Wetland Delineation Report
Chief Sealth Trail Extension

Prepared for

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ACRONYMS AND ABBREVIATIONS

BMP	best management practice
Corps	U.S. Army Corps of Engineers
CWA	Clean Water Act
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
FAC	Facultative
FACW	Facultative Wetland
HPA	Hydraulic Project Approval
HGM	hydrogeomorphic classification
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OBL	Obligate
SDOT	Seattle Department of Transportation
SMC	Seattle Municipal Code
TNWs	Traditionally Navigable Waters
USFWS	U.S. Fish and Wildlife Service
USDA	U.S. Department of Agriculture
WDFW	Washington State Department of Fish and Wildlife
WRIA	Water Resource Inventory Area

1. INTRODUCTION

1.1 PROJECT OVERVIEW

The City of Seattle Department of Transportation (SDOT) is proposing to extend and pave the Chief Sealth Trail between Beacon Avenue South and 10th Avenue South within the Seattle City Light transmission right-of-way. The trail will be extended in two phases, the first phase being constructed between Beacon Avenue South and South Angeline Street. The bituminous pavement will be 12 feet wide with a compacted subgrade shoulder one to several feet in width. The project is located in the city of Seattle, Washington in King County (Section 21, Township 24 North, Range 4 East).

1.2 PURPOSE OF THE REPORT

Parametrix has undertaken this Wetland Delineation Report to describe wetlands in the study area, evaluate potential impacts to wetlands from the proposed project, and present mitigation requirements for these impacts. A detailed mitigation plan is not included. The information in this report is intended to facilitate project planning and environmental review under the State Environmental Policy Act (SEPA) and to support acquisition, if necessary, of a Clean Water Act (CWA) Section 404 permit from the U.S. Army Corps of Engineers (Corps) and a CWA Section 401 Water Quality Certification from the Washington State Department of Ecology (Ecology).

This report does not address other critical areas regulated by the City of Seattle, such as geologically hazardous areas, critical aquifer recharge areas, and flood hazard areas.

1.3 STUDY AREA

The study area for this Wetland Delineation Report investigation is a previously reconnoitered area located within approximately 30 feet east of Columbia Drive South in the Seattle City Light transmission right-of-way (Figure 1-1).

1.4 APPLICABLE LAWS AND REGULATIONS

Wetlands and wetland buffers in the City of Seattle are regulated as Environmentally Critical Areas under City of Seattle Municipal Code (SMC) Chapter 25.09.

Wetlands, streams, and other sensitive resources in the project vicinity are also subject to federal and state regulations. At the federal level, wetlands and streams are regulated by CWA Section 404, which regulates placement of fill in waters of the United States. The Corps is responsible for issuing permits under Section 404 of the CWA. Activities that affect wetlands and streams may also require a water quality certification (CWA Section 401), which is administered at the federal level by the U.S. Environmental Protection Agency (EPA) and implemented at the state level by Ecology.

Ecology reviews projects for compliance with state water quality standards and makes permitting and mitigation decisions based on the nature and extent of impacts, as well as the type and quality of wetlands or streams being affected. Activities that use, divert, obstruct, or change the flow of a water of the state, including some wetlands, typically require a Hydraulic Project Approval (HPA) permit. Washington State Department of Fish and Wildlife (WDFW) is responsible for implementing HPAs under the State Hydraulic Code.

In June 2007, the Corps and EPA issued a joint memorandum that clarifies CWA jurisdiction following the Supreme Court's decision in the Rapanos case. Guidance in the memorandum identifies situations where a developer may need to obtain a CWA Section 404 permit before completing work in wetlands, tributaries, or other waters of the United States.

CWA jurisdiction may also be extended to waters that are not Traditionally Navigable Waters (TNWs) of the United States if either of the following two standards is met. The first standard extends regulatory jurisdiction to non-navigable tributaries of TNWs that are relatively permanent and wetlands that directly abut (there is a surface connection) these waters. The second standard requires a case-by-case determination ("significant nexus" analysis) for non-relatively permanent tributaries and adjacent wetlands that have characteristics that may significantly affect TNWs.

Parametrix 554-1550-055/01(02) 4/10 (B)

N

Not to Scale

Figure 1-1
Chief Sealth Trail Extension
Vicinity Map

2. METHODS

This report is based on a review of existing information and field investigations. The goal of these efforts is to document existing information to reflect current site conditions and to collect new information to assess impacts.

2.1 REVIEW OF EXISTING INFORMATION

Prior to conducting fieldwork, Parametrix reviewed maps and materials including, but not limited to:

- *Soil Survey of King County Area* (Pringle 1973)
- National Wetlands Inventory (NWI), Seattle, Washington quadrangle maps (U.S. Fish and Wildlife Service [USFWS] 2010)
- City of Seattle Wetland Environmentally Critical Areas map (City of Seattle 2010)

2.2 FIELD INVESTIGATION

Parametrix biologists investigated the Chief Sealth Trail Extension study area on February 16, 2010.

