelihood of a species to be found in wetlands. Listed from most-likely to least-likely to be found in wetlands, the indicator categories are:

- **OBL** (obligate wetland) – Almost always occur in wetlands.
- **FACW** (facultative wetland) – Usually occur in wetlands, but may occur in non-wetlands.
- **FAC** (facultative) – Occur in wetlands and non-wetlands.
- **FACU** (facultative upland) – Usually occur in non-wetlands, but may occur in wetlands.
- **UPL** (obligate upland) – Almost never occur in wetlands.
- **NI** (no indicator) – Status not yet determined.

Kanaka Pump Station

Vegetation immediately adjacent to the Kanaka Pump Station is minimal and consists of non-native, landscaped shrubs and upland herbaceous species within an enclosed landscaping strip. The pump station is surrounded by paved parking and trails, with a mowed, herbaceous lawn area and some large black cottonwood (*Populus balsamifera*, FAC), Douglas fir (*Pseudotsuga menziesii*, FACU), Himalayan blackberry and other small shrubs located to the southeast of the pump station, and east of the paved trail, within the riparian buffer of the Columbia River.

Cascade Avenue Pump Station

Vegetation within the Cascade Avenue Pump Station study area consists of a mix of sparse herbaceous grasses, invasive forbs and Himalayan blackberry (*Rubus armeniacus*, FAC) growing in and along the gravel ROW south of SW Cascade Avenue. Species favoring wetter environments, namely broadleaf cattail (*Typha latifolia*, OBL) and Sitka willow (*Salix sitchensis*, FACW) were

observed within Wetland A in the southwest portion of the study area. Dominant vegetation within the one wetland test plot consisted almost exclusively of broadleaf cattail with a small amount of perennial pea (*Lathyrus latifolius*, FACU). Dominant vegetation within the upland test plot included Queen Anne's lace (*Daucus carota*, FACU), hairy cat's ear (*Hypochaeris radicata*, FACU), and bentgrass (*Agrostis capillaris*, FAC). The onsite buffer of Wetland A adjacent to the facility consists primarily of non-native, invasive Himalayan blackberry.

HYDROLOGY

Kanaka Pump Station

The Kanaka Pump Station is located northwest of the Columbia River, a Type S (Shoreline of the State) waterbody that flows generally from east to west adjacent to the study area. The pump station and its proposed improvements are outside of the mapped 100-year floodplain and do not receive any overbank flooding (Figure 2).

Cascade Avenue Pump Station

Wetland A is a depressional wetland located southwest of the existing Cascade Avenue Pump Station. During ELS' 2020 site investigation, wetland hydrology was present within one wetland test plot as saturation at 10 inches below ground surface (BGS). During the February 2023 site visit, hydrology was visible within the wetland as ponded surface water. Sources of hydrology to Wetland A include a seasonally high groundwater table, runoff from surrounding uplands, and input from a 12-inch culvert that discharges into the northern portion of the wetland, outside of the study area. Wetland A extends outside of the study area to the south where it outlets towards the Columbia River. The OHWM of the Columbia River is located approximately 120 feet south of the southern portion of the wetland (offsite); however, the wetland and pump station study area are located outside of the floodplain and the wetland does not likely receive overbank flooding as a contributing source of hydrology (Figure 3).

NATIONAL WETLANDS INVENTORY

Kanaka Pump Station

The U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) depicts one linear wetland to the south and west of the Kanaka Pump Station study area (Figure 6). The wetland is identified as Lacustrine, Limnetic, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded (L1UBHh). ELS generally disagrees with the mapping as no wetlands were delineated within the vicinity of the pump station; however, the wetland is mapped in the same approximate location as the channel of the Columbia River.

Cascade Avenue Pump Station

There are no wetlands mapped by the NWI within the vicinity of the Cascade Avenue Pump Station study area (Figure 6). ELS disagrees with the mapping, as one wetland, Wetland A, was delineated immediately to the south and west of the existing and proposed pump station.

The NWI mapping tool should be used with discretion as it is typically used to gather wetland information about a region and, because of the large scale necessary for regional mapping, is limited in accuracy for localized analyses.

PRIORITY HABITAT AND SPECIES INVENTORY

Kanaka Pump Station

The Washington Department of Fish and Wildlife (WDFW) Priority Habitat and Species (PHS) and SalmonScape mapping tools depict the portion of the Columbia River adjacent to the Kanaka study area as containing habitat and/or known occurrences of several federally or state-listed fish species. Additionally, the entire study area is within a mapped overlay for Northern spotted owl habitat (Figure 8). As the proposed pump station modifications will occur outside of the OHWM of the Columbia River, approximately 80 feet to the southeast, and will occur within an area of pre-existing development and impervious surface, no impacts are anticipated to either fish or spotted owl habitat. Table 1 below describes the state priority habitats and federally or state-listed species, as well as state candidate species, that have a primary association with habitat in or within 300 feet of the study area (WDFW 2023).

Cascade Avenue Pump Station

The PHS and SalmonScape mapping tools also depict the portion of the Columbia River adjacent to the flagged OHWM (approximately 220 feet south of the Cascade Ave. Pump Station) as containing habitat and/or known occurrences of several federally or state-listed fish species and within spotted owl habitat. As the proposed pump station modifications will occur approximately 220 feet outside of the OHWM of the Columbia River and within an area of pre-existing development and ROW, no impacts are anticipated to either fish or spotted owl habitat. There are also no listed species associated with the wetland buffer that will be impacted by the proposed retaining wall. The Cascade Avenue study area is adjacent to the same habitat and species occurrences within the Columbia River as those described for the Kanaka Pump Station in Table 1 below.

Table 1. Priority Habitats and Listed Species within the Vicinity of Kanaka Pump Station

Priority Species	State Status	Federal Status
Chum (<i>Oncorhynchus keta</i>)	Candidate	Threatened
Sockeye (<i>Oncorhynchus nerka</i>)	Candidate	Species of Concern
Resident coastal cutthroat (<i>Oncorhynchus clarki</i>)	N/A	Species of Concern
Steelhead (<i>Oncorhynchus mykiss</i>)	Candidate	Threatened
Chinook (<i>Oncorhynchus tshawytscha</i>)	Candidate	Threatened
Coho (<i>Oncorhynchus kisutch</i>)	Candidate	Threatened
Dolly Varden/Bull Trout (<i>Salvelinus malma/S.confluentus</i>)	Candidate	Threatened
Northern spotted owl (<i>Strix occidentalis</i>)	Threatened	Endangered

CRITICAL AREAS SUMMARY

Kanaka Pump Station

Waterbodies

The Columbia River flows from northeast to southwest approximately 80-feet east of the Kanaka Pump Station study area. In accordance with SMC Table 18.13.095-1, Type S waterbodies require

a 150-foot riparian buffer (referred to as a Fish and Wildlife Habitat Conservation Area (FWHCA) in the SMC). Additionally, as a Type S waterbody, the Columbia River is regulated under criteria for shorelines of the state as defined by the Department of Ecology. In accordance with the SMP, shoreline areas include all Type S waters as well as “...the lands underlying them, all shorelands extending landward a minimum of 200 feet in all directions, as measured on a horizontal plane from the ordinary high water mark (OHWM); floodways and contiguous floodplain areas landward 200 feet from such floodways; and all wetlands and river deltas associated with the streams and lakes...” (2022). The OHWM of the Columbia River was mapped based on a vegetation line and wrack deposits in order to discern the extent of the 150-foot riparian habitat buffer and 200-foot shoreline jurisdiction boundary within the study area. The riparian buffer of the Columbia River is functionally isolated from the project work area by existing structures, mowed lawn and paved pathway, and no impacts to the functional buffer are proposed (Figure 2).

Cascade Avenue Pump Station

Waterbodies

The Columbia River flows from northeast to southwest approximately 220 feet south of the project work area. The OHWM of the Columbia River adjacent to the Cascade Avenue Pump Station was mapped based on a vegetation line and wrack deposits in order to discern the extent of the 150-foot riparian habitat buffer and 200-foot shoreline jurisdiction boundary within the study area, neither of which extend to the area where project work will be performed (Figure 3). The City’s shoreline jurisdiction does not include optional areas of 100-year floodplain or buffers for critical areas and the entirety of the onsite boundary of Wetland A is encompassed within shoreline jurisdiction (SMP 2022).

Wetlands

Wetland A is a Category III, depressional, scrub-shrub, emergent wetland encompassing approximately 0.034 acres within the Cascade Avenue Pump Station study area. Wetland A was rated using the *Washington State Wetland Rating System for Western Washington: 2014 Update* (Rating System)(Hruby 2014). Wetland buffers are determined in the City of Stevenson using the habitat score from the wetland rating form, the proposed land use intensity, and the overall wetland category. The construction of a pump station is considered to be a high-intensity land use per SMC *Table 18.13.100-2*. As a Category III wetland with a habitat score of 4 points and a proposed high-intensity land use, Wetland A has an associated buffer of 80 feet. Where the buffer of Wetland A intersects the existing retaining wall, pump station, mowed lawn, and gravel ROW of SW Cascade Avenue, it is functionally isolated. The remaining buffer within the study area consists of dense Himalayan blackberry with interspersed areas of grasses and forbs. Critical areas associated with the project study area are summarized in Table 2 below.

