Critical Areas Study-Revised East Lake Sammamish Master Plan Trail South Sammamish Segment B

Prepared for



July 2017

Critical Areas Study-Revised East Lake Sammamish Master Plan Trail -South Sammamish Segment B

Prepared for



Parks and Recreation Division 201 South Jackson, Seventh Floor Seattle, WA 98104

Prepared by

Parametrix

719 2nd Avenue, Suite 200 Seattle, WA 98104 T. 206.394.3700 F. 1.855.542.6353 www.parametrix.com

CITATION

Parametrix. 2017. Critical Areas Study-Revised East Lake Sammamish Master Plan Trail - South Sammamish Segment B. Prepared by Parametrix, Seattle, WA. July 2017.

TABLE OF CONTENTS

1.	INTR	ODUCTION	1-1
	1.1	PROJECT OVERVIEW	1-1
	1.2	PURPOSE OF REPORT	1-2
	1.3	PROJECT AREA	1-2
2.	MET	HODS	2-1
	2.1	REVIEW OF EXISTING LITERATURE	2-1
	2.2	FIELD INVESTIGATION	2-1
	2.3	WETLAND IDENTIFICATION	2-2
		2.3.1 Vegetation	2-2
		2.3.2 Soils	2-3
		2.3.3 Hydrology	2-3
	2.4	WETLAND CLASSIFICATION AND RATING	2-3
	2.5	WETLAND FUNCTIONS	2-4
	2.6	STREAM IDENTIFICATION AND CLASSIFICATION	2-4
	2.7	LAKE SAMMAMISH	2-5
	2.8	FISH AND WILDLIFE HABITAT CONSERVATION AREAS	2-5
	2.9	CRITICAL AQUIFER RECHARGE AREAS	2-6
	2.10	IMPACT ASSESSMENT	2-6
3.	RESU	JLTS	3-1
	3.1	LANDSCAPE SETTING	3-1
	3.2	WETLANDS	3-1
	3.3	STREAMS	3-65
	3.4	LAKE SAMMAMISH	3-75
	3.5	FISH AND WILDLIFE HABITAT CONSERVATION AREAS	3-75
	3.6	CRITICAL AQUIFER RECHARGE AREAS	3-76
4.	IMP	ACT ASSESSMENT	4-1
	4.1	WETLANDS	4-1
		4.1.1 Permanent Wetland Impacts	4-2
		4.1.2 Temporary Wetland Impacts	4-2
		4.1.3 Permanent Wetland Buffer Impacts	4-2
		4.1.4 Temporary Wetland Buffer Impacts	4-3
	4.2	STREAMS	4-3
		4.2.1 Stream Channel Impacts	4-4
		4.2.2 Permanent Stream Buffer Impacts	4-8

TABLE OF CONTENTS (CONTINUED)

		4.2.3	Temporary Stream Buffer Impacts	4-8
	4.3	LAKE SA	AMMAMISH	4-8
		4.3.1	Shoreline Setback Impacts	4-8
	4.4	FISH AN	ND WILDLIFE CONSERVATION AREAS	4-9
	4.5	CRITICA	AL AQUIFER RECHARGE AREAS	4-10
5.	MITI	GATION	APPROACH	5-1
	5.1	AVOIDA	ANCE AND MINIMIZATION	5-1
	5.2	RESTOR	RATION OF TEMPORARY IMPACTS	5-2
	5.3	СОМРЕ	NSATORY MITIGATION	5-2
		5.3.1	Summary of Proposed Mitigation	5-2
		5.3.2	Wetlands, Wetland Buffers, Stream Buffers, and Shoreline Setback	
		5.3.3	Streams	5-6
		5.3.4	Review of Best Available Science	5-6
		5.3.5	Shoreline Zone Mitigation	5-7
		5.3.6	Fish and Wildlife Habitat Conservation Areas Mitigation	5-7
	5.4	MITIGA	ATION GOALS, OBJECTIVES, AND PERFORMANCE STANDARDS	
		5.4.1	Mitigation Goals	5-8
		5.4.2	Mitigation Objectives and Performance Standards	5-8
	5.5	RECOR	D DRAWINGS	5-11
	5.6	MONIT	ORING	5-11
		5.6.1	Quantitative Monitoring	5-11
		5.6.2	Qualitative Monitoring	5-12
	5.7	MAINT	ENANCE	5-12
	5.8	CONTIN	NGENCY MEASURES	5-12
	5.9	PERFO	RMANCE SECURITY/FINANCIAL ASSURANCE	5-13
	5.10	SITE PR	OTECTION	5-13
	5.11	LONG-1	FERM MANAGEMENT PLAN	5-13
6.	RFFF	RENCES		6-1
٠.				

APPENDICES

- A Wetland Determination Data Forms
- B Wetland Rating Forms
- C Wetland Functions and Values Forms
- D Critical Area Impact Figures
- E Critical Areas Mitigation Landscape Plans

TABLE OF CONTENTS (CONTINUED)

LIST OF FIGURES

	1-1	Site Location Map	1-3
	3-1	Drainage Basins, Subbasins, and Site Characteristics	3-3
	3-2a	Critical Areas Map	3-5
	3-2b	Critical Areas Map	3-7
	3-2c	Critical Areas Map	3-9
	3-2d	Critical Areas Map	. 3-11
	3-2e	Critical Areas Map	. 3-13
	3-2f	Critical Areas Map	. 3-15
	3-2g	Critical Areas Map	. 3-17
115	T OE T	ABLES	
LIJ	2-1	Key to Plant Indicator Status Categories	2-3
	2-2	City of Sammamish Standard Wetland Buffer Widths	
	2-3	Wetland Functions and Values Assessed	
	2-4	City of Sammamish Standard Stream Buffer Widths	
	3-1	Summary of Wetlands in the Project Vicinity	
	3-2	Summary of Wetland Functions and Values for Wetlands in the Project Area Identified by Parametrix	
	3-3	Summary of Streams Crossing the Project Area	
	4-1	Summary of Impacts on Wetlands and Buffers	
	4-2	Summary of Impacts on Stream Channels and Buffers	
	5-1	Proposed Mitigation Locations and Type	
	5-2	City of Sammamish Wetland Mitigation Ratios a	5-4
	5-3	Ecology-Recommended Wetland Mitigation Ratios for Projects in Western Washington	
	5-4	Wetland Mitigation Area Required Applying the Ecology-Recommended Mitigation Ratios for Projects in Western Washington for Reestablishment or Creation and Enhancement	E 1
	5-5	Contingency Measures for the Mitigation Sites	5-4 5-13

ACRONYMS AND ABBREVIATIONS

BMP best management practice

AASHTO American Association of State Highway and Transportation Officials

BNSF Burlington Northern Santa Fe
CARAs critical aquifer recharge areas

CAS Critical Areas Study
cfs cubic feet per second

dbh diameter at breast height

Ecology Washington State Department of Ecology

ESA Endangered Species Act

FEMA Federal Emergency Management Agency

FIRM Flood Insurance Rate Maps

FWHCAs Fish and Wildlife Habitat Conservation Areas

GIS geographic information system

LWD large woody debris

Master Plan Trail East Lake Sammamish Master Plan Trail

NMFS National Marine Fisheries Service

NRCS Natural Resources Conservation Service

NWI National Wetlands Inventory
OHWM ordinary high water mark

RCW Revised Code of Washington

RM river mile

SMC Sammamish Municipal Code

SMP Shoreline Master Program

TDAs threshold discharge areas

USACE U.S. Army Corps of Engineers

USFWS U.S. Fish and Wildlife Service

WAC Washington Administrative Code

WDFW Washington Department of Fish and Wildlife

WDNR Washington State Department of Natural Resources

WRIA Water Resource Inventory Area

WSDOT Washington State Department of Transportation

1. INTRODUCTION

1.1 Project Overview

King County is proposing to develop the East Lake Sammamish Master Plan Trail (Master Plan Trail)—an approximately 11-mile regional multi-user trail and nonmotorized alternative transportation corridor located near the eastern shore of Lake Sammamish. The entire project site is located along the existing Interim Use Trail in the King County right-of-way that extends from Gilman Boulevard in Issaquah to Bear Creek in Redmond. The Interim Use Trail is located on the alignment of the former Burlington Northern Santa Fe (BNSF) railroad that began operations in 1855 and ceased operations along this corridor in 1996. King County acquired the rail-banked corridor in 1998 and completed construction of the Interim Use Trail in 2006.

Proposed improvements of the Master Plan Trail will be constructed in multiple segments—Redmond, Issaquah, North Sammamish, and South Sammamish (Segments A and B). The Redmond Segment of the trail was constructed in 2011, the Issaquah Segment in 2012/2013, the North Sammamish Segment in 2014/2015, and the South Sammamish Segment A is currently in the permitting process. The South Sammamish Segment B of the proposed trail is the focus of this report, scheduled for construction in 2018. This trail segment is approximately 3.5 miles, extending from SE 33rd Street to Kokomo Drive (vicinity of Inglewood Hill Road) (Figure 1-1).

An existing gravel trail (i.e., the Interim Use Trail) is located in the project corridor. The Master Plan Trail will be the "full" buildout of the trail and will replace the existing soft-surface Interim Use Trail along a similar alignment. The Interim Use Trail is typically 8 to 12 feet wide and will be widened to accommodate the Master Plan Trail, which is typically 12 feet of pavement bounded by two 2-foot-wide shoulders and 1-foot-wide clear zones, in accordance with American Association of State Highway and Transportation Officials (AASHTO) guidelines. The project will include:

- Construction of a 12-foot-wide paved regional trail with soft-surface (gravel) shoulders;
- Related earthwork;
- Drainage improvements related to the trail;
- Culvert replacements to improve fish passage;
- Retaining walls and other site improvements;
- Landscaping and fencing; and
- Access and traffic control (bollards, striping, signage, etc.).