2.2.1 Wetland Identification and Delineation

The biologists used the methods specified in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) to delineate on-site wetlands. Additionally, because this project may require a permit under Section 404 of the CWA, and the project will be submitted after June 30, 2008, the methods specified in the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (April 2008) were used. Data on vegetation, soils, and hydrology were collected at sample plots using the Regional Supplement Wetland Determination Data Forms (Appendix A). These methods comply with those in the *Washington State Wetland Identification and Delineation Manual* (Ecology 1997) and SMC 25.09.160.

2.2.1.1 Vegetation

The dominant plants and their wetland indicator status were evaluated to determine if the vegetation was hydrophytic. Hydrophytic vegetation is generally defined as vegetation adapted to prolonged saturated soil conditions. To meet the hydrophytic vegetation criterion, more than 50 percent of the dominant plants must be Facultative (FAC), Facultative Wetland (FACW), or Obligate (OBL), based on the plant indicator status category assigned to each plant species by USFWS (Reed 1988, 1993). Table 2-1 lists the definitions of the indicator status categories.

Table 2-1. Key to Plant Indicator Status Categories

Plant Indicator Status Category	Symbol	Definition
Obligate Wetland Plants	OBL	Plants that almost always (> 99% of the time) occur in wetlands, but which may rarely (< 1% of the time) occur in non-wetlands.
Facultative Wetland Plants	FACW	Plants that often (67% to 99% of the time) occur in wetlands, but sometimes (1% to 33% of the time) occur in non-wetlands.
Facultative Plants	FAC	Plants with a similar likelihood (33% to 66% of the time) of occurring in both wetlands and non-wetlands.
Facultative Upland Plants	FACU	Plants that sometimes (1% to 33% of the time) occur in wetlands, but occur more often (67% to 99% of the time) in non-wetlands.
Upland Plants	UPL	Plants that rarely (< 1% of the time) occur in wetlands, and almost always (> 99% of the time) occur in non-wetlands.

Source: Environmental Laboratory (1987).

Scientific and common plant names follow currently accepted nomenclature. Most names are consistent with *Flora of the Pacific Northwest* (Hitchcock and Cronquist 1973) and the PLANTS Database (U.S. Department of Agriculture [USDA], Natural Resources Conservation Service [NRCS] 2010). During the field investigations by Parametrix biologists, dominant plant species were observed and recorded on data forms for each sample plot (Appendix A).

2.2.1.2 Soils

Generally, an area must have hydric soils to be a wetland. Hydric soil forms when soils are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part. Biological activities in saturated soil result in reduced oxygen concentrations that result in a preponderance of organisms using anaerobic processes for metabolism. Over time, anaerobic biological processes result in certain soil color patterns, which are used as indicators of hydric soil. Typically, low-chroma colors are formed in the soil matrix. Bright-colored redoximorphic features form within the matrix under a fluctuating water table. Other important hydric soil indicators include organic matter accumulations in the surface horizon, reduced sulfur odors, and organic matter staining in the subsurface. Soils were examined by excavating sample plots to a depth of 20 inches or more to observe soil profiles, colors, and textures. Munsell color charts (GreytagMacbeth 2000) were used to describe soil colors.

2.2.1.3 Hydrology

The study area was examined for evidence of hydrology. An area is considered to have wetland hydrology when soils are ponded or saturated consecutively 12.5 percent of the growing season. In King County (Seattle Tacoma Station), the growing season generally lasts from early February (February 7) to early December (December 8) (NRCS 2002) so ponding or saturation must be present for approximately 38 consecutive days. Primary indicators of hydrology include surface inundation and saturated soils. Secondary indicators of hydrology include drainage patterns, watermarks on vegetation, water-stained leaves, and oxidized root channels.

2.2.2 Wetland Classification and Rating

Delineated wetlands were classified according to the USFWS *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979) and the hydrogeomorphic (HGM) classification (Brinson 1993). The *Washington State Wetland Rating System for Western Washington – Revised* was used to rate wetlands (Hruby 2004) (SMC 25.09) (Appendix B). Buffer widths assigned to the wetland in the study area reflect requirements of the City of Seattle (SMC 25.09.160).

2.3 IMPACT ASSESSMENT

Impacts to wetlands and buffers were assessed by overlaying the proposed design onto project base maps showing wetland and buffer locations. Impact areas were determined as the area of intersection between the proposed design and the base maps. This assessment also considered loss of wetland function (based on the amount of clearing, filling, and/or excavation as a result of the project) and other direct and indirect impacts to wetlands.

3. RESULTS

The following sections describe wetlands in the study area. This includes an overview of general site characteristics and descriptions of individual wetlands.