Table 2. Summary of Wetlands and Waterbodies Associated with Project Study Areas

Wetlands						
Wetland	Cowardin Class¹	HGM Classification¹	Rating	Habitat Functions Score	Land use Intensity²	Buffer (ft.)³
A	EM/SS	Depressional	III	4	High	80

Waterbodies		
Waterbody	Stream Type ⁴	Riparian Buffer (ft.) ⁵
Columbia River	Type S (Shoreline of the State)	150

¹ Hruby 2014

² SMC Table 18.13.100-2

³ SMC Table 18.13.100-1

⁴ WAC 222-16-030

⁵ SMC Table 18.13.095-1

Functionally Isolated Buffers

In accordance with SMC 18.13.100(D)(5)(a) and 18.13.095(D)(3), portions of the 150-foot riparian buffer of the Columbia River and the 80-foot buffer of Wetland A are fully or partially functionally isolated where they intersect existing impervious surfaces and, therefore, don't extend into the proposed work areas along the Kanaka and Cascade Avenue Pump Station study areas. The following is the applicable SMC citation addressing functionally isolated buffers in italics, followed by a response from ELS:

18.13.100 (D)(5)(a) lawns, walkways, driveways, other mowed or paved areas, and areas which are functionally separated from a wetland and do not protect the wetland from adverse impacts due to pre-existing roads, structures, or vertical separation, shall be excluded from buffers otherwise required by this Chapter.

- An existing gravel parking area and retaining wall, sparsely vegetated gravel ROW of SW Cascade Avenue, mowed lawn to the east, and the existing Cascade Avenue pump station are pre-existing structures/conditions that serve to functionally isolate the 80-foot buffer of Wetland A from the majority of the proposed Cascade Avenue Pump Station construction areas. However, due to utility constraints, the updated pump station design will require a small retaining wall to be constructed within the functional portion of the buffer of Wetland A. Buffer impacts and mitigation are outlined in the "Onsite Wetland Buffer Enhancement" section of this report.

18.13.095(D)(3) Functionally Isolated Buffers. Lawns, walkways, driveways, other mowed or paved areas, and areas which are functionally separated from a FWHCA and do not protect the FWHCA from adverse impacts due to pre-existing roads, structures, or vertical separation, shall be excluded from buffers otherwise required by this Chapter.

- To the east of the proposed Kanaka Pump Station work area, the 150-foot riparian buffer of the Columbia River is functionally isolated by an existing paved pathway, transformer, and mowed/maintained lawn area. No portion of the functional riparian buffer will be impacted by the project as all work will occur west of, or within, functionally isolating features. This includes the area immediately west of the existing transformer, that consists

of mowed lawn and will be temporarily trenched for the connection of upgraded electrical lines to the transformer (Figure 2, Photoplate 2). In accordance with the SMP Chapter 6.4.1, all bare areas within the functionally isolated mowed lawn will be re-seeded at a 1:1 ratio with a native upland seed mix following construction.

If existing developments cause the width of the remaining buffer to be less than 50% of the base buffer, both of the following conditions shall apply:

a. If the reduced buffer exists in a degraded condition, the reduced buffer shall be enhanced in accordance with 18.13.095(D)(5) unless the area in question is utilized for activities consistent with water dependent uses.

- The existing reduced riparian buffer east of the Kanaka pump station consists of scattered native mature trees, shrubs, and herbaceous species and a naturally unvegetated rock slope and beach area. The area of the reduced buffer is utilized as a water dependent recreational area and therefore no enhancement is proposed.

b. The buffer cannot be further reduced through averaging or on-site mitigation.

- There is no further buffer reduction or averaging proposed in associated with the project.

WETLAND BUFFER ENHANCEMENT PLAN

Avoidance and Minimization

The preferred mitigation sequencing of first avoidance, then minimization, and finally compensation for unavoidable critical areas impacts was taken into consideration for the project. The following measures were utilized to avoid and minimize impacts to the extent possible within the updated Kanaka and Cascade Avenue Pump Station study areas:

- All project work for the Kanaka Pump Station upgrades will occur west of, or within, the impervious surface footprint of the existing pump station, surrounding outbuildings, paved pathway, and mowed lawn that serve to functionally isolate the riparian buffer. All riparian buffer impacts adjacent to the Columbia River have been avoided for the project.
- Construction access for both the Kanaka and Cascade Avenue Pump Station upgrades will be provided by existing roads, paved pathways, or other impervious areas to avoid any critical areas impacts.
- Impacts to Wetland A, adjacent to the Cascade Avenue Pump Station, have been fully avoided by constructing nearly all project components within the existing pump station footprint, gravel ROW, and outer portion of Wetland A's buffer.
- Options were assessed for completely avoiding impacts to Wetland A's buffer; however, due to multiple site constraints, it was determined that buffer averaging and reduction were not feasible.
- Impacts to the buffer of Wetland A were minimized to the extent possible by constructing nearly all project components in the existing pump station footprint and gravel ROW. The only component of the project located within the buffer of Wetland A is an a 68-square-foot retaining wall.

- Impacts from the proposed retaining wall have been minimized by constructing the smallest wall possible given topographical and utility restraints and locating it in a low-functioning portion of Wetland A's buffer that is steeply sloped and overrun with invasive Himalayan blackberry.

Unavoidable Wetland Buffer Impacts

The proposed retaining wall associated with the Cascade Avenue Pump Station upgrades will cause approximately 68 square feet of permanent impacts to the outer portion of Wetland A's buffer (Figure 3). Table 3 below summarizes the impacts resulting from the project.

Table 3. Summary of Critical Areas Impacts

Impact Area	Impact Type	Impact Quantity (sq. ft.)
Wetland Buffer	Permanent	68 sq. ft.
	Total	68 sq. ft.

Onsite Buffer Mitigation

The mitigation measures in this plan are designed to replace functions lost within the 68 square feet of Wetland A's buffer that will be permanently impacted for the Cascade Avenue Pump Station project. The portion of the buffer to be impacted is adjacent to the existing pump station features and gravel ROW, and is comprised almost entirely of non-native, invasive Himalayan blackberry (Figure 3, Photoplate 1). In accordance with SMC Table 18.13.100-4, the mitigation ratio for impacts to wetland buffer is 1:1. To provide an adequate increase in buffer function, mitigation will occur through enhancement of the remaining buffer at a 1:1 ratio (68 square feet), with an additional 68 square feet (136 square feet total) of invasive vegetation control, for a total mitigation ratio of 2:1. Buffer enhancement will consist of removing invasive species, seeding bare areas with a native seed mix and planting native shrubs adjacent to the proposed retaining wall, within the public ROW. Proposed plant species and specifications are detailed further in the "Planting Specifications" section of this report (Figure 4).

Native plantings and invasive species control in the existing buffer will allow for a net increase in water quality and habitat functions, which are currently minimal due to the dense cover of Himalayan blackberry. Controlling invasive species in the 68-square-foot area adjacent to the planting area will ensure that native species can establish during the five-year maintenance and monitoring period to naturally out-compete Himalayan blackberry once maintenance obligations have been completed. Functions provided by the proposed buffer enhancement include increased soil stabilization, runoff and pollutant filtration, increased habitat opportunities through diversified vegetation strata and screening from the adjacent road and land uses.

Goals, Objectives, and Performance Standards

The goal of this enhancement plan is to mitigate for 68 square feet of wetland buffer impacts by increasing the ecological functions of the remaining wetland buffer adjacent to the proposed Cascade Avenue Pump Station. The following objectives and performance standards are appropriate to ensure the overall success of onsite enhancement.

Objective 1. Enhance 68 square feet of the onsite wetland buffer through native vegetation planting to increase buffer functions by improving vegetative structure and habitat interspersions.

- *Performance Standard 1a.* Install plants as specified in Table 5 *Plant Specifications for Buffer Enhancement Area*. Document plant locations and include photo documentation of post-installation conditions in an as-built report submitted within 60-days of installation.
- *Performance Standard 1b.* Native shrubs in the buffer enhancement area will achieve at least 100 percent survival in Year 1. If dead plants are replaced, this performance standard will be met.
- *Performance Standard 1c.* Native shrubs in the buffer enhancement area will achieve at least 90 percent survival in Year 2.
- *Performance Standard 1d.* Native shrubs in the buffer enhancement area will achieve at least 80 percent survival in Year 3 and for the remainder of monitoring through Year 5.

Objective 2. Maintain minimal cover by non-native, invasive vegetation species.

- *Performance Standard 2a.* During all monitoring years, invasive plant species, specifically Himalayan blackberry, will not exceed 20 percent aerial cover in the 136-square-foot buffer enhancement area. Performance standards are summarized in Table 4 below.

Objective 3. Protect the onsite critical areas buffers from human and pet intrusion.