The Master Plan Trail will provide a paved multi-use trail for bicyclists, pedestrians, and others between cities within the Urban Growth Area—Issaquah, Sammamish, and Redmond. The trail will provide an off-road facility and route as a nonmotorized alternative to surrounding congested arterials. As a result, the project will promote nonmotorized access to employment, retail, and recreation centers within the city of Sammamish as well as provide a regional link with Redmond, Issaquah, and other cities and regional growth centers as an important component of the Regional Trails System.

The South Sammamish Segment B of the Master Plan Trail is part of the expanding Regional Trails System that provides a network of off-road, multi-use, nonmotorized transportation facilities used by thousands of bicyclists, pedestrians, and others daily for commuting to work or school, local travel, and recreation. The existing Regional Trails System now comprises approximately 300 miles of alternative transportation

corridors. The Master Plan Trail is among the most significant of these due to its strategic location within King County, its length, and its connections via urban centers, city centers, and many land uses (residential, commercial, retail, professional, institutional, government, historic districts, and recreation areas). The Master Plan Trail extends the Burke-Gilman and Sammamish River Trails to create a 42-mile regional alternative transportation corridor stretching from Seattle to Issaquah and beyond to the Cascades. This project is an important part of that extension. The South Sammamish Segment B will provide many direct local benefits, including a connection to the new Sammamish Landing Park. The Master Plan Trail also will link with other regional trails.

1.2 Purpose of Report

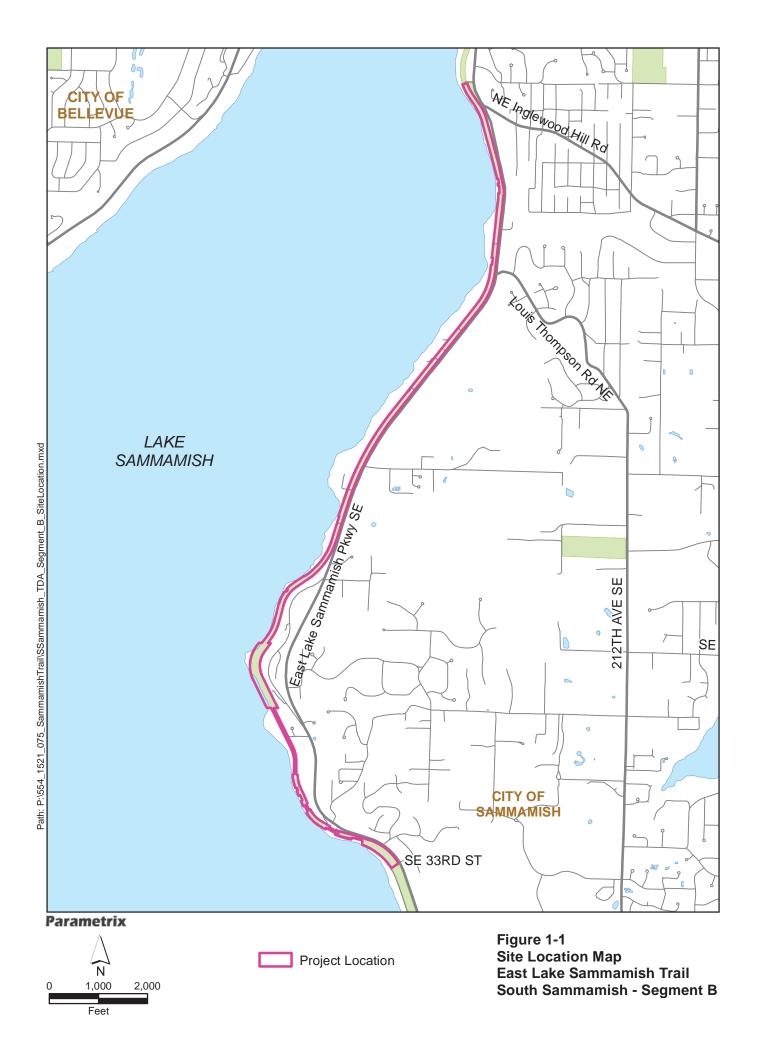
According to the City of Sammamish Environmentally Critical Areas Regulations, an applicant for a development proposal shall submit a Critical Areas Study (CAS) where impacts to or alteration of an environmentally critical area is proposed or may occur as a consequence of proposed actions (Sammamish Municipal Code [SMC] 21A.50.120). King County is proposing an alignment that follows the existing Interim Use Trail, which is also the location of a former railbed. The proposed project is consistent with City trail corridor development standards (SMC 21A.30.210(1)—Use of Existing Corridors) that state trails should generally be located along existing cleared areas or on improved corridors. This is also consistent with the City's regulations regarding permitted alterations to wetlands and streams (SMC 21A.50.300(10); SMC 21A.50.340(7)). These regulations state that the use of existing crossings, including but not limited to utility corridors, road and railroad rights-of-way within wetlands, streams, or buffers for public or private trails, is preferred to new crossings, subject to the standards and requirements in the SMC.

The CAS was prepared to satisfy these City of Sammamish requirements by describing wetlands, streams, Fish and Wildlife Habitat Conservation Areas (FWHCAs), and critical aquifer recharge areas (CARAs) within the project area; evaluating potential impacts on these critical areas from the proposed trail; and presenting mitigation for these impacts. Other critical areas regulated by the City of Sammamish, such as landslide hazard areas or erosion and seismic hazard areas, are not addressed in this CAS. Information presented herein is intended to facilitate environmental review and permitting.

The CAS was prepared in October 2016 and submitted to the City in December 2016. This revised CAS responds to comments from the City, including comments prepared by the City's consultant, The Watershed Company (TWC), entitled Environmental Peer Review Report, East Lake Sammamish Trail Segment B.

1.3 Project Area

The project area is a linear corridor in the King County right-of-way along the eastern shore of Lake Sammamish within the city of Sammamish that closely parallels East Lake Sammamish Parkway NE (to the east) for much of the corridor, between the city's south boundary near SE 33rd Street to Kokomo Drive (vicinity of Inglewood Hill Road). The right-of-way varies from 50 to 200 feet in width along the trail. The South Sammamish Segment B is located in Sections 6, 7, and 8 in Township 24 North, Range 6 East, Willamette Meridian and Sections 29, 31, and 32 in Township 25 North, Range 6 East, Willamette Meridian. The project corridor is a former railroad right-of-way, surrounded by single-family residential land use. The project area includes 37 wetlands and 18 streams.



2. METHODS

This report is based on a review of existing information and field investigations. The goal of these efforts is to collect and document existing information that reflects current site conditions for assessing potential impacts.

2.1 Review of Existing Literature

Prior to conducting fieldwork, and throughout the duration of project design, biologists reviewed existing information to identify wetlands, streams, vegetation patterns, topography, soils, wildlife habitats, and other natural resources in the project area. Existing data sources that were reviewed for this report included but were not limited to the following:

- City of Sammamish critical area maps
- Soil Survey of King County Area, Washington. U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) (Snyder et al. 1973)
- National Wetlands Inventory (NWI), online wetlands mapper (U.S. Fish and Wildlife Service [USFWS] 2013)
- A Catalog of Washington Streams and Salmon Utilization, Volume 1, Puget Sound Region (Williams et al. 1975)
- SalmonScape online mapping tool (Washington Department of Fish and Wildlife [WDFW] 2016a)
- Final East Lake Sammamish Basin and Nonpoint Action Plan (King County 1994)
- Salmon and Steelhead Habitat Limiting Factors Report for the Cedar-Sammamish Basin (Kerwin 2001)
- East Lake Sammamish Master Plan Trail Fish and Fish Habitat Technical Report (Parametrix 2006)
- East Lake Sammamish Master Plan Trail Wetland Biology Discipline Report (Parametrix 2005)
- Online Priority and Habitat Species listed by the Washington Department of Fish and Wildlife (WDFW 2016b)
- List of Sections That Contain Natural Heritage Features (Washington State Department of Natural Resources [WDNR] 2016)
- Draft Biological Assessment for the East Lake Sammamish Trail Master Plan (Parametrix 2007)
- Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) and Flood Insurance Studies

2.2 Field Investigation

Wetland and stream field investigations were initially conducted in 1999 and 2000 to identify and delineate wetlands and streams as part of the East Lake Sammamish Master Plan Trail Final Environmental Impact Statement (King County 2010). Project biologists re-delineated wetlands and streams in November and December 2007; January, March, and April 2008; and January 2009 to identify and document current resource conditions in the project corridor (since more than 5 years had lapsed). The King County Department of Permitting and Environmental Review (formerly Department of Development and Environmental Services) biologist reviewed the wetlands in Sammamish in the winter

of 2008/2009. Wetlands and streams within the South Sammamish Segments were re-evaluated and/or verified by project biologists in 2013 and 2014 to update any areas where changes may have occurred due to recent development or natural conditions in the project vicinity since 2008. New wetland boundaries were delineated and flagged only where there was a change in conditions. If conditions remained the same, no changes to the boundary were made. Recent field observations are documented in this report.

2.3 Wetland Identification

Biologists delineated wetlands in 2007/2008/2009 according to the methods specified in the U.S. Army Corps of Engineers (USACE) Wetlands Delineation Manual (Environmental Laboratory 1987). At that time, these methods complied with those in the Washington State Wetland Identification and Delineation Manual (Washington State Department of Ecology [Ecology] 1997).

Biologists re-evaluated wetlands in 2013/2014 according to the methods specified in the USACE's Wetlands Delineation Manual (Environmental Laboratory 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0) (USACE 2010). These methods comply with those adopted by Washington State pursuant to Washington Administrative Code (WAC) 173-22-035, Revised Code of Washington (RCW) 90.58.380, and the City of Sammamish under SMC 21A.15.1415.