3.1 SUMMARY OF EXISTING INFORMATION

The NWI does not identify any wetlands in the study area. No wetlands are identified in the study area according to the City of Seattle Environmentally Critical Areas map.

3.2 SITE CHARACTERISTICS

Characteristics of the project area, including soils, vegetation, topography, and watershed, are described below. Photographs of delineated wetlands are included in Appendix C.

3.2.1 Watershed and Topography

The Chief Sealth Trail Extension project area is within the Cedar/Sammamish River Water Resource Inventory Area (WRIA) 8.

The primary land use in the project vicinity is urban residential. Many of these nearby properties have residential structures and outbuildings, associated driveways, lawns, and ornamental plantings. The project area generally slopes up to the east ranging in elevation from 280 to 311 feet.

3.2.2 Soils

The soils within the study area were mapped as urban land in the soil survey (Pringle 1973). Urban land (Ur) is soil that has been modified by disturbance of the natural layers with additions of fill material several feet thick to accommodate large industrial and housing installations. In the Green River Valley the fill ranges from about 3 to more than 12 feet in thickness, and from gravelly sandy loam to gravelly loam in texture.

3.2.3 Vegetation

Vegetation within the project area consists of both wetland and upland species. The wetland in the study area contains an emergent habitat. Wetland habitat in the study area is further detailed in Section 3.3.

The upland plant community within the project area consists of upland grasses and forbs. Vegetation includes spreading bentgrass (*Agrostis stolonifera*), white clover (*Trifolium repens)*, red fescue (*Festuca rubra*), and tall fescue (*Schedonorus phoenix*).

The vegetation community in the wetland is palustrine emergent. Vegetation includes red fescue, tall fescue, and common rush (*Juncus effusus*).

3.3 WETLAND DESCRIPTIONS, CLASSIFICATIONS, AND FUNCTIONS

Parametrix biologists identified and delineated one wetland in the study area (Wetland 1). General wetland characteristics are discussed below. Also included in this report are specific information for each of the sample plots (Appendix A), wetland rating form (Appendix B), and site photographs (Appendix C).

Wetland 1
Size: 3,000 Square Feet
City of Seattle Rating: Category IV
Ecology Rating: Category IV
USFWS Classification: Palustrine Emergent
HGM Classification: Slope

Wetland 1 is located in a portion of the maintained City Light transmission right-of-way at the base of a slope (Figure 3-1) immediately adjacent to Columbia Drive South. It is densely vegetated with mowed grasses and forbs and is approximately 3,000 square feet in size.

Hydrology

Wetland hydrology is supported by surface runoff and groundwater. Inundation was observed up to approximately 5 inches. Runoff from the slope to the east of Wetland 1 is collected in two small drainage ditches. The approximately 50-foot-long ditch located at the northern right-of way boundary discharges into a 2-inch-diameter pipe through the street curb to the road gutter. Approximately 10 feet of this ditch are adjacent to Wetland 1 and during or after heavy rain events there may be overflow from Wetland 1 into this ditch. However, under normal conditions it appears that there is likely very little surface outflow from Wetland 1. During the site visit, shallow inundation was observed in tire ruts and the center of the wetland, but no surface flow was observed. A ditch located near the southern right-of-way boundary also conveys water through a 2-inch pipe to the road gutter after collecting in a 2-foot-square concrete basin. Water from both sources flow to a catch basin located approximately 75 feet to the north.

Vegetation

Wetland 1 contains a maintained emergent vegetation community. Dominant species are spreading bentgrass, red fescue, tall fescue, and common rush.

Soil

One sample plot (SP-1) was placed in Wetland 1. Soil in the pit of SP-1 was examined to a depth of 20 inches and consists of three layers. The top layer is a 5-inch layer of black (10YR 2/1) loam with some oxidized root channels. The center layer is a very dark grayish brown (10Y 6/1) sandy loam with yellowish brown (10YR 5/6) redoximorphic features. The bottom layer is very dark grayish brown (2.5Y 3/2) sand with gravel containing dark yellowish brown (10YR 4/6) redoximorphic features. Soil in the wetland is mapped by the soil survey as urban land (Pringle 1973).

Functions

Wetland 1 does not have the potential to provide flood flow alteration functions because it is a slope wetland. It also does not provide sediment, toxicant, and nutrient removal functions due to the low water retention. Erosion control functions are not provided by Wetland 1 because it is not directly associated with a watercourse. Wetland 1 provides low organic matter production because, although it is densely vegetated, it is maintained, has limited outflow, and has a constricted outlet (northern ditch pipe). Wetland 1 provides low levels of general wildlife habitat and low levels of aquatic invertebrate and amphibian habitat. Wetland-dependent mammal habitat is not provided due to the lack of ponding and the wetland's small size. A low function for wetland-associated bird habitat is provided because it contains emergent vegetation. No fish habitat is provided because no fish-bearing waters are associated with Wetland 1. Additionally, Wetland 1 provides low levels of native plant richness functions due to portions of the wetland being densely vegetated with native species, but lacking diversity. Wetland 1 does not have educational or scientific value. There are no documented protected species or habitat and it is not determined significant by local jurisdiction; therefore, it does not provide uniqueness and heritage values.