- *Performance Standard 3a.* Install durable plastic or metal signs along the portions of the wetland and riparian buffers adjacent to the pump station project areas at a rate of one per every 50 feet, stating “*Protected Area. Do Not Disturb. Contact the City of Stevenson Regarding Uses, Restrictions, and Opportunities for Stewardship*” or similar approved wording. Signs will remain intact and legible for the duration of monitoring. Documentation of signage will be submitted with the As-built Report.
- *Performance Standard 3b.* Install logs along the length of the final onsite wetland and riparian buffers within the pump station project areas to provide permanent demarcation. This performance standard will be achieved when logs are documented in the As-built Report.

Table 4. Performance Standards for Vegetation by Monitored Year

Percent Survival and Cover				
	Year 1	Year 2	Year 3	Year 5
Shrub Strata				
Survival	≥100%	≥90%	≥80%	≥80%
Invasive Plants				
Non-native, invasive cover	<20%	<20%	<20%	<20%

RESPONSIBLE PARTIES

The Applicant or its successors or assigns will be responsible for implementing this buffer enhancement plan, which includes controlling invasive plant species and planting native shrubs within the buffer enhancement area. Neither the Applicant nor any successor or assign shall be responsible for, or be required to mitigate, the effects of acts of nature that damage or kill shrubs, including fungal disease, windthrow, or ice storms. The Applicant (or its successors and assigns) also will conduct the prescribed maintenance and monitoring during the 5-year monitoring period, or longer if warranted by contingency actions.

IMPLEMENTATION PLAN

Planting Schedule and Equipment

Native plants will be installed within the enhancement area no later than one year after vegetation removal and during the late winter when the plants are dormant, and the soil moisture conditions are favorable for planting. To create habitat diversity in the small planting area, the proposed shrub species will be planted at four-foot on center spacing. Seed mix will be applied to bare areas and where invasive species have been removed as needed. The following equipment may be used to prepare and install plants within the enhancement area; weed eater, garden shovel, and power auger. Table 5 contains plant specifications for the enhancement area.

Table 5. Plant Specifications for Buffer Enhancement Planting Area (68 sq. ft.)

Species	Spacing (ft. on center)	Stock	Quantity
Scouler's willow (<i>Salix scouleriana</i>)	4	1 Gallon	2
Red-osier dogwood (<i>Cornus sericea</i>)	4	1 Gallon	4
Total			6

Table 6. Native Upland Seed Mix for Buffer Enhancement Area (136 sq. ft.)

Species	Composition (%)	Spacing	Quantity
Native red fescue (<i>Festuca rubra</i>)	50	1 lb/1,000 sq. ft.	0.14 lbs. per 136 sq. ft. planting/invasive removal enhancement area
California brome (<i>Bromus carinatus</i>)	20		
Blue wildrye (<i>Elymus glaucus</i>)	20		
Large leaf lupine (<i>Lupinus polyphyllus</i> ,)	10		

SPECIFICATIONS FOR SITE PREPARATION, PLANTING, AND MAINTENANCE

Site Preparation

- Manually and/or chemically remove (spraying with herbicide) any existing invasive species within the buffer enhancement area.
- Where applicable, clear small amount of existing herbaceous vegetation in planting area by scarifying vegetation by hand or spraying herbicide within a one-foot diameter circle around the planting area.

Planting Specifications

- Plant the native shrubs during the late winter to early spring in bare areas within the buffer enhancement area.
- All plant materials will be kept cool and moist prior to installation.
- No damaged or diseased plants will be accepted.
- All plant materials will have well developed roots and sturdy stems, with an appropriate root to shoot ratio.
- Dig the receiving hole several inches wider than the size of the root system.
- Position the planted species' root collar so that they are at or slightly above the level of the surrounding soil to allow for settling.
- Back fill the hole with soil.
- Gently compact the soil around the planted species to eliminate air spaces.
- Install mulch around the base of the installed plants.
- Install tree cones as needed during installation and throughout monitoring period.
- Irrigate all newly installed plants as site and weather conditions warrant.

Seeding Specifications

- A native seed mix (Table 6) will be broadcast seeded in accordance with the specifications in the table at a rate recommended by the manufacturer to provide additional cover for bare areas and where invasive vegetation has been removed.

Maintenance

The planted shrubs will be maintained as often as necessary to ensure that the specific performance standards are met (Table 4). The maintenance includes the following:

- Inspect the plantings at least once annually and maintain to achieve the performance standards specified in the subsection titled “Goals, Objectives, and Performance Standards.”
- Irrigate planted shrubs during the dry season for the first two to three years after planting, as needed.
- Remove competing vegetation from around the base of plant species during the first two to three years after planting.
- Control invasive species cover through herbicide application and/or hand removal.
- Replace mulch as needed to suppress competing vegetation.
- Replace dead or failed plants to meet the minimum annual performance standards (Table 4).
- Replaced plants will be installed as described for the original installation.

Minor corrective actions will be undertaken as necessary as a part of routine maintenance and will be documented in the subsequent monitoring report.

Corrective actions include, but are not limited to, the following:

- Replant shrubs.
- Implement a fertilizing schedule.
- Repair damaged limbs or prune dead branches.

MONITORING PLAN

This buffer enhancement plan establishes a 5-year monitoring period with quantitative performance standards. Monitoring will commence the first growing season after the buffer enhancement area is installed, and will be reported on in Years 1, 2, 3, and 5. The goal of the monitoring will be to determine if the previously stated performance standards are being met (Table 4). Reports in Years 1, 2, 3, and 5 will be submitted to the City of Stevenson by December 31 of each monitored year. The as-built report will include figures depicting the plant and signage installation areas.

MONITORING METHODS

During the monitoring events, plant counts in Years 1, 2, 3, and 5 will be conducted within the buffer enhancement area. Permanent photo points will be established within the buffer enhancement area and directions will be documented on the as-built map. Pictures from the photo

points will be taken from the same location and direction during each monitoring event and will be included in the monitoring report. Percent cover of non-native invasive species will be visually estimated throughout the buffer enhancement area.

Vegetation Monitoring

To assess the status of the vegetation within the buffer enhancement area, the vegetation monitoring will measure the following:

- Determine survival for planted shrubs using annual plant counts.
- General health of plants in the buffer enhancement area, noting specific problems and potential causes.
- Cover of non-native invasive species within the buffer enhancement area.
- General notes and suggested maintenance efforts from the monitoring biologist.
- Photographic documentation of vegetative changes over time from photo points.

MONITORING REPORT

The annual monitoring reports will contain at least the following:

- Location map and as-built figure and revised plant quantity table as needed,
- Historic description of project, including dates of plant installation, current year of monitoring, and restatement of performance standards,
- Description of monitoring methods,
- Documentation of plant survival and overall development within the buffer enhancement area,
- Assessment of non-native, invasive plant species and recommendations for continued management,
- Assessment of surrounding land use, use by humans, and use by wild and domestic animals,
- Observations of birds and any other observed animal activity onsite,
- Photographs from permanent photo points, and
- Summary of maintenance and contingency measures proposed for the next season and completed for the past season.

ADAPTIVE MANAGEMENT PLAN

If the performance standards are not met by Year 3 of monitoring, or at an earlier time if necessary, an adaptive management plan will be developed and implemented. All adaptive management actions will be undertaken only after consulting and gaining approval from the City of Stevenson. The Applicant (or Successor as assigned) will complete an adaptive management plan that describes 1) the need for adaptive management, 2) proposed actions, 3) timeframe for completing actions, and 4) any additional maintenance and monitoring, if necessary.

LIMITATIONS

ELS bases this report's determinations on standard scientific methodology and best professional judgment. In our opinion, local, state, and federal regulatory agencies should agree with our

determinations. However, the information contained in this report should be considered preliminary and used at your own risk until it has been approved in writing by the appropriate regulatory agencies. ELS is not responsible for the impacts of any changes in environmental standards, practices, or regulations after the date of this report.