Wetlands are defined as those areas that are inundated or saturated by surface or groundwater 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 generally include, but are not limited to, swamps, marshes, bogs, and similar areas. An area must have at least one positive field indicator for each of wetland vegetation, soils, and hydrology to be considered a wetland. The delineated wetlands were instrument-surveyed by professional land surveyors. Wetland determination data forms were recorded for each wetland (Appendix A).

2.3.1 Vegetation

The dominant plants and their wetland indicator status were evaluated to determine whether the vegetation is 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, facultative wetland, or obligate, according to the plant indicator status category assigned to each plant species by the USACE National Wetland Plant List (Lichvar et al. 2014). Table 2-1 provides the definitions of the indicator status categories. The scientific and common names for plants follow the currently accepted nomenclature. Dominant plant species were observed and recorded on wetland determination data forms for each data plot (Appendix A).

King County

Plant Indicator Status Category	Symbol	Definition
Obligate Wetland Plants	OBL	Plants that almost always (>99% of the time) occur in wetlands but 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).

2.3.2 Soils

Generally, an area must have hydric soils to be considered 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 portion. Biological activities in saturated soil result in reduced concentrations of oxygen that in turn result in a preponderance of organisms that use 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 matrix of hydric soil. 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 layer, reduced sulfur odors, and organic matter staining in the subsurface. Soils were examined by excavating sample pits to a depth of 18 inches or more to observe the soil profiles, colors, and textures. Munsell color charts (GretagMacbeth 2000) were used to describe the soil colors.

2.3.3 Hydrology

The project 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. Primary indicators of hydrology include surface inundation and saturated soils, among others. Secondary indicators of hydrology include drainage patterns and water-stained leaves.

2.4 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). Hydrogeomorphic classifications were assigned to wetlands using USACE methods established in A Hydrogeomorphic Classification for Wetlands (Brinson 1993). In accordance with SMC 21A.50.290, wetlands were rated using the revised Washington State Wetland Rating System for Western Washington (Hruby 2004) (Appendix B).

The standard buffer widths for the wetlands in the project area are those required under SMC 21A.50.290(2) (Table 2-2).

Table 2-2. City of Sammamish Standard Wetland Buffer Widths

Wetland Category		Standard Buffer Width (feet)
Category I	Natural Heritage or bog wetlands	215
	Habitat score 29 – 36	200
	Habitat score 20 – 28	150
	Not meeting above criteria	125
Category II	Habitat score 29 – 36	150
	Habitat score 20 – 28	100
	Not meeting above criteria	75
Category III	Habitat score 20 – 28	75
	Not meeting above criteria	50
Category IV		All land use types – 50
Category III and IV		Subject to SMC <u>21A.50.320</u>

Source: SMC 21A.50.290(2)

2.5 Wetland Functions

Functions of individual project area wetlands delineated by Parametrix were assessed using the Washington State Department of Transportation (WSDOT) Wetland Functions Characterization Tool for Linear Projects (Null et al. 2000). This is a qualitative tool designed for linear projects to enable the rapid documentation and characterization of functions and values of a particular wetland. This method allows evaluation of wetland functions using best professional judgment and readily observed environmental characteristics. For example, an area of permanent open water is characteristic of a wetland that provides habitat for waterfowl or aquatic animals. The upland habitats and buffers surrounding wetlands were also considered in the evaluation because adjacent land uses affect the performance of wetland functions. Biologists reviewed the indicator characteristics present for each affected wetland and assigned a summary rating of low, low-moderate, moderate, moderate-high, or high for each wetland function (Appendix C). Table 2-3 lists the wetland functions and values evaluated.

Table 2-3. Wetland Functions and Values Assessed

Flood Flow Alteration	Habitat for Amphibians
Sediment Removal	Habitat for Wetland-Associated Mammals
Nutrient and Toxicant Removal	Habitat for Wetland-Associated Birds
Erosion Control and Shoreline Stabilization	General Fish Habitat
Production of Organic Matter and its Export	Native Plant Richness
General Habitat Suitability	Educational or Scientific Value
Habitat for Aquatic Invertebrates	Uniqueness and Heritage

2.6 Stream Identification and Classification

Streams are defined as those areas in the city where surface waters produce a defined channel or bed, not including irrigation ditches, canals, storm or stormwater runoff conveyance devices, or other entirely artificial watercourses, unless they are used by salmonids or are used to convey streams naturally occurring prior to construction of such watercourses (SMC 21A.15.1240). For the purpose of this study, a defined channel or bed is an area that demonstrates clear evidence of the passage of water and includes, but is not limited to, bedrock channels, gravel beds, sand and silt beds, and defined-

channel swales. The channel or bed need not contain water year-round. The ordinary high water mark (OHWM) of project area streams was identified and instrument-surveyed by professional land surveyors. Stream data were based on the 2006 East Lake Sammamish Master Plan Trail Fish and Fish Habitat Technical Report (Parametrix 2006) and observations made during subsequent field investigations. These data have also assisted in determining where fish passage improvements are recommended.

Streams were classified according to City of Sammamish regulations (SMC 21A.15.1240) and the Washington State water typing system. Stream type determinations were also informed by determinations of presumed fish use according to WAC 222-16-031 and SMC 21A.15.1240. The types were applied to the stream reaches located within the project area. Buffer widths assigned to streams reflect standard buffer requirements in SMC 21A.50.330(1) (Table 2-4).

Table 2-4. City of Sammamish Standard Stream Buffer Widths

Stream Type	Standard Buffer Width (feet)
Type S	150
Type F	150
Type Np	75
Type Ns	50

Source: SMC 21A.50.330

2.7 Lake Sammamish

Portions of the project area are within 200 feet of Lake Sammamish, placing it within the shoreline jurisdiction. The City of Sammamish Shoreline Master Program (SMP) provides the goals, policies, and regulations for use and development within the shoreline area. According to SMC 25.06.020(9), a 50-foot shoreline setback (extending from the OHWM) is established for Lake Sammamish.

The OHWM for Lake Sammamish was not field-delineated for this project because it was outside of the trail right-of-way and will not be directly affected. Instead, King County 2010 open water geographic information system (GIS) data were used to determine the OHWM and shoreline setback area.

2.8 Fish and Wildlife Habitat Conservation Areas

According to SMC 21A.15.468, the City of Sammamish defines FWHCAs as those areas that are essential for the preservation of critical habitats and species. All areas within the city of Sammamish meeting one or more of the following criteria are designated FWHCAs:

- (1) Areas with which state or federally designated endangered, threatened, and sensitive species have a primary association.
 - (a) Federally designated endangered and threatened species are those fish and wildlife species identified by the USFWS and the National Marine Fisheries Service (NMFS) that are in danger of extinction or are threatened to become endangered. The USFWS and the NMFS should be consulted as necessary for current listing status;
 - (b) State-designated endangered, threatened, and sensitive species are those fish and wildlife species native to the coastal region of the Pacific Northwest identified by the WDFW that are in danger of extinction, threatened to become endangered, vulnerable, or declining and are likely to become endangered or threatened in a significant portion of their range within the state without cooperative management or removal of threats. State-designated

endangered, threatened, and sensitive species are periodically recorded in WAC 232-12-014 (state endangered species), and WAC 232-12-011 (state threatened and sensitive species). WDFW maintains the most current listing and should be consulted as necessary for current listing status;

- (2) Wetlands, streams, and lakes;
- (3) State natural area preserves and natural resource conservation areas. Natural area preserves and natural resource conservation areas are defined, established, and managed by the WDNR; and
- (4) Fish and wildlife habitat corridors as defined in SMC 21A.15.469.

2.9 Critical Aquifer Recharge Areas

According to SMC 21A.15.253, the City of Sammamish defines CARAs as those areas with a critical recharging effect on aquifers used for potable water as defined by WAC 365-190-030(2). CARAs have prevailing geologic conditions associated with infiltration rates that create a high potential for contamination of groundwater resources or contribute significantly to the replenishment of groundwater. CARAs are classified based on the following criteria:

- (1) Class 1 CARAs include those areas located within the mapped 1- or 5-year capture zone of a wellhead protection area.
- (2) Class 2 CARAs include those areas located within the mapped 10-year capture zone of a wellhead protection area.
- (3) Class 3 CARAs include those areas outside wellhead protection areas that are identified as high aquifer recharge potential areas based on characteristics of surficial geology and soil types.

2.10 Impact Assessment

Impacts on wetlands, streams, and their buffers (including shoreline setback) were assessed by overlaying the proposed design onto project base maps showing wetland, stream, 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 and stream function (based on the amount of clearing, filling, and/or excavation as a result of the project) and other direct and indirect impacts on wetlands and streams.

3. RESULTS

The following sections describe critical areas in the project limits. Also included are descriptions of individual wetlands, streams, and FWHCAs identified in the project area.

3.1 Landscape Setting

This trail project alignment roughly parallels the eastern shoreline of Lake Sammamish (to the west) and East Lake Sammamish Parkway (to the east) in the East Lake Sammamish Basin, which is in the Upper Sammamish River Drainage in the Cedar/Sammamish Watershed (Water Resource Inventory Area [WRIA] 8) (Williams et al. 1975; Ecology 2008). Streams in the East Lake Sammamish Basin generally originate in wetlands located on the Sammamish Plateau, and drain west through steep ravines to Lake Sammamish. This basin is further divided into several small subbasins. South Sammamish Segment B is within the Monohon, Pine Lake, Thompson, Inglewood, and Panhandle subbasins (Figure 3-1).

The East Lake Sammamish area is located on the eastern side of the Seattle metropolitan area and is rapidly becoming a densely urban area. The City of Sammamish was incorporated in 1999 from lands that were formerly unincorporated King County, and has increased rapidly in population growth with both residential and business development.