Buffer

The buffer surrounding Wetland 1 consists of maintained grasses and forbs and is 13,240 square feet in size. Vegetation in the buffer includes spreading bentgrass, white clover, red fescue, and tall fescue. The wetland is located adjacent to the sidewalk of Columbia Drive South and therefore has no buffer to the west. However, maintained herbaceous vegetation dominates the buffer to the east. Residential development exists to the north and south of the wetland.

Wetland 1 is a palustrine emergent wetland under the Cowardin (1979) system and is a slope wetland under the HGM system (Brinson 1995). The wetland is rated a Class IV wetland according to the City of Seattle (SMC 25.09.160). The wetland scored 11 points on Ecology's rating form for Western Washington and is rated a Category IV (2 points for water quality, 2 points for hydrologic functions, and 7 points for habitat functions) (Appendix B). The City of Seattle requires a 50-foot buffer for Category IV wetlands (SMC 25.09.160).

Legend

- Wetland Data Points
- Proposed Trail Alignment
- Wetland
- Wetland Buffer
- Wetland Impacts
- Temp. Wetland Impacts
- Buffer Impacts
- Temp. Buffer Impacts

0 25 50 100 Feet

N

Figure 3-1
Chief Sealth Trail Extension
Wetland and Buffer Impacts

4. IMPACT ASSESSMENT

This section describes the extent and type of temporary and permanent impacts to Wetland 1 and its buffer that will occur as a result of the proposed project. Permanent wetland and buffer impacts will occur from the construction of the trail extension. Temporary impacts to wetlands and their buffers generally will occur from minor clearing and grading outside of the trail footprint to construct the project and from the potential for erosion and sedimentation and noise disturbance during construction. Specific impacts are described below and shown in Figure 3-1.

4.1 WETLAND AND WETLAND BUFFER IMPACT

4.1.1 Permanent Impacts

Permanent impacts to Wetland 1 and its buffer were minimized by designing the trail to pass through the narrowest portion of the wetland. Construction of the project will affect approximately 125 square feet of Wetland 1. These permanent wetland impacts will be to maintained grasses and forbs.

Additionally, it is anticipated that approximately 610 square feet of buffer will be affected as a result of the construction of the proposed Chief Sealth Trail extension. These permanent buffer impacts will be to maintained grasses and forbs.

The functions of Wetland 1 and its buffer will be minimally affected by the project. Impacts to Wetland 1 and its buffer will occur at the south end of the wetland, in the vicinity of an area where soils have been compacted. This compaction is caused by pedestrian traffic through the right-of-way, and therefore already is serving as an unimproved trail. Areas of inundation that provide minimal aquatic invertebrate habitat are located in the center and northern portion of the wetland and will not be impacted by the trail improvements. Wetland 1 also provides minimal water quality and water storage functions, which will not be affected by the project.

4.1.2 Temporary Impacts

Approximately 110 square feet of temporary impacts will occur to Wetland 1 as a result of the construction of the proposed trail. It is anticipated that approximately 730 square feet of temporary buffer impacts will occur to the buffer of Wetland 1 due to project activities. Areas temporarily affected by the project will be restored to pre-construction conditions.

5. MITIGATION REQUIREMENTS

5.1 MITIGATION SEQUENCING

The City of Seattle, King County, Washington State, and federal regulatory agencies require that mitigation efforts follow the prescribed sequence below:

- Avoiding the impacts altogether by not taking a certain action or parts of an action.
- Minimizing impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps to avoid or reduce impacts.
- Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- Compensating for the impact by replacing, enhancing, or providing substitute resources or environments.
- Monitoring the impact and taking appropriate corrective measures.

5.1.1 Avoidance and Minimization

The project, as proposed, was designed to avoid and minimize impacts to critical areas where feasible. The proposed design was chosen based on its ability to fulfill the project goals while minimizing disturbance to existing facilities and critical areas and minimizing project costs. Impacts to Wetland 1 were minimized by crossing the wetland at the narrowest point.

Best management practices (BMPs) will be implemented throughout the project to avoid or reduce adverse impacts to critical areas during construction. BMPs will be implemented for pollution, erosion control, and stormwater management. Measures used may include mulching, matting, and netting; filter fabric fencing; quarry rock entrance mats; sediment traps and ponds; and surface water interceptor swales and ditches. Significant long-term water quality impacts are not expected if erosion control BMPs, stormwater, and spill containment measures are properly implemented, monitored, and maintained during construction.