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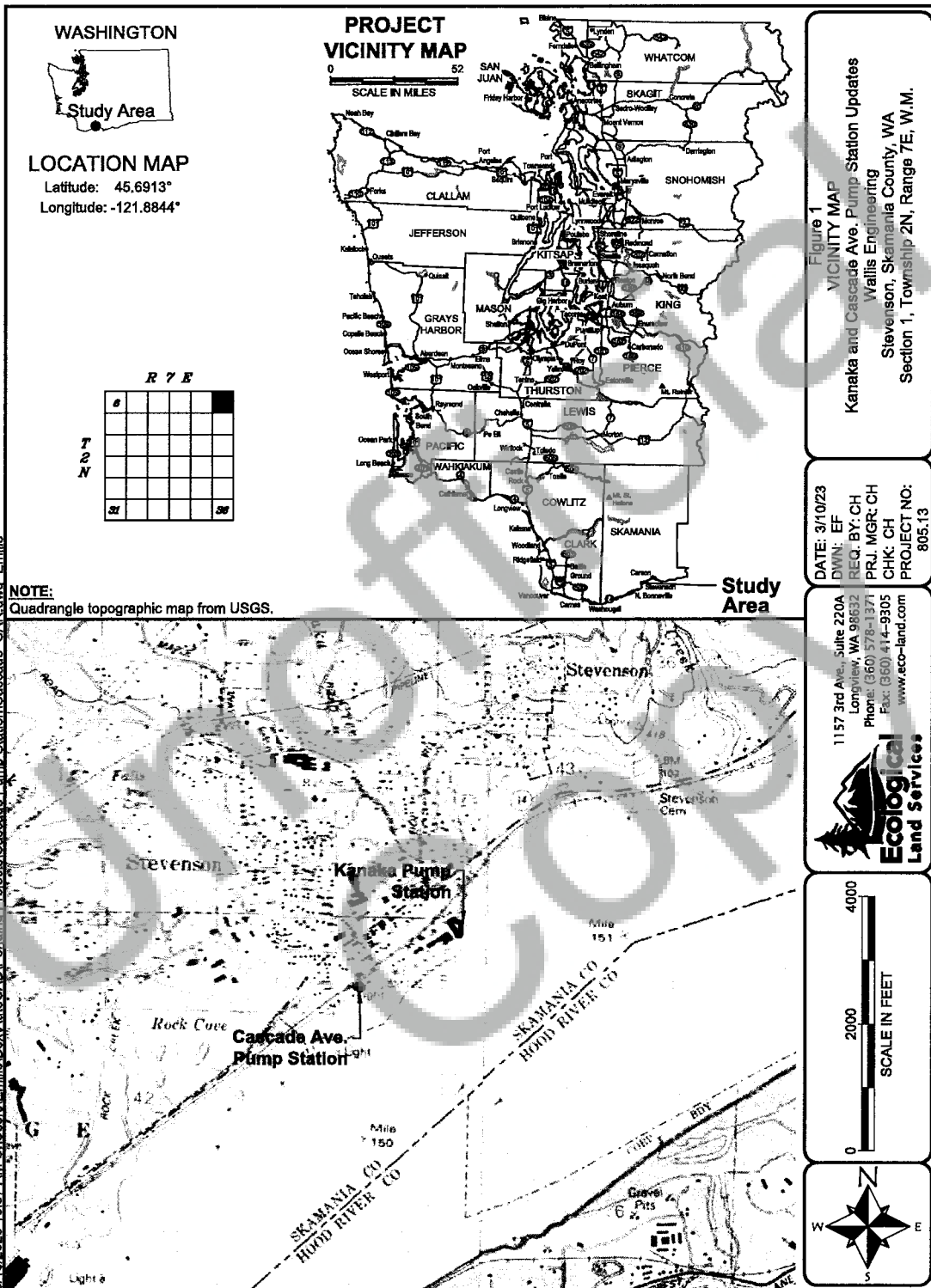
REFERENCES

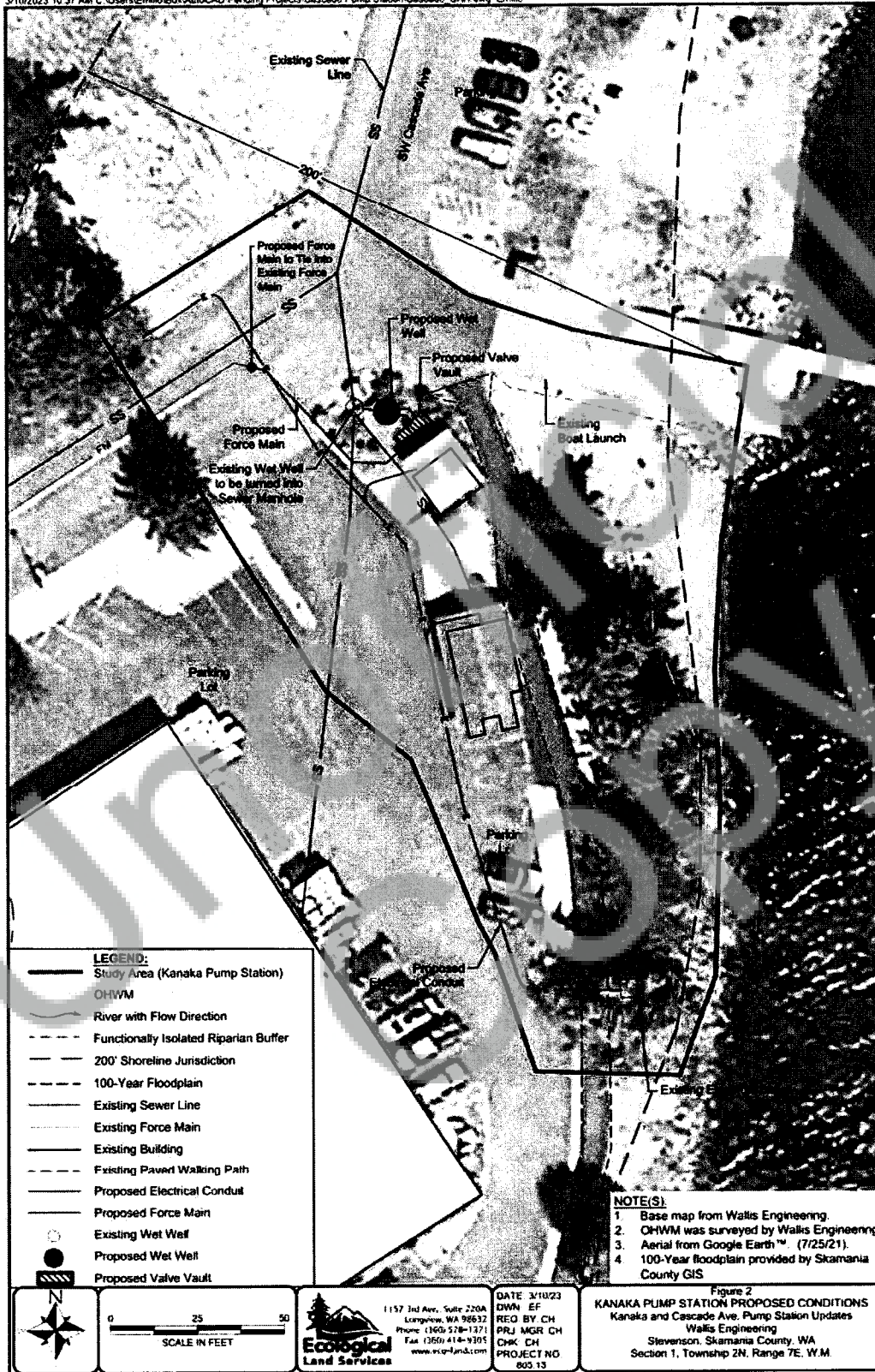
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FIGURES AND PHOTOPLATES

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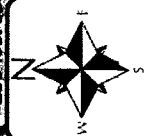
3/10/2023 10:37 AM C:\Users\Emilio\Box\AutoCAD\Projects\Cascade Pump Station\Cascade_CAR.dwg Emilio





	Study Area (Cascade Ave. Pump Station)
	Parcel Boundary
	Wetland
	Approx. Wetland Boundary
	Test Plot
	Functionally Isolated Wetland Buffer
	200' Shoreline Jurisdiction
	Existing Sewer Line
	Existing Force Main
	Existing Building
	Existing Gravel
	Existing Pump Station to be Removed
	Proposed Force Main
	Existing Wet Well
	Proposed Valve Vault
	Proposed Retaining Wall
	Proposed Wetland Buffer Impact (0.002 ac./68 sq. ft.)
	Wetland Buffer Enhancement Area (0.002 ac./68 sq. ft.)
	Invasive Removal Area (0.002 ac./68 sq. ft.)

1. Backmap from 7000 ft. (3000 m).
2. Walrus (walrus) (Walrus).
3. Walrus (walrus) (Walrus).
4. Snowing (snowing) (Snowing).



20 40
SCALE IN FEET



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Longview, WA 98632
Phone: (360) 578-1371
Fax: (360) 414-9305
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DATE: 3/10/23
DWN: EF
REQ. BY: CH
PRJ. MGR: CH
CHK: CH
PROJECT NO:
805.13

CASCADE AVE. PUMP STATION PROPOSED CONDITIONS
kanaka and Cascade Ave. Pump Station Updates
 Wallis Engineering
 Stevenson, Skamania County, WA
 Section 1, Township 2N, Range 7E, W.M.



Figure 4
CASCADE AVE. PUMP STATION
Kauka and Cascade Ave. Pump Station Updates
Snohomish, Snohomish County, WA
Section 1, Township 2N, Range 7E, W14

Land Services
1137 3rd Ave., Suite 220A
Longview, WA 98652
REG BY CH
REQ MGR CH
DATE 3/10/23
PROJECT NO. 1501-114-1305
CHK CH
805 13

0 10 20
SCALE IN FEET

- LEGEND:**
- Study Area (Cascade Ave. Pump Station)
 - Parcel Boundary
 - Welland
 - Approx. Welland Boundary
 - Functionally Isolated Welland Buffer
 - 200' Shoreline Jurisdiction
 - Existing Sewer Line
 - Existing Force Main
 - Existing Building
 - Existing Gravel
 - Existing Pump Station to be Removed
 - Proposed Force Main
 - Existing Wet Well
 - Proposed Valve Vault
 - Proposed Retaining Wall
 - Proposed Welland Buffer Impact (0.002 ac/68 sq. ft.)
 - Welland Buffer Planting Area (0.002 ac/68 sq. ft.)
 - Invasive Removal Area (0.002 ac/68 sq. ft.)