The City of Sammamish critical area maps identify Lake Sammamish, six streams, and one wetland in the vicinity of SE 8th Street within the project area. The NWI maps identify Lake Sammamish and one palustrine scrub-shrub wetland west of the vicinity of SE 22nd Place within the project area. Additional wetlands are mapped east of East Lake Sammamish Parkway.

The NRCS Soil Survey for King County Area (Snyder et al. 1973) identifies five soil mapping units within the project area: Seattle muck, which NRCS identifies as a hydric soil; Kitsap silt loam (2 to 8 percent slopes), and Kitsap silt loam (15 to 30 percent slopes), which are identified as partially hydric; and Alderwood gravelly sandy loam (15 to 30 percent slopes) and Alderwood and Kitsap soils (very steep), which are not identified as a hydric soil.

3.2 Wetlands

Project biologists delineated 37 wetlands in the project area (Figures 3-2a through 3-2g). Table 3-1 provides a summary of characteristics for all wetlands. A summary of wetland functions and values (Table 3-2), along with detailed descriptions for wetlands identified and delineated by Parametrix, are provided below.

Table 3-1. Summary of Wetlands in the Project Vicinity

Wetland	Size (acres)	Ecology/ Sammamish Rating ^a	Buffer Width ^b (feet)	USFWS Class ^c	HGM Class ^d
15A	~0.10	III	50	PFO/PEM	Lake-Fringe/Slope
15BC	~0.15	IV	50	PFO/PEM	Depressional/Riverine/Slope
15D	0.05	IV	50	PEM	Depressional
15E	0.05	IV	50	PEM	Depressional
18C	0.02	III	50	PSS	Depressional
19A	0.01	IV	50	PEM	Depressional
19B	~0.36	III	50	PSS/PEM	Lake-Fringe/Slope
20A	0.05	III	50	PEM	Depressional/Slope
21AC	~0.40	III	50	PEM	Lake-Fringe/Slope
21B	~0.08	III	50	PFO/PSS	Depressional
21D	~0.15	IV	50	PEM	Depressional/Slope
22AB	0.46	III	50	PFO/PSS/PEM	Depressional/Slope
22CD	0.06	IV	50	PSS/PEM	Depressional/Slope
22E	< 0.01	IV	50	PEM	Depressional
23A	0.03	IV	50	PEM	Depressional/Slope
23B	~0.05	III	50	PSS/PEM	Lake-Fringe/Slope
23C	0.09	III	50	PSS/PEM	Depressional
24A	0.60	III	50	PFO/PSS/PEM	Depressional/Riverine
24B	~1.75	III	50	PFO/PSS	Depressional/Riverine
24C	0.16	III	50	PFO/PEM	Depressional/Riverine
25A	0.25	III	50	PFO	Depressional/Riverine
25B	0.33	III	50	PFO/PSS/PEM	Depressional
25C	0.25	III	50	PFO/PEM	Depressional
25F	0.06	III	50	PFO	Depressional
26A	0.91	III	50	PFO/PSS/PEM	Depressional/Riverine
26B	0.02	IV	50	PEM	Slope
26C	0.03	IV	50	PSS/PEM	Depressional
26D	~0.13	III	50	PSS/PEM	Riverine/Lake Fringe
28A	0.08	IV	50	PFO	Depressional/Riverine
28B	0.02	IV	50	PSS	Depressional/Slope
28C	0.02	IV	50	PSS/PEM	Depressional
28D	<0.01	IV	50	PEM	Depressional
28E	0.02	III	50	PEM	Depressional
29B	~0.03	IV	50	PEM	Slope
29C	~0.06	III	50	PFO	Lake-Fringe/Slope
29D	0.08	IV	50	PSS/PEM	Depressional/Slope
30B	0.20	III	50	PFO	Depressional/Slope

^a Hruby (2004), as specified in SMC 21A.50.290

PEM = palustrine emergent

PFO = palustrine forested

PSS = palustrine scrub-shrub

^b SMC 21A.50.290

^{c.} Cowardin et al. (1979) classification

^d Brinson (1993); HGM = hydrogeomorphic

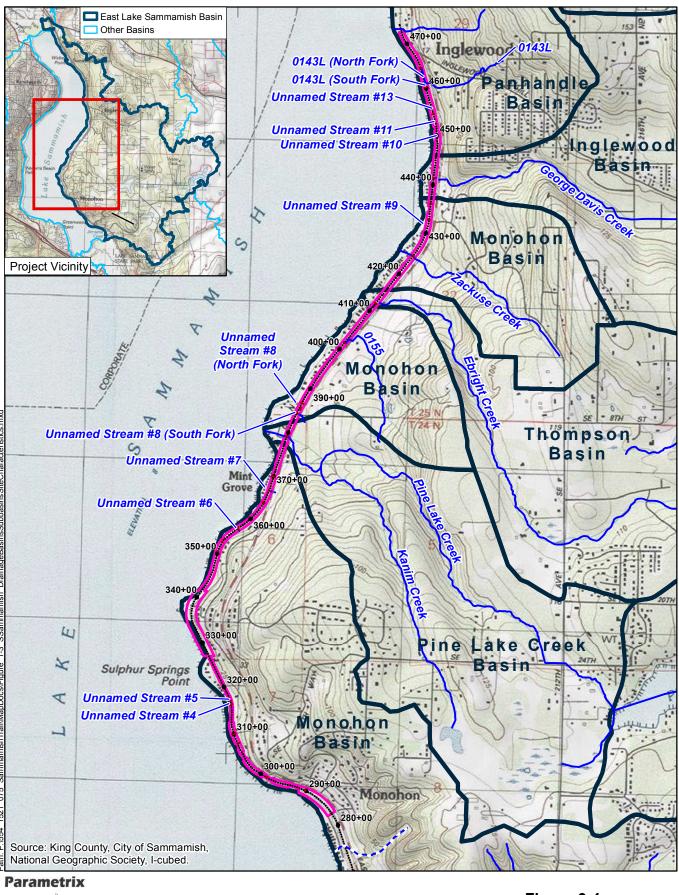
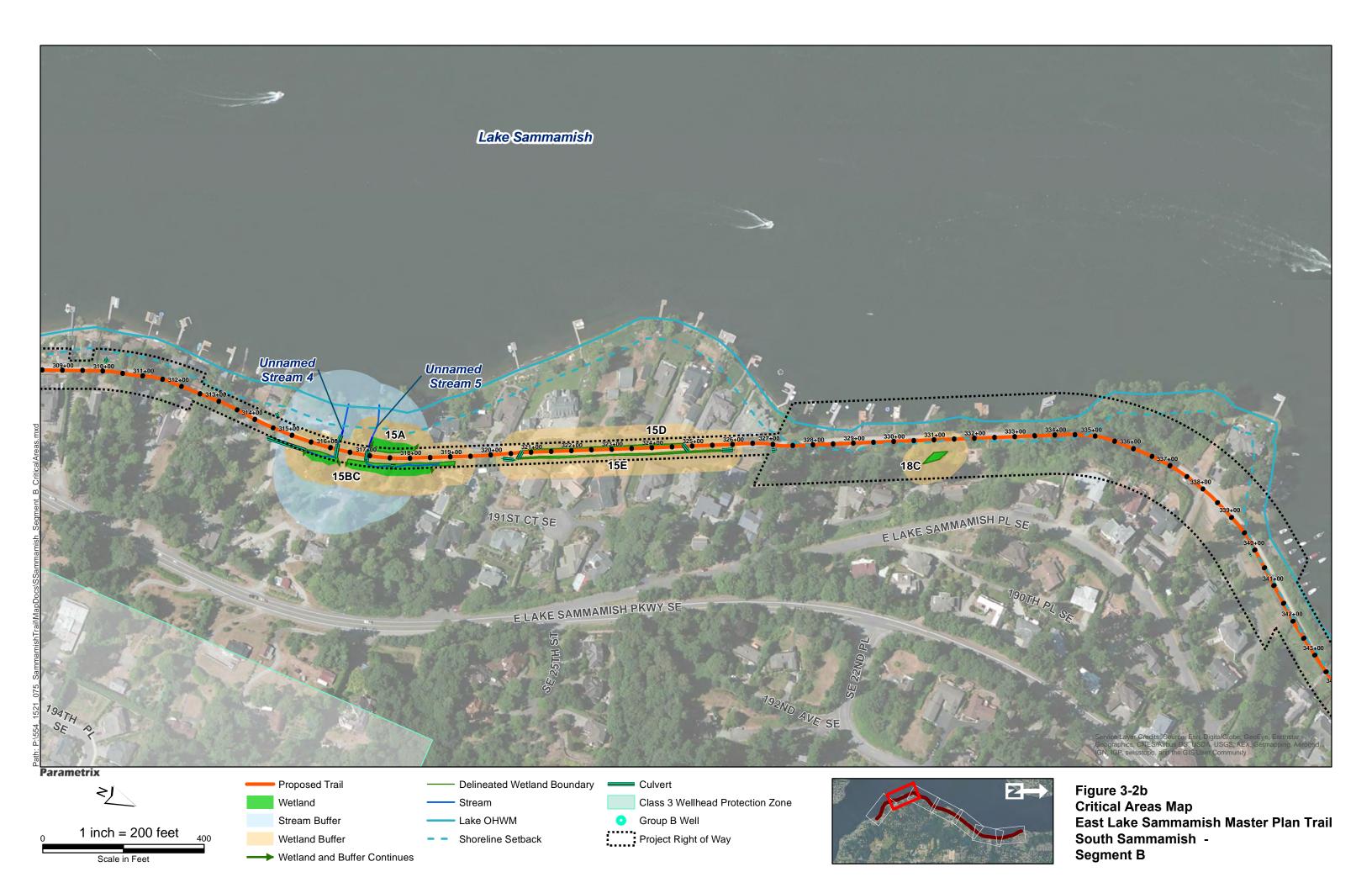