5.2 RESTORATION OF TEMPORARY IMPACTS

Temporary impacts to wetlands and wetland buffers will be restored on-site at the affected locations in the project area after construction. These areas will be restored to pre-construction conditions.

5.3 MITIGATION REQUIREMENTS

The City of Seattle Regulations for Environmentally Critical Areas (SMC 25.09) generally prohibits development within wetland areas. However, according to SMC 25.09.045 H.3.f "Public projects where the intrusion into the environmentally critical area or buffer benefits the public, such as trails providing access to a creek or wetland area, when located and designed to keep environmental disturbance to a minimum" are exempt from the development restrictions. However, in order to qualify for the exemption, SDOT must specify mitigation measures for impacts to all environmentally critical areas. SDOT may follow the standard compensatory mitigation outlined in the code or develop a mitigation plan based on an assessment of the actual impacts to the functions of the wetland.

SMC 25.09.160 E establishes compensatory mitigation for impacts to Category IV wetlands at a ratio of 1.5:1 for wetland restoration or creation and at a ratio of 6:1 for enhancement. At these ratios, the impacts of the Chief Sealth Trail Extension Project would require at least 188 square feet of wetland restoration or creation, or 750 square feet of wetland enhancement. The regulations do not designate specific compensatory mitigation measures for effects to wetland buffers; however, a ratio of 1:1 for restoration or creation is often deemed acceptable.

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APPENDIX A

Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM
Western Mountains, Valleys, and Coast Supplement to the
1987 COE Wetlands Delineation Manual

Project Site:	Chief Sealth Trail Ext	Sampling Date:	2-16-10
Applicant/Owner:	SDOT	Sampling Point:	WI-SP1
Investigator:	M Maynard & C Worsley (PWS)	City/County:	Seattle/King
Section, Township, Range:	S-21, T-24N, R-04E	State:	WA
Landform (hillslope, terrace, etc)	Hillslope	Slope (%) ~2	Local relief (concave, convex, none)
Subregion (LRR)	A	Lat 47.55706	Long -122.30523 Datum
Soil Map Unit Name	Urban land (Ur)		NWI classification PEM

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

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

Hydrophytic Vegetation Present? ☑ Yes ☐ No
Hydric Soils Present? ☑ Yes ☐ No
Wetland Hydrology Present? ☑ Yes ☐ No
Is this Sampling Point within a Wetland? ☑ Yes ☐ No

Remarks: WI-SP1 is located in the center of the narrow wetland. Shallow inundation in center of wetland and in microdepressions/tire ruts.

VEGETATION – Use scientific names of plants.

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

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

Herb Stratum (Plot size 1M)			
1. Agrostis stolonifera	80%	Y	FAC
2. Phedonorous phoenix	10%	N	FAC
3. Juncus effusus	5%	N	FACW
4. Festuca rubra	5%	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100% = Total Cover		

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

% Bare Ground in Herb Stratum _____

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet

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

Prevalence Index = B / A =

Hydrophytic Vegetation Indicators

- ✓ Dominance test is > 50%
- ☐ Prevalence test is ≤ 3.0 *
- ☐ Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants *
- ☐ Problematic Hydrophytic Vegetation * (explain)

* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: The vegetation has been mowed and is dominated by grasses

SOIL

Sampling Point W1-SP 1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 2/1	100					loam	
5-12	10Y 6/1	70	10YR 5/6	30	C	M	sandy loam	
12-20	2.5Y 7/2	95	10YR 4/6	5	CS	M	Sand	Some gravel
								Historically disturbed

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

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

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

Indicators for Problematic Hydric Soils[3]

- [ ] 2cm Muck (A10)
- [ ] Red Parent Material (TF2)
- [ ] Other (explain in remarks)
- [ ]

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

Restrictive Layer (if present):
Type: None
Depth (inches): _____

Hydric soil present? Yes [x] No [ ]

Remarks: Hydric soil indicator F3 criteria met. Soils appear to be historically disturbed

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required):

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

Field Observations

Surface Water Present?	[x] Yes	[ ] No	Depth (in): 1
Water Table Present?	[x] Yes	[ ] No	Depth (in): 7
Saturation Present? (includes capillary fringe)	[x] Yes	[ ] No	Depth (in): Surface

Wetland Hydrology Present? Yes [x] No [ ]

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

Remarks: High water table and shallow inundation satisfy wetland hydrology criteria.