NOTES:

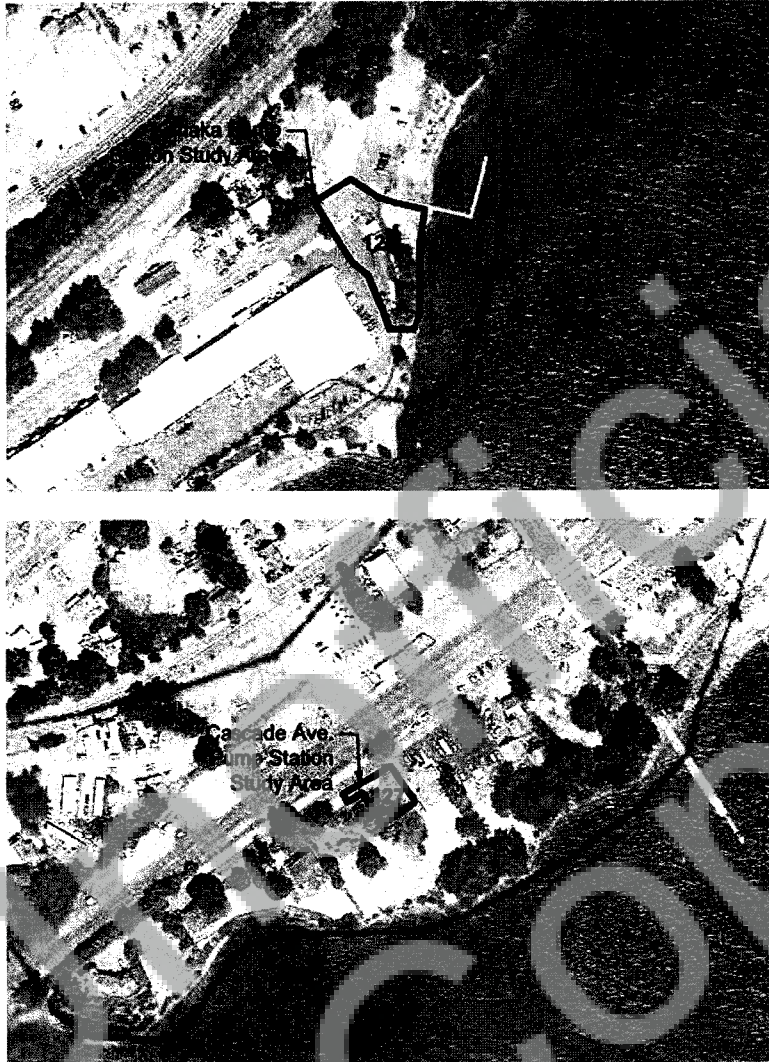
- Base map from Wallis Engineering
- Welland was surveyed by Wallis Engineering
- Aerial from Google Earth™ (7/25/21)
- Shoreline jurisdiction extends from the 80' elevation line along the Columbia River, approximately 250-feet south of the project work area
- Plants are not to scale and locations are approximate as shown. Actual planting locations will be determined in the field, with consideration to the listed spacing and density to produce the most natural appearance possible

Table 3. Plant Specifications for Buffer Enhancement Planting Area (68 sq. ft.)

Species	Spacing (ft. on center)	Stem	Quantity
Norfolk Island (Sax. confertiflora)	4	1 (tall)	2
Redwood (Sequoia sempervirens)	4	1 (tall)	4
Total			6

Table 4. Native Plant Seed Mix

Species	Composition (%)	Spacing	Quantity
Norfolk Island (Sax. confertiflora)	50		11.4 lbs. per 150 sq. ft. planting area
California laurel (Ulmus californicus)	20	1 lb. (100) sq. ft.	11.4 lbs. per 150 sq. ft. planting area
Blue wildflower (Lupinus albus)	20		11.4 lbs. per 150 sq. ft. planting area
Large leaf lupine (Lupinus polyphollos)	10		11.4 lbs. per 150 sq. ft. planting area

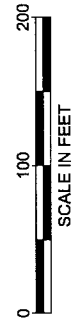
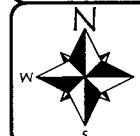


LEGEND:

- 127** Stevenson loam, 2 to 15 percent slopes. Not hydric.
128 Stevenson loam, 15 to 30 percent slopes. Not hydric.

NOTE(S):

1. Map provided online by NRCS at web address:
<https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey>







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Figure 5
NRCS SOIL SURVEY
Kanaka and Cascade Ave. Pump Station Updates
Wallis Engineering
Stevenson, Skamania County, WA
Section 1, Township 2N, Range 7E, W.M.



LEGEND:

-  Study Area
-  Wetlands
-  Lake
-  Riverine

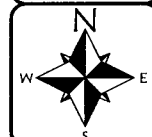
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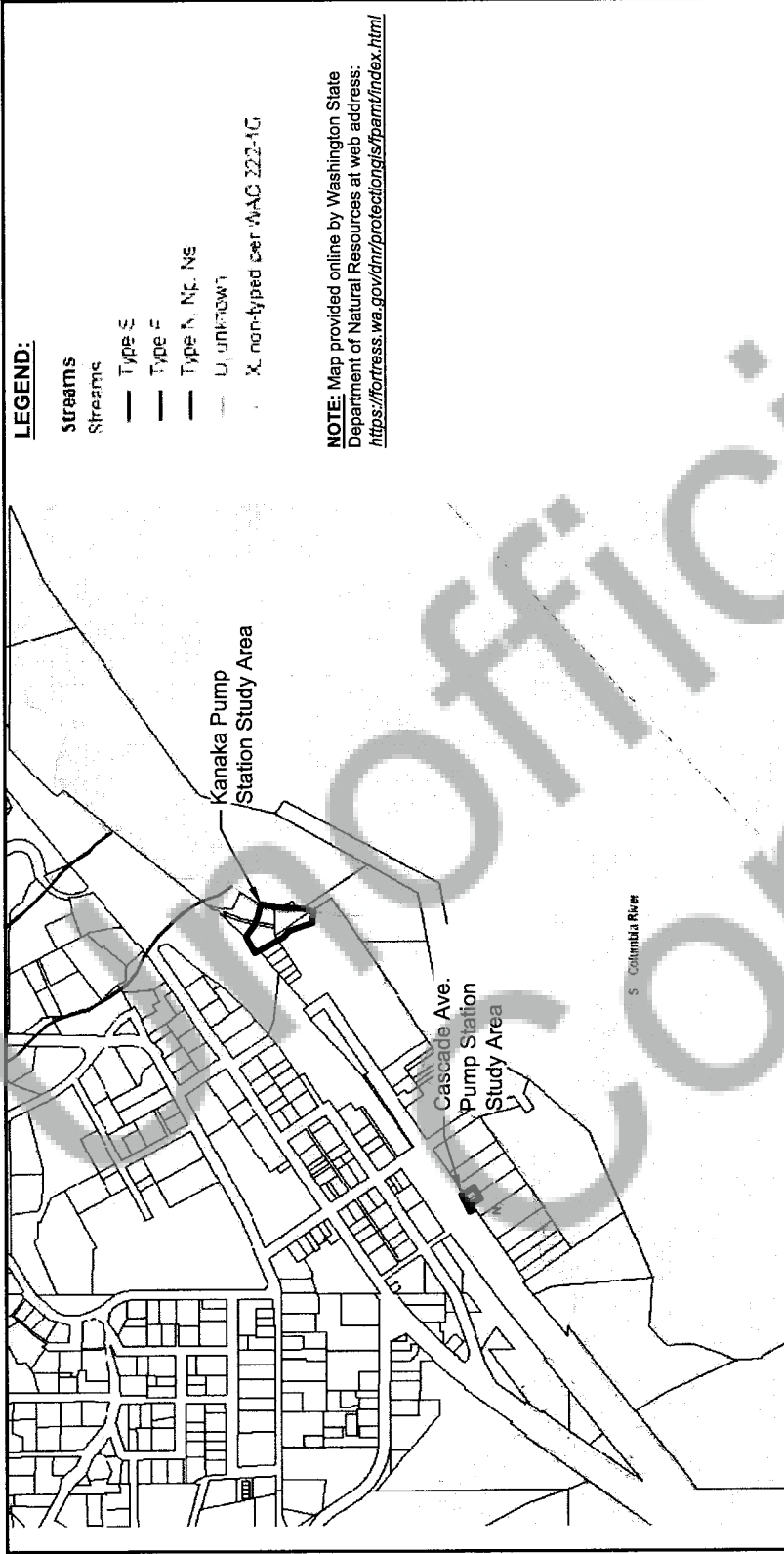
1. Map provided online by US Fish & Wildlife Service at web address:
<https://www.fws.gov/wetlands/data/Mapper.html>

Figure 6
USFWS NATIONAL WETLANDS INVENTORY
Kanaka and Cascade Ave. Pump Station Updates
Wallis Engineering
Sleeverson, Skamania County, WA
Section 1, Township 2N, Range 7E, W.M.