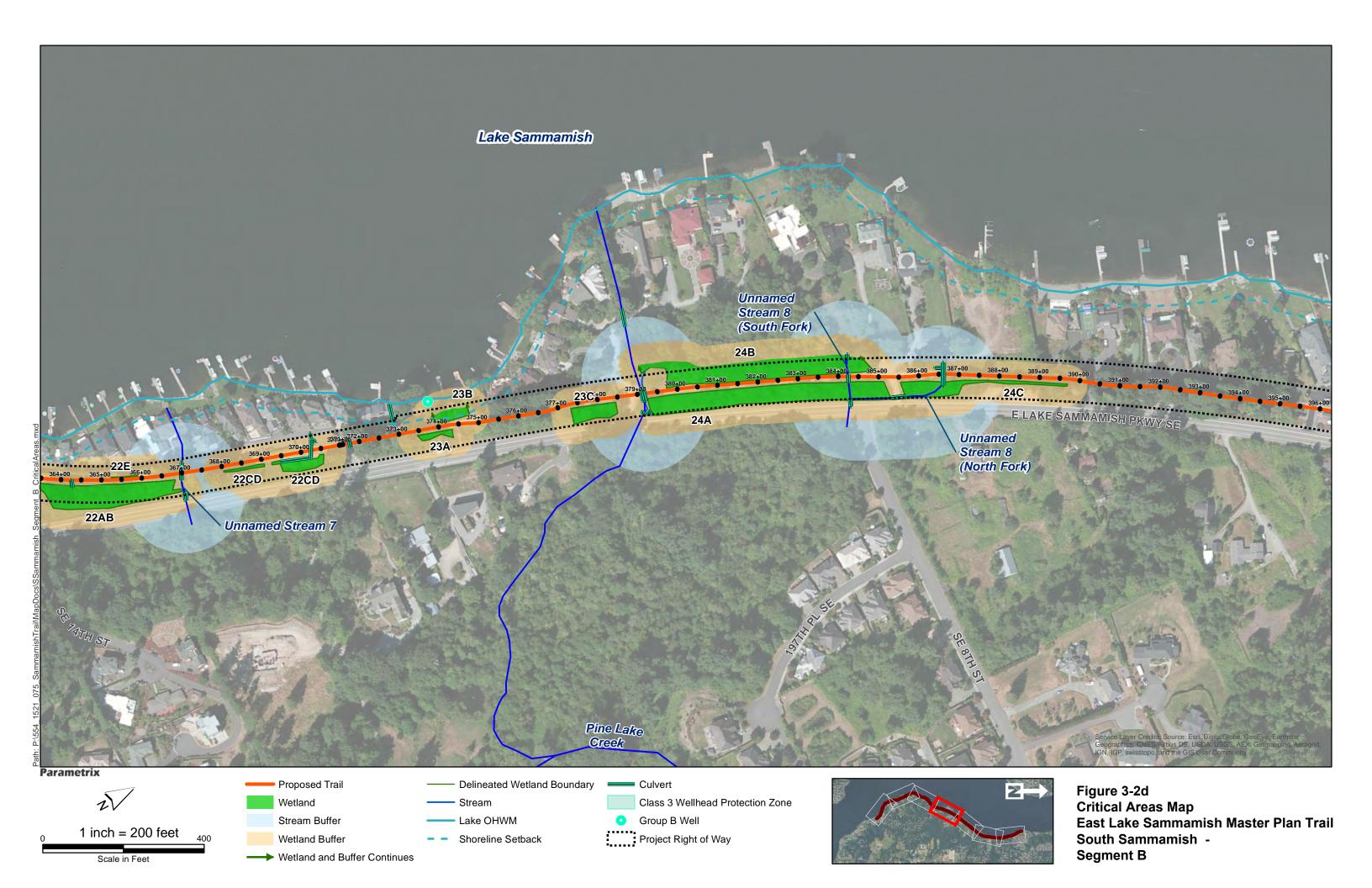


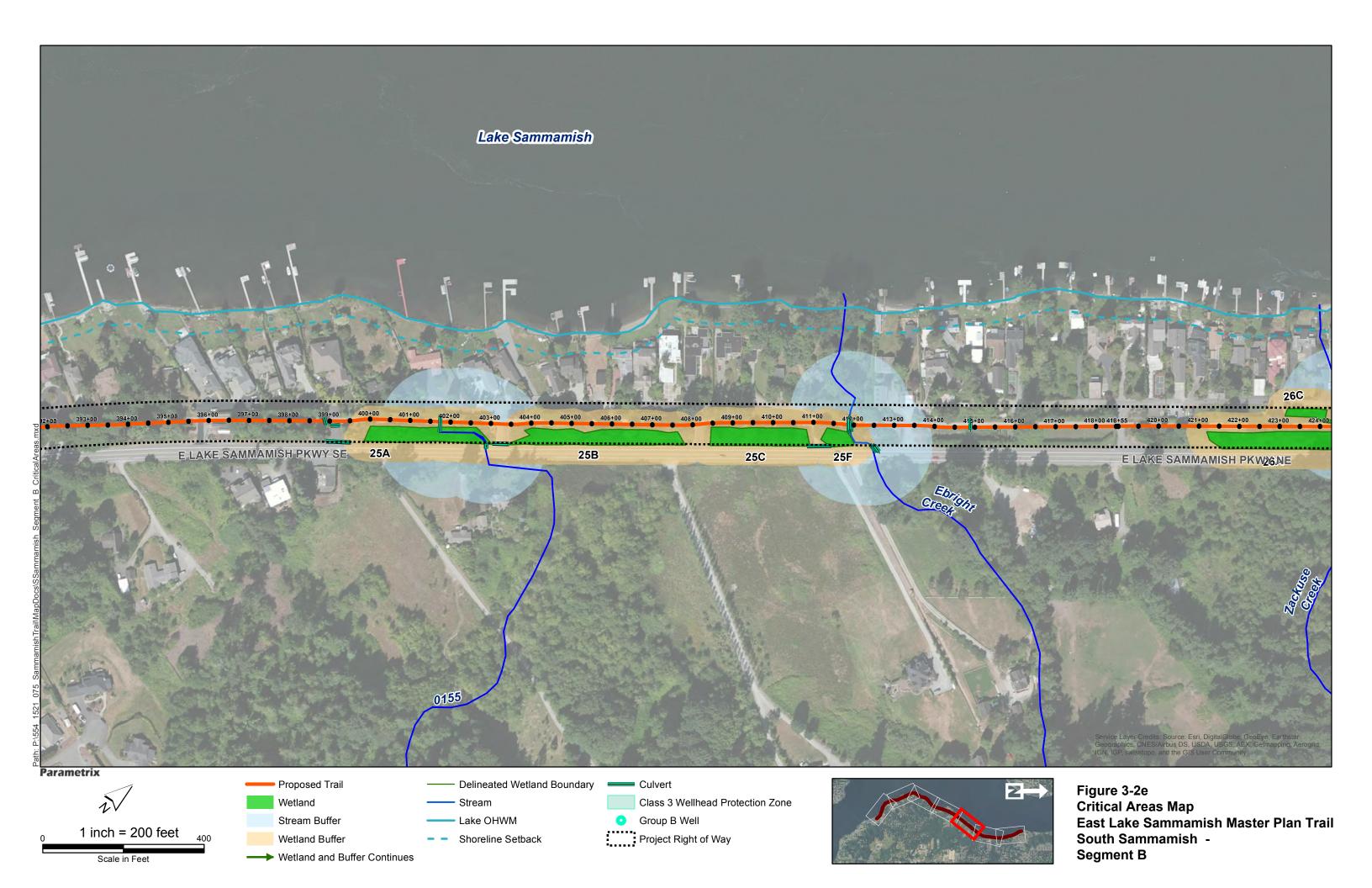
Figure 3-1 Drainage Basins, Subbasins, and Site Characteristics