WETLAND DETERMINATION DATA FORM
Western Mountains, Valleys, and Coast Supplement to the 1987 COE Wetlands Delineation Manual

Project Site:	Chief Seattle Trail Ext	Sampling Date:	2-16-10
Applicant/Owner:	SDOT	Sampling Point:	W1-SP2
Investigator:	M Maynard & C Worsley (PWS)	City/County:	Seattle King
Section, Township, Range:	S-21, T-24N, R-04E	State:	WA
Landform (hillslope, terrace, etc) Hillslope	Slope (%) ~4%	Local relief (concave, convex, none)	None
Subregion (LRR) A	Lat 47.55704	Long -122.30516	Datum
Soil Map Unit Name Urban land (Ur)		NWI classification	Herbaceous

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

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

Hydrophytic Vegetation Present? ☑ Yes ☐ No
Hydric Soils Present? ☐ Yes ☑ No
Wetland Hydrology Present? ☐ Yes ☑ No
Is this Sampling Point within a Wetland? ☐ Yes ☑ No

Remarks: W1-SP2 is located ~20' east of W1-SP1 (upslope).

VEGETATION – Use scientific names of plants.

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

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

Herb Stratum (Plot size _____)			
1. Schedonorus phoenix	60%	Y	FAC
2. Agrostis stolonifera	35%	Y	FAC
3. Trifolium repens	3%	N	FAC
4. Festuca rubra	2%	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100% = Total Cover		

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

% Bare Ground in Herb Stratum _____

Dominance Test Worksheet

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

Prevalence Index Worksheet

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

Prevalence Index = B / A =

Hydrophytic Vegetation Indicators

- ✓ Dominance test is > 50%
- ☐ Prevalence test is ≤ 3.0 *
- ☐ Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants *
- ☐ Problematic Hydrophytic Vegetation * (explain)

* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: Vegetation has been mowed and is dominated by grasses.

SOIL

Sampling Point

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 3/1	100	—	—	—	—	loam with gravel	Some carbon appears to be disturbed

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

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

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

Indicators for Problematic Hydric Soils[3]

- ☐ 2cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)
- ☐

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

Restrictive Layer (if present): None
Type: _____
Depth (inches): _____

Hydric soil present? Yes ☐ No ☑

Remarks: Soils do not meet wetland hydric soil indicators criteria. Soils appear to be historically disturbed

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required):

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

Field Observations

Surface Water Present?	☐ Yes	☑ No	Depth (in):
Water Table Present?	☐ Yes	☑ No	Depth (in):
Saturation Present? (includes capillary fringe)	☐ Yes	☑ No	Depth (in):

Wetland Hydrology Present? Yes ☐ No ☑

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

Remarks: No wetland hydrology indicators observed.

APPENDIX B

Wetland Rating Forms

Wetland name or number 1

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 - Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): 1 Date of site visit: 2·16·10

Rated by M. Maynard Trained by Ecology? Yes X No___ Date of training 04/06

SEC: 21 TWNSHP: 24N RNGE: 4E Is S/T/R in Appendix D? Yes___ No X

Map of wetland unit: Figure ____ Estimated size _____

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III___ IV___

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions	4
Score for Hydrologic Functions	2
Score for Habitat Functions	6
TOTAL score for Functions	12

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply X

Final Category (choose the "highest" category from above) IV

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		**Depressional**	
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	X
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Wetland name or number 1

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered* ***animal or plant*** *species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered* ***animal*** *species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number 1

Classification of Wetland Units in Western Washington

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 (i.e. except during floods)?
NO – go to 2 **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe** **NO – Saltwater Tidal Fringe (Estuarine)**

*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 rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

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 both** of the following criteria?
___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (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**?
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 <3ft diameter and less than 1 foot deep).*
NO - go to 5 YES – The wetland class is **Slope**

Wetland name or number 1

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 two years.

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

NO - go to 6 **YES** – The wetland class is **Riverine**

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 clases. 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 your wetland. 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 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	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still 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 1