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PRJ. MGR: CH
C-1K: CH
PROJECT NO: 805.13

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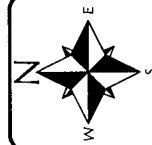
LEGEND:

Streams

- Stream
- Type S
- Type F
- Type N, Np, Ns
- U, unknown
- X non-typed per WAC 222-16

NOTE: Map provided online by Washington State Department of Natural Resources at web address: <https://fortress.wa.gov/dnr/protection/gis/fpam/index.html>

Mapped streams indicated onsite by the Washington State Department of Natural Resources (DNR).



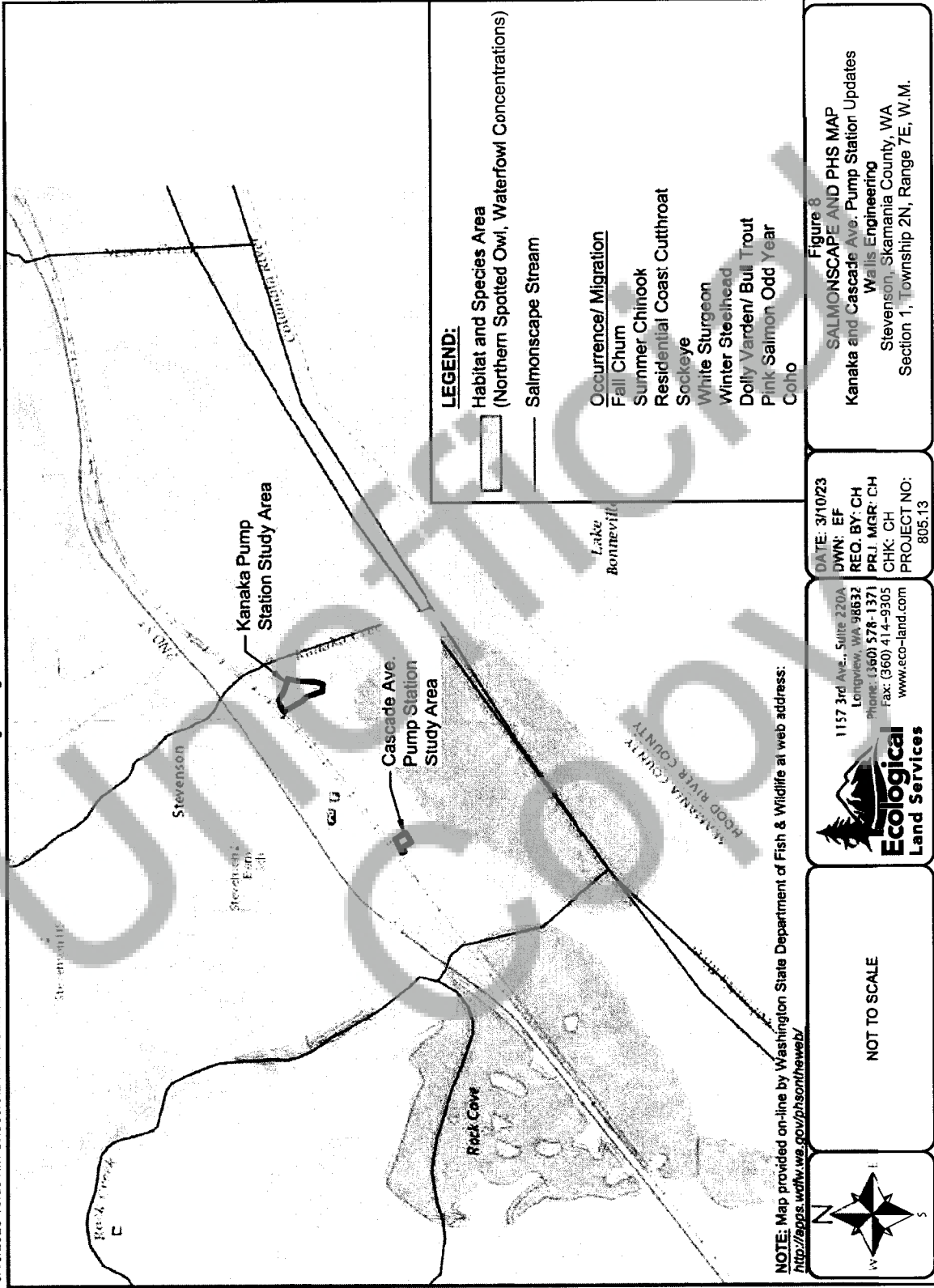
NOT TO SCALE



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DATE: 3/10/23
DWN: EF
REQ. BY: CH
PRJ. MGR: CH
CHK: CH
PROJECT NO: 805.13

Figure 7
DNR WATER TYPED MAP
Kanaka and Cascade Ave. Pump Station Updates
Wallis Engineering
Stevenson, Skamania County, WA
Section 1, Township 2N, Range 7E, W.M.



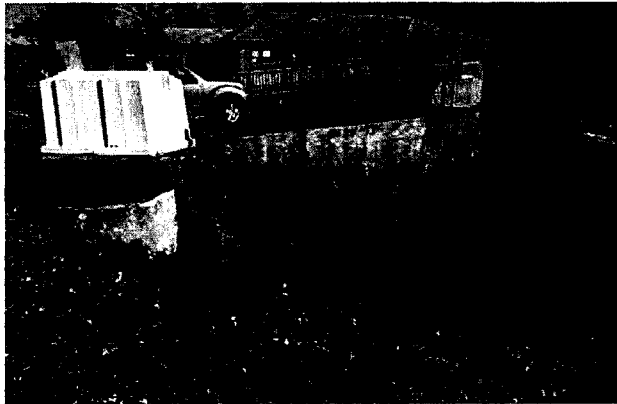


Photo 1 Faces southeast towards the existing Cascade Avenue pump station and proposed work area. A proposed retaining wall will impact approx. 68 square feet of wetland buffer that is currently comprised of Himalayan blackberry. Photo taken in February 2023.



Photo 2 Depicts the study area facing northwest. The existing pump station is in the right of the photo. Work will occur in the sloped ROW of Cascade Avenue that currently consists of a gravel embankment that is being overrun by Himalayan blackberry. Photo taken in February 2023.



Photo 3 Was taken east of the existing pump station, facing west, towards the sparsely vegetated/mowed ROW. The existing pump station is visible in the left of the frame. Photo taken in August 2020.



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Photoplate 1
Site Photos
Wallis Engineering
Kanaka and Cascade Ave. Pump Station Updates
Stevenson, Washington



Photo 4 Faces southwest, towards the existing Kanaka pump station and associated outbuildings. The paved recreational path that extends to the southern portion of the study area can be seen in the left of the frame. Photo taken in August 2020.



Photo 5 Depicts the paved recreational pathway and mowed lawn area that serve to functionally isolate the riparian buffer of the Columbia River to the east. To the right of the frame is the existing transformer that upgraded electrical lines will tie into, extending from the parking area to the west. No riparian buffer impacts are proposed and all bare areas within the mowed lawn will be re-seeded following construction. Photo taken February 2023.



Photo 6 Was taken just to the southeast of the existing pump station and work area, facing south down the paved pathway, towards the existing transformer. Photo taken February 2023.



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**Photoplate 2
Site Photos**

Wallis Engineering
Kanaka and Cascade Ave. Pump Station Updates
Stevenson, Washington

APPENDIX A: WETLAND DETERMINATION DATA FORMS

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

Project/Site: Stevenson WWTP City/County: Stevenson/Skamania Sampling Date: 10.26.20
 Applicant/Owner: Wallis Engineering State: WA Sampling Point: TP-1
 Investigator(s): Huffman, C. and McGraw, M. Section, Township, Range: S01 T2N R7E
 Landform (hillside, terrace, etc.): Terrace Local relief (concave, convex, none): Convex Slope (%): 2-15
 Subregion (LRR): LRR A Lat: 45.6913 Long: -122.8839 Datum: NAD83
 Soil Map Unit Name: Stevenson loam 2 to 15 percent slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>	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: TP-1 was located to the east of Wetland A, upslope. None of the three wetland parameters were met.	

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u> </u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33.3%</u> (A/B)
1.					
2.					
3.					
4.					
		=Total Cover			Prevalence Index worksheet: Total % Cover of: 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>
Sapling/Shrub Stratum	(Plot size: <u> </u>)				
1.					
2.					
3.					
4.					
5.					
		=Total Cover			
Herb Stratum	(Plot size: <u> </u>)				Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Agrostis capillaris</u>		50	Yes	FAC	
2. <u>Hypochaeris radicata</u>		20	Yes	FACU	
3. <u>Daucus carota</u>		20	Yes	FACU	
4. <u>Lathyrus latifolius</u>		10	No	UPL	
5.					
6.					
7.					
8.					
9.					
10.					
11.					
		100 =Total Cover			
Woody Vine Stratum	(Plot size: <u> </u>)				Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>
1.					
2.					
		=Total Cover			
% Bare Ground in Herb Stratum <u>0</u>					
Remarks: Vegetation does not pass the dominance test as less than 50% of the dominant vegetation is classed FAC or wetter.					