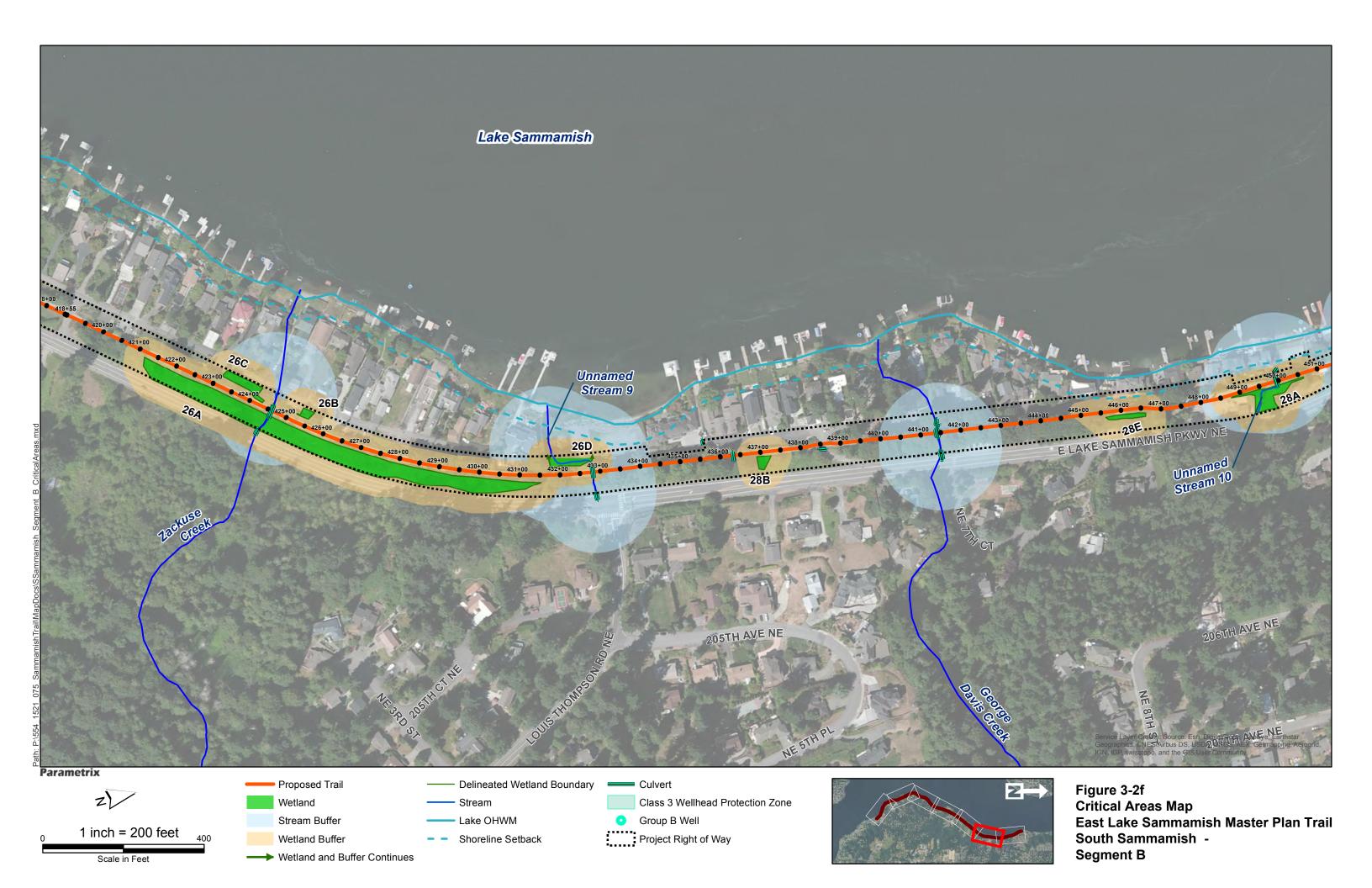












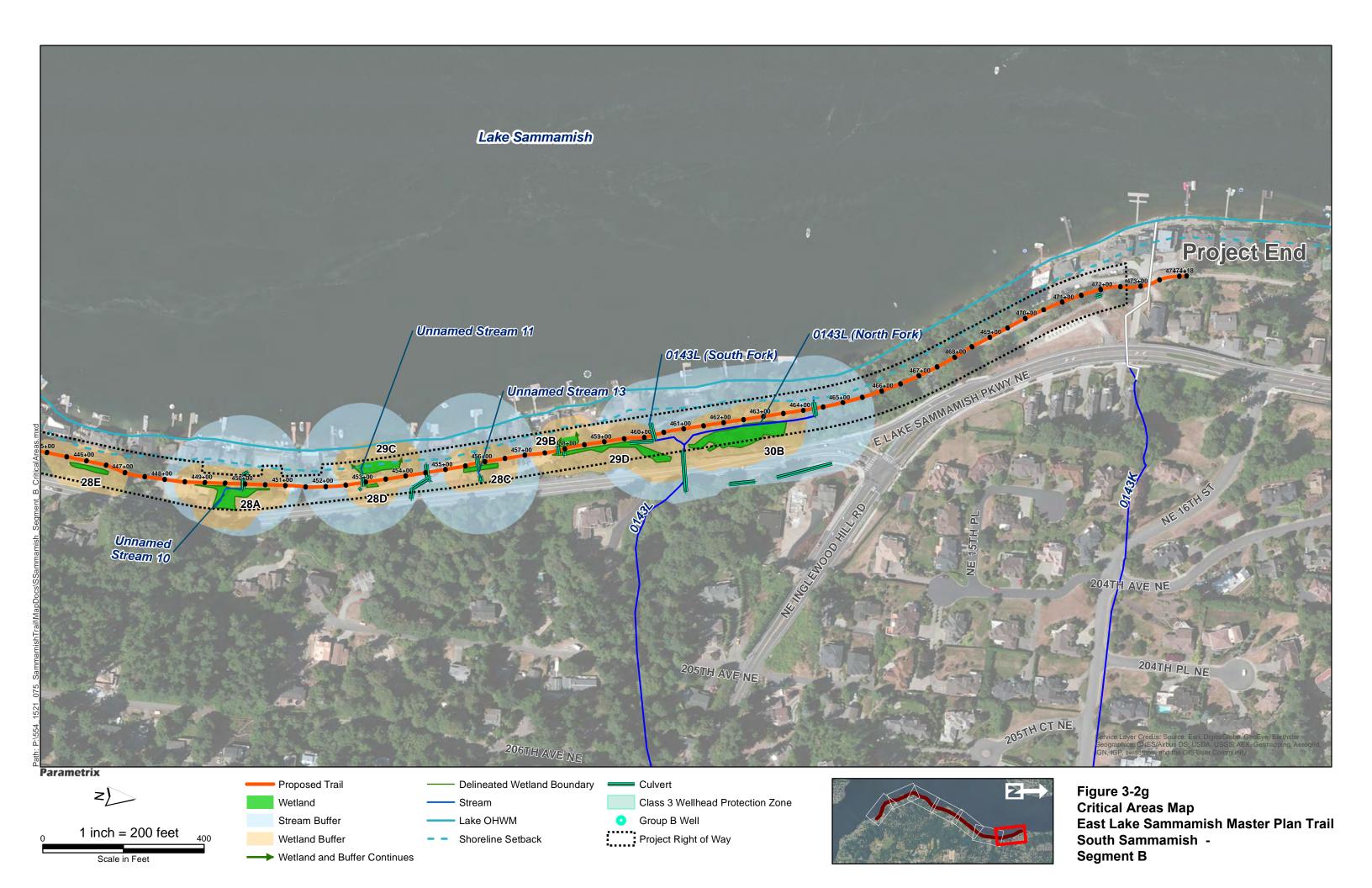


Table 3-2. Summary of Wetland Functions and Values for Wetlands in the Project Area Identified by Parametrix

Wetland	HGM Class	Flood Flow Alteration	Sediment Removal	Nutrient and Toxicant Removal	Erosion Control and Shoreline Stabilization	Production of Organic Matter and its Export	General Habitat Suitability	Habitat for Aquatic Invertebrates	Habitat for Amphibians	Habitat for Wetland- Associated Mammals	Habitat for Wetland- Associated Birds	General Fish Habitat	Native Plant Richness	Educational or Scientific Value	Uniqueness and Heritage
15A	Lake-Fringe/Slope	L	L	L	L	L	L	L	L	L	L	L	-	-	-
15BC	Depressional/Riverine/Slope	L	L	L	L	L	L	L	L	-	-	L	-	-	-
15D	Depressional	L	М	M	-	L	-	M	L	-	-	-	L	-	-
15E	Depressional	L	М	М	-	L	-	M	L	-	-	-	L	-	-
18C	Depressional	L	L	L	-	-	L	L	L	-	-	-	L	-	-
19A	Depressional	-	L	L	-	L	-	L	L	-	-	-	-	-	-
19B	Lake-Fringe/Slope	L	-	L	L	L	L	L	L	L	L	L	-	-	-
20A	Depressional/Slope	L	L	L	-	L	-	L	L	-	-	-	-	-	-
21AC	Lake-Fringe/Slope	L	-	L	L	L	L	L	L	L	L	L	-	-	-
21B	Depressional	L	М	L	-	L	L	L	L	-	-	-	L	-	-
21D	Depressional/Slope	-	L	L	-	L	L	L	L	-	-	-	-	-	-
22AB	Depressional/Slope	M	М	М	L	M	M	L	L	-	-	-	-	-	-
22CD	Depressional/Slope	L	L	L	-	L	L	L	L	-	-	-	-	-	-
22E	Depressional	L	L	L	-	-	-	-	-	-	-	-	-	-	-
23A	Depressional/Slope	L	L	L	-	L	L	L	L	-	-	-	-	-	-
23B	Lake-Fringe/Slope	L	-	L	L	L	L	L	L	L	L	L	-	-	-
23C	Depressional	L	L	L	-	-	L	L	L	-	-	-	-	-	-
24A	Depressional/Riverine	M	L	L	M	Н	M	M	L	-	-	М	-	-	-
24B	Depressional/Riverine	М	М	М	M	M	М	M	М	L	-	М	-	-	-
24C	Depressional/Riverine	L	L	L	L	M	M	M	M	-	-	L	-	-	-
25A	Depressional/Riverine	M	М	М	M	M	M	M	M	L	-	М	-	-	-
25B	Depressional	L	М	М	-	M	M	L	L	-	-	-	-	-	-
25C	Depressional	L	L	L	-	L	M	L	L	-	-	-	-	-	-
25F	Depressional	L	L	L	L	L	L	-	-	-	-	L	-	-	-
26A	Depressional/Riverine	L	L	L	L	L	M	L	L	-	-	L	-	-	-
26B	Slope	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26C	Depressional	L	L	L	-	-	L	-	-	-	-	-	-	-	-
26D	Riverine/Lake-Fringe	L	L	L	L	L	L	L	L	L	L	L	L	-	-
28A	Depressional/Riverine	L	L	L	M	M	L	M	L	-	-	L	-	-	-
28B	Depressional/Slope	-	-	-	-	L	-	-	-	-	-	-	-	-	-
28C	Depressional	L	L	L	-	L	L	L	L	-	-	-	-	-	-
28D	Depressional	-	-	-	M	M	-	-	-	-	-	-	-	-	-
28E	Depressional	L	L	L	-	-	-	-	-	-	-	-	-	-	-
29B	Slope	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29C	Lake-Fringe/Slope	-	L	L	L	M	L	L	L	L	L	L	L	-	-
29D	Depressional/Slope	L	L	L	L	M	L	-	-	-	-	-	L	-	-
30B	Depressional/Slope	L	L	М	-	M	М	М	M	-	-	М	Н	-	-

H = high M = moderate

- = Does not provide this function

July 2017 | 554-1521-075 (19/09) 3-19

Wetland 15A

Subbasin: Monohon

USFWS Classification: Palustrine Forested/Palustrine Emergent

HGM Classification: Lake-Fringe/Slope

Ecology Rating: Category III

City of Sammamish Rating: Category III

Data Plots: 15A-SP1, 15A-SP2 Stations: 317+00 to 318+25 Size: Approximately 0.10 acre

Wetland 15A is associated with Lake Sammamish, located primarily in a maintained residential lawn on the west side of the trail approximately 100 feet south of East Lake Sammamish Shore Lane SE and the intersection of East Lake Sammamish Parkway and SE 26th Street (see Figure 3-2b). Wetland 15A extends outside the project area to the west, down to the lake.