S2 Slope Wetlands		Points (only 1 score per box)
WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.		
S 1	**Does the wetland have the potential to improve water quality?**	*(see p.64)*
S 1.1	Characteristics of average slope of unit: • Slope is 1% or less *(a 1% slope has a 1 ft. vertical drop in elevation for every 100 ft. horizontal distance)*..... points = 3 • Slope is 1% - 2%..... points = 2 • Slope is 2% - 5%..... points = 1 • Slope is greater than 5%..... points = 0	2
S 1.2	The soil 2 inches below the surface (or duff layer) is clay, organic *(Use NRCS definitions).* **YES** = 3 points **NO** = 0 points	0
S 1.3	Characteristics of the vegetation in the wetland that trap sediments and pollutants: *Choose the points appropriate for the description that best fits the vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.* • Dense, uncut, herbaceous vegetation > 90% of the wetland area..... points = 6 • Dense, uncut, herbaceous vegetation > 1/2 of area..... points = 3 • Dense, woody, vegetation > 1/2 of area..... points = 2 • Dense, uncut, herbaceous vegetation > 1/4 of area..... points = 1 • Does not meet any of the criteria above for vegetation..... points = 0 **Aerial photo or map with vegetation polygons**	Figure ___ 0
	Total for S 1 *Add the points in the boxes above*	2
S 2	**Does the wetland have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ____ Grazing in the wetland or within 150 ft ____ Untreated stormwater discharges to wetland ____ Tilled fields, logging, or orchards within 150 ft. of wetland _X_ Residential, urban areas, or golf courses are within 150 ft. upslope of wetland ____ Other _____ **YES** multiplier is 2 **NO** multiplier is 1	*(see p. 67)* Multiplier 2
◆	**TOTAL – Water Quality Functions** Multiply the score from S1 by S2; then ***add score to table on p. 1***	4
HYDROLOGIC FUNCTIONS – Indicators that wetland functions to reduce flooding and stream erosion.		
S 3	**Does the wetland have the potential to reduce flooding and stream erosion?**	*(see p.68)*
S 3.1	Characteristics of vegetation that reduce the velocity of surface flows during storms: *Choose the points appropriate for the description that best fits conditions in the wetland (stems of plants should be thick enough (usually > 1/8in), or dense enough to remain erect during surface flows).* • Dense, uncut, **rigid** vegetation covers > 90% of the area of the wetland..... points = 6 • Dense, uncut, **rigid** vegetation> 1/2 area of wetland..... points = 3 • Dense, uncut, **rigid** vegetation > 1/4 area..... points = 1 • More than 1/4 of area is grazed, mowed, tilled, or vegetation is not rigid..... points = 0	0
S 3.2	Characteristics of slope wetland that holds back small amounts of flood flows. The slope has small surface depressions that can retain water over at least 10% of its area. **YES** = 2 points **NO** = 0 points	2
	Add the points in the boxes above	2
S 4	**Does the wetland have the opportunity to reduce flooding and erosion?** Is the wetland in a landscape position where the reduction in water velocity it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows? *Note which of the following conditions apply.* ____ Wetland has surface runoff that drains to a river or stream that has flooding problems ____ Other _____ *(Answer NO if the major source of water is controlled by a reservoir (e.g. wetland is a seep that is on the downstream side of a dam)* **YES** multiplier is 2 **NO** multiplier is 1	*(see p. 70)* Multiplier 1
◆	**TOTAL – Hydrologic Functions** Multiply the score from S3 by S4; then ***add score to table on p. 1***	2

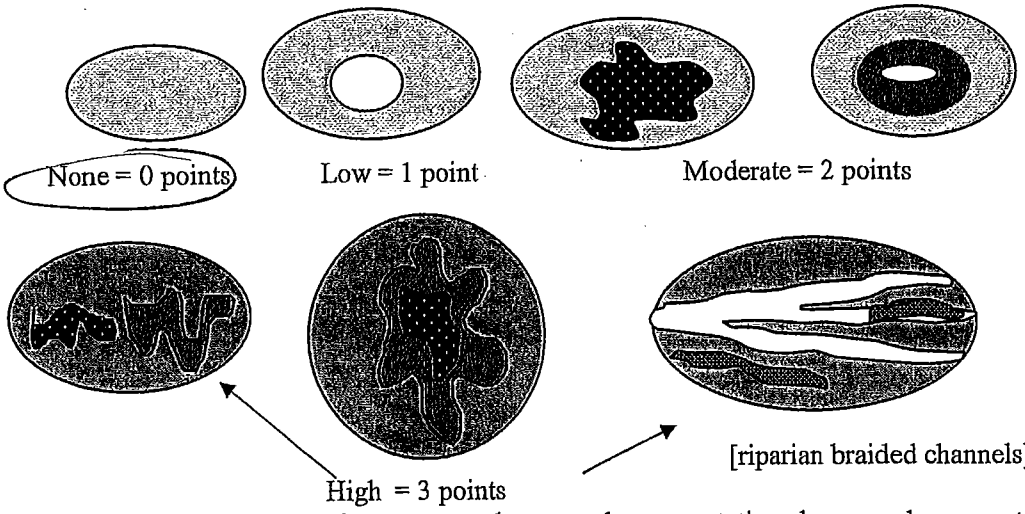
Comments:

Wetland name or number 1

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	Points (circle score in each box)
H 1. Does the wetland unit have the potential to provide habitat for many species?	
H 1.1 Vegetation structure *(see p. 72)* *Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.* ____Aquatic bed _X_Emergent plants ____Scrub/shrub (areas where shrubs have >30% cover) ____Forested (areas where trees have >30% cover) *If the unit has a forested class check if:* ____The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon *Add the number of vegetation structures that qualify. If you have:* 4 structures or more — points = 4 3 structures — points = 2 2 structures — points = 1 1 structure — points = 0 Map of Cowardin vegetation classes	Figure ___ Ø
H 1.2. Hydroperiods *(see p. 73)* *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 acre to count. (see text for descriptions of hydroperiods)* ____Permanently flooded or inundated — 4 or more types present — points = 3 _X_Seasonally flooded or inundated — 3 types present — points = 2 ____Occasionally flooded or inundated — 2 types present — point = 1 _X_Saturated only — 1 type present — points = 0 ____Permanently flowing stream or river in, or adjacent to, the wetland ____Seasonally flowing stream in, or adjacent to, the wetland ____***Lake-fringe wetland* = 2 points** ____***Freshwater tidal wetland* = 2 points** Map of hydroperiods	Figure ___ 1
H 1.3. Richness of Plant Species *(see p. 75)* Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species.* *Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle* If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0 *List species below if you want to:*	0