Sampling Point: TP-1

HYDROLOGY

US Army Corps of Engineers

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

Project/Site: Stevenson WWTP City/County: Stevenson/Skamania Sampling Date: 10.26.20
 Applicant/Owner: Wallis Engineering State: WA Sampling Point: TP-2
 Investigator(s): Huffman, C. and McGraw, M. Section, Township, Range: S01 T2N R7E
 Landform (hillside, terrace, etc.): Terrace Local relief (concave, convex, none): Convex Slope (%): 2-15
 Subregion (LRR): LRR A Lat: 45.6913 Long: -122.8839 Datum: NAD83
 Soil Map Unit Name: Stevenson loam 2 to 15 percent slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>	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: TP-2 was located in the northeast portion of Wetland A, just south of the existing Cascade Avenue pump station facility. All three wetland parameters were met.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u> </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>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
1. <u> </u>				
2. <u> </u>				
3. <u> </u>				
4. <u> </u>				
<u> </u> = Total Cover				Prevalence Index worksheet: Total % Cover of: 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>
Sapling/Shrub Stratum (Plot size: <u> </u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u> </u>				
2. <u> </u>				
3. <u> </u>				
4. <u> </u>				
5. <u> </u>				
<u> </u> = 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.
Herb Stratum (Plot size: <u> </u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Typha latifolia</u>	90	Yes	OBL	
2. <u>Lathyrus latifolius</u>	10	No	UPL	
3. <u> </u>				
4. <u> </u>				
5. <u> </u>				
6. <u> </u>				
7. <u> </u>				
8. <u> </u>				
9. <u> </u>				
10. <u> </u>				
11. <u> </u>				
<u>100</u> = Total Cover				Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
Woody Vine Stratum (Plot size: <u> </u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u> </u>				
2. <u> </u>				
<u> </u> = Total Cover				
% Bare Ground in Herb Stratum <u>0</u>				
Remarks: Vegetation meets the dominance test as greater than 50% of the dominant vegetation is classed FAC or wetter.				

Sampling Point: TP-2

HYDROLOGY

Wetland Hydrology Indicators:US Army Corps of Engineers

APPENDIX B: WETLAND RATING FORMS FOR WESTERN WA

Unofficial
Copy

Wetland name or number A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A Date of site visit: 8.18.20

Rated by C. Huffman Trained by Ecology? Yes Date of training 03.21.19

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

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

Source of base aerial photo/map Google Earth

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	
<i>Circle the appropriate ratings</i>				
Site Potential	H <u>M</u> L	H M <u>L</u>	H M <u>L</u>	
Landscape Potential	H <u>M</u> L	<u>H</u> M L	H M <u>L</u>	
Value	<u>H</u> M L	H <u>M</u> L	H <u>M</u> L	TOTAL
Score Based on Ratings	7	6	4	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	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	<u>N/A</u>

Wetland name or number **A**

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	9
Hydroperiods	D 1.4, H 1.2	9
Location of outlet <i>(can be added to map of hydroperiods)</i>	D 1.1, D 4.1	9
Boundary of area within 150 ft of the wetland <i>(can be added to another figure)</i>	D 2.2, D 5.2	9
Map of the contributing basin	D 4.3, D 5.3	10
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	10
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	11
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	11

Riverine Wetlands

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

Lake Fringe Wetlands

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

Slope Wetlands

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

Wetland name or number A

HGM Classification of Wetlands in Western Washington

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

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

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

☒ NO – go to 2

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

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

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

☐ YES – **Freshwater Tidal Fringe**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

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

☒ NO – go to 3

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

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

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

- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☒ NO – go to 4

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

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

- ☐ The wetland is on a slope (*slope can be very gradual*),
☐ The water flows through the wetland in one direction (*unidirectional*) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
☐ The water leaves the wetland **without being impounded**.

☒ NO – go to 5

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

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

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

- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
☐ The overbank flooding occurs at least once every 2 years.

Wetland name or number **A**

NO – go to 6

YES – The wetland class is **Riverine**

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

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

NO – go to 7

YES – The wetland class is **Depressional**

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

NO – go to 8

YES – The wetland class is **Depressional**

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

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

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

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


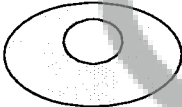

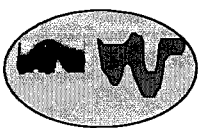
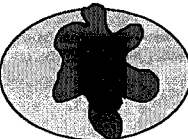

Wetland name or number **A**

DEPRESSIONAL AND FLATS WETLANDS		
Water Quality Functions - Indicators that the site functions to improve water quality		
D 1.0. Does the site have the potential to improve water quality?		
D 1.1. <u>Characteristics of surface water outflows from the wetland:</u> Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	1	
D 1.2. <u>The soil 2 in below the surface (or duff layer)</u> is true clay or true organic (use NRCS definitions). Yes = 4 No = 0	0	
D 1.3. <u>Characteristics and distribution of persistent plants</u> (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > 1/2 of area points = 3 Wetland has persistent, ungrazed plants > 1/10 of area points = 1 Wetland has persistent, ungrazed plants < 1/10 of area points = 0	5	
D 1.4. <u>Characteristics of seasonal ponding or inundation:</u> <i>This is the area that is ponded for at least 2 months. See description in manual.</i> Area seasonally ponded is > 1/2 total area of wetland points = 4 Area seasonally ponded is > 1/4 total area of wetland points = 2 Area seasonally ponded is < 1/4 total area of wetland points = 0	2	
Total for D 1	Add the points in the boxes above	8
Rating of Site Potential If score is: <u>12-16 = H</u> <u>X 6-11 = M</u> <u>0-5 = L</u> Record the rating on the first page		
D 2.0. Does the landscape have the potential to support the water quality function of the site?		
D 2.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? Source	Yes = 1 No = 0	0
Total for D 2	Add the points in the boxes above	2
Rating of Landscape Potential If score is: <u>3 or 4 = H</u> <u>X 1 or 2 = M</u> <u>0 = L</u> Record the rating on the first page		
D 3.0. Is the water quality improvement provided by the site valuable to society?		
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	Yes = 1 No = 0	1
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?	Yes = 1 No = 0	1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (answer YES if there is a TMDL for the basin in which the unit is found)?	Yes = 2 No = 0	0
Total for D 3	Add the points in the boxes above	2
Rating of Value If score is: <u>X 2-4 = H</u> <u>1 = M</u> <u>0 = L</u> Record the rating on the first page		

Wetland name or number **A**

DEPRESSIONAL AND FLATS WETLANDS		
Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation		
D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression with no surface water leaving it (no outlet) points = 4 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet points = 2 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch points = 1 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 0		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 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 The wetland is a "headwater" wetland points = 3 Wetland is flat but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft (6 in) points = 0		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 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		0
Total for D 4		0
Add the points in the boxes above		
Rating of Site Potential If score is: <u>12-16</u> = H <u>6-11</u> = M <u>X 0-5</u> = L Record the rating on the first page		
D 5.0. Does the landscape have the potential to support hydrologic functions of the site?		
D 5.1. Does the wetland receive stormwater discharges? Yes = 1 No = 0		1
D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff? Yes = 1 No = 0		1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)? Yes = 1 No = 0		1
Total for D 5		3
Add the points in the boxes above		
Rating of Landscape Potential If score is: <u>X 3</u> = H <u>1 or 2</u> = M <u>0</u> = 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 • Surface flooding problems are in a sub-basin farther down-gradient. points = 1 Flooding from groundwater is an issue in the sub-basin. points = 1 The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why _____ points = 0 There are no problems with flooding downstream of the wetland. points = 0		1
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		1
Add the points in the boxes above		
Rating of Value If score is: <u>2-4</u> = H <u>X 1</u> = M <u>0</u> = L Record the rating on the first page		

Wetland name or number **A**

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
H 1.1. Structure of plant community: <i>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.</i> <input type="checkbox"/> Aquatic bed 4 structures or more: points = 4 <input checked="" type="checkbox"/> Emergent 3 structures: points = 2 <input checked="" type="checkbox"/> Scrub-shrub (areas where shrubs have > 30% cover) 2 structures: points = 1 <input type="checkbox"/> Forested (areas where trees have > 30% cover) 1 structure: points = 0 <i>If the unit has a Forested class, check if:</i> <input type="checkbox"/> The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	1
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (see text for descriptions of hydroperiods). <input type="checkbox"/> Permanently flooded or inundated 4 or more types present: points = 3 <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 checked="" type="checkbox"/> Saturated only 1 type present: points = 0 <input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland <input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland <input type="checkbox"/> Lake Fringe wetland 2 points <input type="checkbox"/> Freshwater tidal wetland 2 points	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft ² . <i>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</i> 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 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. <i>If you have four or more plant classes or three classes and open water, the rating is always high.</i> <div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  None = 0 points </div> <div style="text-align: center;">  Low = 1 point </div> <div style="text-align: center;">  Moderate = 2 points </div> </div> <div style="display: flex; justify-content: space-around; align-items: flex-end; margin-top: 20px;"> <div style="text-align: center;">  High = 3 points </div> <div style="text-align: center;">  High = 3 points </div> <div style="text-align: center;">  High = 3 points </div> </div> <p>All three diagrams in this row are HIGH = 3 points</p>	2