Hydrology

Wetland hydrology is primarily maintained by groundwater seeps along the hill slope, a stream (Unnamed Stream 5), and Lake Sammamish. Unnamed Stream 5 flows from a culvert under the trail (connecting to Wetland 15BC), contributing through flow to the wetland, prior to connecting downstream with Lake Sammamish. The stream appears to be perennial with water flowing during the September 2013 field visit. Saturation in the upper 12 inches of the soil profile was observed during site visits conducted in October 2007 and March 2014. Outside of Lake Sammamish and Unnamed Stream 5, this wetland has a saturated-only water regime.

Vegetation

Wetland 15A has two vegetation communities: forested and emergent. The forested community is dominated by western redcedar (*Thuja plicata*), black cottonwood (*Populus balsamifera*), and red alder (*Alnus rubra*) in the overstory and salmonberry (*Rubus spectabilis*) and English ivy (*Hedera helix*) in the understory. Other species observed include Oregon ash (*Fraxinus latifolia*), Douglas fir (*Pseudotsuga menziesii*), cherry (*Prunus spp.*), Indian plum (*Oemleria cerasiformis*), slough sedge (*Carex obnupta*), western swordfern (*Polystichum munitum*), and hedge false bindweed (*Calystegia sepium*). The emergent community is dominated by maintained lawn, reed canarygrass (*Phalaris arundinacea*), and giant horsetail (*Equisetum telmateia*).

Soils

Soil in Wetland 15A was examined to a depth of 16 inches and consists of two layers. The upper layer is a 14-inch layer of black (10YR 2/1) silt loam with gravel. The lower layer is a black (10YR 2/1) silt loam. High organic content was present throughout the profile. Soil in the area is mapped as Alderwood gravelly sandy loam.

Buffer

Wetland 15A is situated in a residentially developed area with single-family houses and associated yards to the north, east, and south. Lake Sammamish borders the wetland to the west. Wetland buffer consists of maintained lawn, scattered trees, and shrubs including red alder, western redcedar, and redwood (*Sequoia* sp.). The buffer between Wetland 15A and the trail is primarily composed of herbaceous vegetation and a row of arborvitae (*Thuja occidentalis*). Wetland 15BC is located on the east side of the trail.

Wetland Classification

Wetland 15A is classified as a palustrine forested/palustrine emergent wetland under the Cowardin et al. (1979) system and a lake-fringe/slope wetland under the HGM system (Null et al. 2000; Hruby 2004). Wetland 15A is rated a Category III according to the City of Sammamish and Ecology. This wetland scored 42 points on the Washington State Wetland Rating System for Western Washington rating form (18 points for water quality functions, 8 point for hydrologic functions, and 16 points for habitat functions) (see Appendix B). The required buffer width is 50 feet for Category III wetlands scoring less than 20 points for habitat functions in the city of Sammamish (SMC 21A. 50. 290).

Wetland Determination

Biologists flagged the boundary of Wetland 15A where indicators of hydrophytic vegetation, hydric soils, and wetland hydrology were present. The wetland edge generally corresponds with a topographic break where one or more of the wetland indicators was lacking.

Wetland 15BC
Subbasin: Monohon

USFWS Classification: Palustrine Forested/Palustrine Emergent

HGM Classification: Depressional/Riverine/Slope

Ecology Rating: Category IV

City of Sammamish Rating: Category IV

Data Plots: 15C-SP1

Stations: 315+50 to 319+25 Size: Approximately 0.15 acre

Wetland 15BC¹ is the southernmost wetland in the project area. It is located primarily in a maintained residential lawn on the east side of the trail approximately 100 feet south of East Lake Sammamish Shore Lane SE and the intersection of East Lake Sammamish Parkway and SE 26th Street (see Figure 3-2b). Wetland 15BC extends outside the project area to the east.

Hydrology

Wetland hydrology is maintained by groundwater seeps from the slope to the east and through flow from two perennial streams (Unnamed Streams 4 and 5). The wetland outlets via the two streams that flow through separate culverts under the trail, eventually entering Lake Sammamish to the west. A culvert passes under a filled area connecting two portions of this wetland and conveying flow from Unnamed Stream 5 provides a surface water connection from Wetland 15BC to Wetland 15A. Soils were saturated in the upper 12 inches and to the surface in areas during the site visits in 2007 and 2014. This wetland has a saturated only water regime.

Vegetation

Wetland 15BC has two vegetation communities: forested and emergent. There are two forested communities; one is dominated by corkscrew willow (*Salix matsudana*) with one horse chestnut (*Aesculus hippocastanum*) and one Lombardy poplar (*Populus nigra*), and the other is dominated by red alder, Oregon ash, and a large overhanging weeping willow (*Salix babylonica*). The understory is composed of salmonberry, common ladyfern (*Athyrium filix-femina*), reed canarygrass, creeping

¹ Wetland 15BC was identified as two separate wetlands (Wetlands 15B and 15C) during the initial wetland delineations (Parametrix 2005).

buttercup (Ranunculus repens), small-fruited bulrush (Scirpus microcarpus), common rush (Juncus effusus), giant horsetail, fringed willowherb (Epilobium ciliatum), grasses, watercress (Nasturtium officinale), different leaved water-starwort (Callitriche heterophylla), and few western swordfern. The emergent community consists of grass (mowed lawn), reed canarygrass, common rush, small-fruited bulrush, skunk cabbage (Lysichiton americanus), giant horsetail, ladyfern, hedge false bindweed, and fringed willowherb.

Soils

Soil examined in Wetland 15BC consists of a single 17-inch layer of a very dark gray (10YR 3/1) silt loam. Soil in the area is mapped as Alderwood gravelly sandy loam.

Buffer

The area surrounding Wetland 15BC is developed with single-family residences and associated yards. Directly to the east of the wetland is a sloped yard dominated by mowed grass. A few scattered trees lie to the northeast and southeast. Vegetation in the buffer includes ornamental shrubs, Douglas fir, and western redcedar. The vegetation between the wetland and trail consists of a laurel hedge, grasses, and ornamental shrubs.

Wetland Classification

Wetland 15BC is classified as a palustrine forested/palustrine emergent wetland under the Cowardin et al. (1979) system and depressional/riverine/slope under the HGM system (Null et al. 2000; Hruby 2004). Wetland 15BC is rated a Category IV according to the City of Sammamish and Ecology. This wetland scored 27 points on the Washington State Wetland Rating System for Western Washington rating form (4 points for water quality functions, 10 points for hydrologic functions, and 13 points for habitat functions) (see Appendix B). The required buffer width is 50 feet for Category IV wetlands in the city of Sammamish (SMC 21A.50.290).

Wetland Determination

Biologists flagged the boundary of Wetland 15BC where indicators of hydrophytic vegetation, hydric soils, and wetland hydrology were present. The wetland edge generally corresponds with a topographic break where one or more of the wetland indicators was lacking.

Wetland 15D

Subbasin: Monohon

USFWS Classification: Palustrine Emergent

HGM Classification: Depressional Ecology Rating: Category IV

City of Sammamish Rating: Category IV

Data Plots: 15D-SP1, 15D-SP2 Stations: 320+75 to 325+75

Size: 0.05 acre

Wetland 15D is a maintained swale bounded by the fill slope of the trail and a cut slope immediately east of the trail, north of SE 26th Street (see Figure 3-2b). This swale is vegetated with herbaceous species, but receives periodic clearing and dredging. It functions as a ditch conveying water along the trail to downgradient aquatic systems. This wetland is located entirely within the project area.

Hydrology

Wetland hydrology is supported by groundwater discharge, seasonally high groundwater, and local area runoff. Surface water from Wetland 15E is also conveyed to Wetland 15D from a pipe at the north end and a pipe at the south end. Wetland 15D is on a crest sending some surface water north and some south. Water flowing north exits through a culvert under a private driveway, then goes into a grassy swale where some water appears to infiltrate and some is conveyed farther north via a small corrugated pipe. Water flowing south exits through a culvert under SE 26th Street, then continues south in a ditch to Wetland BC. Surface water from Wetland BC flows under the trail to Lake Sammamish. Saturation to the surface and inundation were observed during the January 2009 and September 2013 field investigations. This wetland has permanently flooded, seasonally flooded, and saturated only water regimes.

Vegetation

Wetland 15D has an emergent community that is periodically maintained. Dominant species include different leaved water-starwort, common duckweed (*Lemna minor*), creeping buttercup, small-fruited bulrush, and English ivy (encroaching from the adjacent upland slope). Other species observed include reed canarygrass, American speedwell (*Veronica americana*), common rush, watercress, ladyfern, rough bluegrass (*Poa trivialis*), red fescue (*Festuca rubra*), birdsfoot trefoil (*Lotus corniculatus*), and little western bittercress (*Cardamine oligosperma*).