Total for page 1

Wetland name or number 1

	Figure ___
H 1.4. Interspersion of habitats *(see p. 76)* Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  None = 0 points Low = 1 point Moderate = 2 points [riparian braided channels] High = 3 points NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes	6
H 1.5. Special Habitat Features: *(see p. 77)* *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ____Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long). ____Standing snags (diameter at the bottom > 4 inches) in the wetland ____Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m) ____Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)* ____At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated.*(structures for egg-laying by amphibians)* _X_ Invasive plants cover less than 25% of the wetland area in each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	1
H 1. TOTAL Score - potential for providing habitat *Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5*	2

Comments

Wetland name or number 1

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
H 2.1 Buffers *(see p. 80)* *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) **Points = 5** — 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3** **If buffer does not meet any of the criteria above** — No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — Heavy grazing in buffer. **Points = 1** — Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland **Points = 0.** — Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	Figure ___ 1
H 2.2 Corridors and Connections *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor*). YES = **4 points** (*go to H 2.3*) NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	1

Total for page 2

Wetland name or number ___|___

H 2.3 Near or adjacent to other priority habitats listed by WDFW ***(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)*** Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.* ____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre). ____**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 p. 152*). ____**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 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 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:** Woodlands 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*). ____**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*). ____**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: pp. 167-169 and glossary in Appendix A).* ____**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 7.6 m (25 ft) high and occurring below 5000 ft. ____**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), 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 > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long. If wetland has **3 or more** priority habitats = **4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat = **1 point** No habitats = 0 points *Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)*	0

Wetland name or number 1

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	2
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	4
TOTAL for H 1 from page 14	2
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	6

Wetland name or number 1

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

Wetland Type *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	**Category**
SC 1.0 Estuarine wetlands *(see p. 86)* Does the wetland unit 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 ✓	
SC 1.1 Is the wetland unit 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 acre in size and meets at least two of the following three conditions? YES = Category I NO = Category II — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual rating I/II**

Wetland name or number _____

SC 2.0 Natural Heritage Wetlands *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? *(this question is used to screen out most sites before you need to contact WNHP/DNR)* S/T/R information from Appendix D ___ or accessed from WNHP/DNR web site ___ YES____ – contact WNHP/DNR (see p. 79) and go to SC 2.2 NO ___ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species? YES = Category I NO ✓ not a Heritage Wetland	**Cat. I**
SC 3.0 Bogs *(see p. 87)* Does the wetland unit (**or any part of the unit**) meet both the criteria for soils and vegetation in bogs? *Use the key below to identify if the wetland is a bog.* ***If you answer yes you will still need to rate the wetland based on its functions.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils)? Yes - go to Q. 3 No - go to Q. 2 2. Does the unit have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? Yes - go to Q. 3 No - Is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? Yes – Is a bog for purpose of rating No - go to Q. 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" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. *1.* Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover)?* 2. YES = Category I No ✓ Is not a bog for purpose of rating	**Cat. I**

SC 4.0 Forested Wetlands ***(see p. 90)*** Does the wetland unit have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its functions.* — **Old-growth forests**: (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more. NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. — **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have average diameters (dbh) exceeding 21 inches (53cm); crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. YES = Category I NO ✓ not a forested wetland with special characteristics	**Cat. I**
SC 5.0 Wetlands in Coastal Lagoons ***(see p. 91)*** Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* YES = Go to SC 5.1 NO ✓ not a wetland in a coastal lagoon SC 5.1 Does the wetland meets all of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland is larger than 1/10 acre (4350 square feet) YES = Category I NO = Category II	**Cat. I** **Cat. II**

Wetland name or number _____

SC 6.0 Interdunal Wetlands *(see p. 93)* Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES - go to SC 6.1 NO ✓ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula- lands west of SR 103 • Grayland-Westport- lands west of SR 105 • Ocean Shores-Copalis- lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is once acre or larger? YES = Category II NO – go to SC 6.2 SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
Category of wetland based on Special Characteristics *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p. 1	N/A

APPENDIX C

Site Photographs

Photograph 1. Wetland 1 facing north

Photograph 2. The concrete basin at the south end of Wetland 1 facing east

Photograph 3. Wetland 1 and buffer facing east

Photograph 4. Wetland 1 facing south