Wetland name or number **A**

<p>H 1.5. Special habitat features:</p> <p>Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i></p> <p><input type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).</p> <p><input type="checkbox"/> Standing snags (dbh > 4 in) within the wetland</p> <p><input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)</p> <p><input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>)</p> <p><input type="checkbox"/> At least 1/4 ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>)</p> <p><input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>)</p>	0
<p>Total for H 1</p> <p style="text-align: right;">Add the points in the boxes above</p>	4

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

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
<p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>).</p> <p>Calculate: % undisturbed habitat <u>0</u> + [(% moderate and low intensity land uses)/2] <u>0</u> = <u>0</u> %</p> <p>If total accessible habitat is:</p> <p>> 1/3 (33.3%) of 1 km Polygon points = 3</p> <p>20-33% of 1 km Polygon points = 2</p> <p>10-19% of 1 km Polygon points = 1</p> <p>< 10% of 1 km Polygon points = 0</p>	0
<p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.</p> <p>Calculate: % undisturbed habitat <u>8.2</u> + [(% moderate and low intensity land uses)/2] <u>5.4</u> = <u>13.6</u> %</p> <p>Undisturbed habitat > 50% of Polygon points = 3</p> <p>Undisturbed habitat 10-50% and in 1-3 patches points = 2</p> <p>Undisturbed habitat 10-50% and > 3 patches points = 1</p> <p>Undisturbed habitat < 10% of 1 km Polygon points = 0</p>	1
<p>H 2.3. Land use intensity in 1 km Polygon: If</p> <p>> 50% of 1 km Polygon is high intensity land use points = (- 2)</p> <p>≤ 50% of 1 km Polygon is high intensity points = 0</p>	-2
<p>Total for H 2</p> <p style="text-align: right;">Add the points in the boxes above</p>	-1

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

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

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

Wetland name or number A

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.

Wetland name or number **A**

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt Yes – Go to SC 1.1 No = Not an estuarine wetland	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? Yes = Category I No - Go to SC 1.2	Cat. I
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i> , 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 unmowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = Category I No = Category II	Cat. I Cat. II
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? 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 No = Not a WHCV SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf Yes – Contact WNHP/WDNR and go to SC 2.4 No = Not a 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 a WHCV	Cat. I
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <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? Yes – Go to SC 3.3 No – Go to SC 3.2 SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes – Go to SC 3.3 No = 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	Cat. I

Wetland name or number **A**

<p>SC 4.0. Forested Wetlands</p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i></p> <ul style="list-style-type: none"> — 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). <p>Yes = Category I No = Not a forested wetland for this section</p>	<p>Cat. I</p>
<p>SC 5.0. Wetlands in Coastal Lagoons</p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <ul style="list-style-type: none"> — 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 (<i>needs to be measured near the bottom</i>) <p>Yes – Go to SC 5.1 No = Not a wetland in a coastal lagoon</p> <p>SC 5.1. Does the wetland meet all of the following three conditions?</p> <ul style="list-style-type: none"> — 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 ¼ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland. — The wetland is larger than 1/10 ac (4350 ft²) <p>Yes = Category I No = Category II</p>	<p>Cat. I</p> <p>Cat. II</p>
<p>SC 6.0. Interdunal Wetlands</p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <ul style="list-style-type: none"> — 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 <p>Yes – Go to SC 6.1 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>Yes = Category I 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>Yes = Category II 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>Yes = Category III No = Category IV</p>	<p>Cat. I</p> <p>Cat. II</p> <p>Cat. III</p> <p>Cat. 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>	<p>N/A</p>

Wetland name or number Δ

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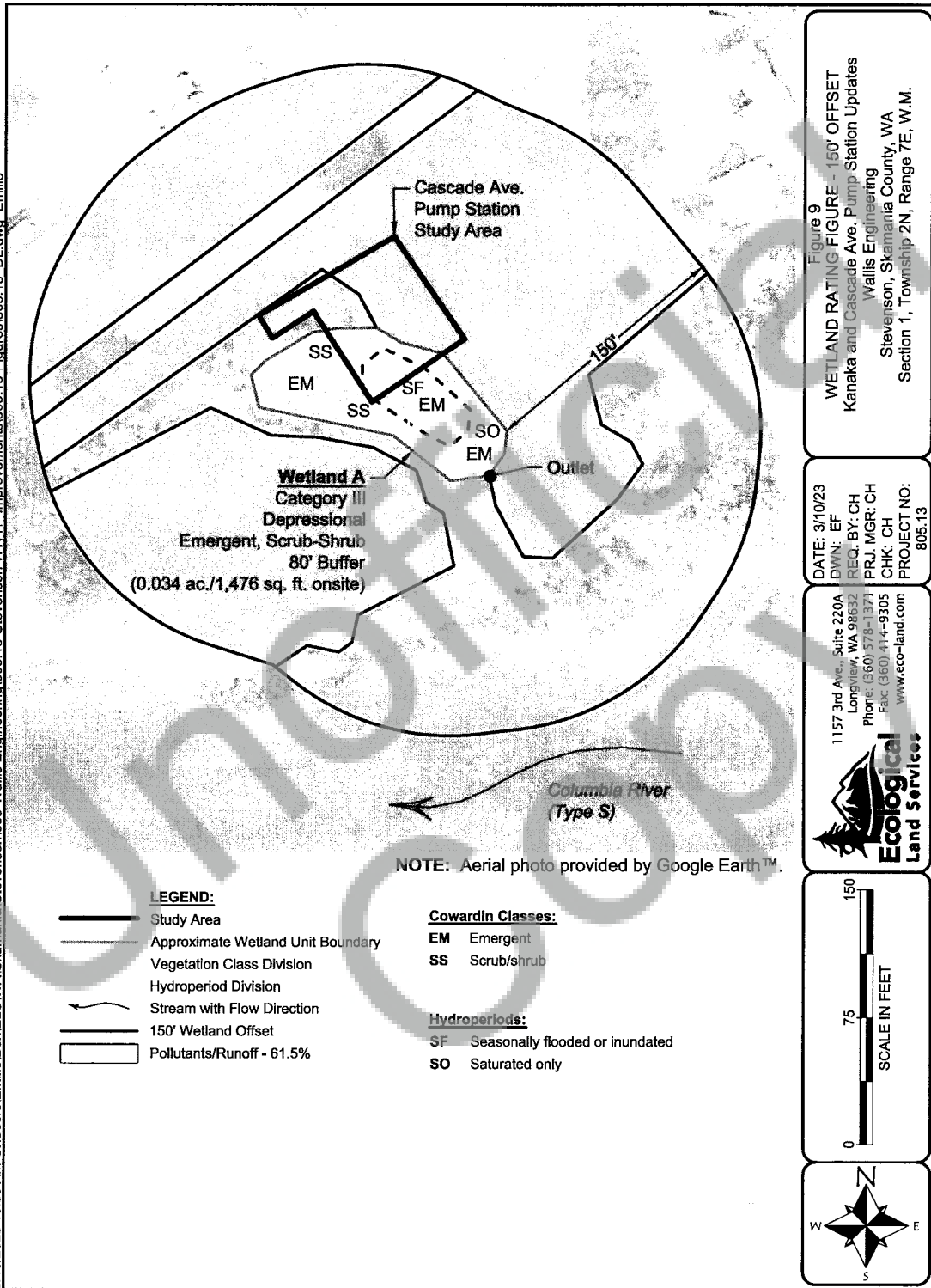




Figure 10
WETLAND RATING FIGURE - 1KM OFFSET
 Kanaka and Cascade Ave. Pump Station Updates
 Wallis Engineering
 Stevenson, Skamania County, WA
 Section 1, Township 2N, Range 7E, W.M.

DATE: 3/10/23
 DWN: EF
 REQ. BY: CH
 PRJ. MGR: CH
 CHK: CH
 PROJECT NO: 805.13

1157 3rd Ave., Suite 220A
 Longview, WA 98632
 Phone: (360) 578-1371
 Fax: (360) 414-9305
 www.eco-land.com

Ecological Land Services

2200
 1100
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 SCALE IN FEET

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 W E S

LEGEND:		H2.1 Accessible Habitat		H2.2 Undisturbed Habitat	
Wetland Unit Boundary		A-U	A-U (0.0%)	U	U (8.2%)
Contributing Basin (349 x Larger than Wetland A)		A-M/L	A-M/L (0.0%)	M/L	M/L (10.7%)
				H	H (81.1%)

H 2.1. Accessible Habitat Equation
 $0.0\% \text{ [A-U] habitat} + [(0.0\% \text{ [A-M/L] intensity land uses})/2] 0.0\% = 0.0\%$

H 2.2. Total Undisturbed Habitat Equation
 $0.0\% \text{ [A-U]} + 8.2\% \text{ [U] habitat} + [(0.0\% \text{ [A-M/L]} + 10.7\% \text{ [M/L] land uses})/2] 5.4\% = 13.6\%$

3/10/2023 10:37 AM C:\Users\Emilio\Box\AutoCAD\Pending Projects\Cascade Pump Station\Cascade_CAR.dwg Emilio