Soils

Soils examined in Wetland 15D were a black (N 2.5/1) loamy sand over a very dark greenish gray (10Y 3/1) sand. Gravels and cobbles were present throughout the profile. Soil in the area is mapped as Alderwood gravelly sandy loam.

Buffer

The wetland is in a residential area surrounded by single-family residences and associated yards. A private driveway, SE 26th Street, and the trail border the wetland to the north, south, and west that have a narrow maintained herbaceous layer. Portions of the slope to the east have a rock or concrete retaining wall. Although narrow, there is a vegetated buffer to the east that is dominated by Himalayan blackberry and English ivy. Other species include hedge false bindweed, rose (*Rosa* sp.), laurel, beaked hazelnut (*Corylus cornuta*), bigleaf maple (*Acer macrophyllum*), and little western bittercress. Connectivity to other wetlands is inhibited by development.

Wetland Classification

Wetland 15D is classified as a palustrine emergent wetland under the Cowardin et al. (1979) system and a depressional wetland under the HGM system (Null et al. 2000; Hruby 2004). Wetland 15D is rated a Category IV according to the City of Sammamish and Ecology. This wetland scored 29 points on the Washington State Wetland Rating System for Western Washington rating form (8 points for water quality functions, 10 points for hydrologic functions, and 11 points for habitat functions) (see Appendix B). The required buffer width is 50 feet for Category IV wetlands in the city of Sammamish (SMC 21A.50.290).

Wetland Determination

Biologists flagged the boundary of Wetland 15D where indicators of hydrophytic vegetation, hydric soils, and wetland hydrology were present. The wetland edge generally corresponds with a topographic break where one or more of the wetland indicators was lacking.

Wetland 15E

Subbasin: Monohon

USFWS Classification: Palustrine Emergent

HGM Classification: Depressional Ecology Rating: Category IV

City of Sammamish Rating: Category IV

Data Plots: 15E-SP1, 15E-SP2 Stations: 320+75 to 324+75

Size: 0.05 acre

Wetland 15E is a maintained swale bounded by the fill slope of the trail and a cut slope immediately west of the trail, north of SE 26th Street (see Figure 3-2b). This swale is vegetated with herbaceous species, but receives periodic clearing and dredging. It functions as a ditch conveying water along the trail to downgradient aquatic systems. This wetland is located entirely within the project area.

Hydrology

Wetland hydrology is supported by high groundwater and local area runoff. Wetland 15E is on a crest sending some surface water north and some south. Culverts at both ends of the wetland convey water under the trail to Wetland 15D. Saturation to the surface and inundation were observed during the January 2009 and September 2013 field investigations. This wetland has permanently flooded and saturated only water regimes.

Vegetation

Wetland 15E has an emergent community that is periodically maintained. Dominant species include small-fruited bulrush and common duckweed. Other species observed include American speedwell, common rush, ladyfern, different leaved water-starwort, creeping buttercup, rough bluegrass, common velvetgrass (*Holcus lanatus*), giant horsetail, water horsetail (*Equisetum fluviatile*), watercress, common cattail (*Typha latifolia*), fringed willowherb, reed canarygrass, and birdsfoot trefoil.

Soils

Soil examined in Wetland 15E was a black (10YR 2/1) sandy silt loam. Decomposing organic matter and gravel were present throughout the profile. Soil in the area is mapped as Alderwood gravelly sandy loam.

Buffer

The wetland is in a residential area surrounded by single-family residences and associated yards. A private driveway, SE 26th Street, and the trail border the wetland to the north, south, and east that have a narrow maintained herbaceous layer. A row of arborvitae with mulch is located to the north between the wetland and the private driveway. Although narrow, there is a vegetated buffer to the west that contains small patches of trees dominated by Douglas fir, bigleaf maple, western redcedar, and an ornamental fruit tree. The understory is dominated by salal (*Gaultheria shallon*), western swordfern, and English ivy. Other species include Himalayan blackberry (*Rubus armeniacus*), beaked hazelnut, bracken fern (*Pteridium aquilinum*), creeping buttercup, red fescue, reed canarygrass, and hedge false bindweed. Connectivity to other wetlands is inhibited by development.

Wetland Classification

Wetland 15E is classified as a palustrine emergent wetland under the Cowardin et al. (1979) system and a depressional wetland under the HGM system (Null et al. 2000; Hruby 2004). Wetland 15E is rated a

Category IV according to the City of Sammamish and Ecology. This wetland scored 28 points on the Washington State Wetland Rating System for Western Washington rating form (4 points for water quality functions, 14 points for hydrologic functions, and 10 points for habitat functions) (see Appendix B). The required buffer width is 50 feet for Category IV wetlands in the city of Sammamish (SMC 21A.50.290).

Wetland Determination

Biologists flagged the boundary of Wetland 15E where indicators of hydrophytic vegetation, hydric soils, and wetland hydrology were present. The wetland edge generally corresponds with a topographic break where one or more of the wetland indicators was lacking.

Wetland 18C

Subbasin: Monohon

USFWS Classification: Palustrine Scrub-Shrub

HGM Classification: Depressional Ecology Rating: Category III

City of Sammamish Rating: Category III

Data Plots: 18C-SP1, 18C-SP2 Stations: 330+75 to 331+75

Size: 0.02 acre

Wetland 18C is located in a ravine on the east side of the trail in a residentially developed area bounded to the north and south by residential yards (see Figure 3-2b). This wetland is located entirely within the project area.

Hydrology

Wetland hydrology is maintained by local area runoff from slopes to the east and north and seasonally high groundwater. The wetland is a closed depression with no outlet. Soil saturation in the upper 12 inches was observed during the October 2007 site visit and standing water (measured 8 inches) was present during the March 2014 site visit. This wetland has a seasonally flooded water regime.

Vegetation

Wetland 18C is a scrub-shrub wetland community dominated by red-osier dogwood (*Cornus sericea*). Sub-dominant vegetation includes Oregon ash, Himalayan blackberry, common scouring rush (*Equisetum hyemale*), and slough sedge.

Soils

Soil in Wetland 18C was examined to a depth of 18 inches and consists of three layers. The surface layer is a 6-inch layer of very dark gray (10YR 3/1) silt loam. The subsurface layers are a 6-inch layer of very dark gray (10YR 3/1) gravelly silt loam with light red (2.5Y 6/6) redoximorphic features over a 6-inch layer of dark gray (10YR 4/1) gravelly sandy loam. Soil in the area is mapped as mixed alluvial land.

Buffer

Wetland 18C is surrounded by single-family residential development. A sloped yard is to the east of the wetland and is dominated by English ivy. The slope to the west of the wetland is partially landscaped (near trail), but most is dominated in the understory by Himalayan blackberry with Pacific madrone (*Arbutus menziesii*), Douglas fir (on lake side of trail), bigleaf maple, western swordfern, and beaked hazelnut.

Wetland Classification

Wetland 18C is classified as a palustrine scrub-shrub wetland under the Cowardin et al. (1979) system and depressional under the HGM system (Null et al. 2000; Hruby 2004). Wetland 18C is rated a Category III according to the City of Sammamish and Ecology. This wetland scored 46 points on the Washington State Wetland Rating System for Western Washington rating form (24 points for water quality functions, 14 points for hydrologic functions, and 8 points for habitat functions) (see Appendix B). The required buffer width is 50 feet for Category III wetlands scoring less than 20 points for habitat functions in the city of Sammamish (SMC 21A.50.290).

Wetland Determination

Biologists flagged the boundary of Wetland 18C where indicators of hydrophytic vegetation, hydric soils, and wetland hydrology were present. The wetland edge generally corresponds with a topographic break where one or more of the wetland indicators was lacking.

Wetland 19A

Subbasin: Monohon

USFWS Classification: Palustrine Emergent

HGM Classification: Depressional Ecology Rating: Category IV

City of Sammamish Rating: Category IV

Data Plots: 19A-SP1

Stations: 347+50 to 348+25

Size: 0.01 acre

Wetland 19A is primarily a vegetated ditch located on the east side of the trail in a residential area between the trail and East Lake Sammamish Place SE (see Figure 3-2c). This wetland is located entirely within the project area.

Hydrology

Hydrology is supported by local area runoff and groundwater seeps from the slope to the east. Inundation of 5 inches was observed in the ditch during site visits conducted in November 2007, and saturated soils within the upper 12 inches were observed in September 2013. This wetland has seasonally flooded and saturated only water regimes. No outlet was observed.

Vegetation

Wetland 19A is an emergent wetland community. Dominant vegetation is reed canarygrass. Other vegetation present includes common velvetgrass, common rush, giant horsetail, Himalayan blackberry, hedge false bindweed, purple loosestrife (*Lythrum salicaria*), and Oregon ash.

Soils

Soil in Wetland 19A was examined to a depth of 18 inches and consists of two layers—a very dark gray (7.5YR 3/1) silt loam over a dark gray (2.5Y 4/1) silt loam with light olive brown (2.5Y 5/6) redoximorphic features. Soil in the area is mapped as Alderwood gravelly sandy loam.

Buffer

Wetland 19A is situated in a residentially developed area with minimal functional buffer. A steep-sloped yard with mowed grass is to the east of the wetland. The trail lies to the west of the wetland with a

narrow strip of maintained herbaceous vegetation between. The rest of the vegetated buffer includes English ivy, salal, western swordfern, Himalayan blackberry, and hedge false bindweed.

Wetland Classification

Wetland 19A is classified as a palustrine emergent wetland under the Cowardin et al. (1979) system and depressional under the HGM system (Null et al. 2000; Hruby 2004). Wetland 19A is rated a Category IV according to the City of Sammamish and Ecology. This wetland scored 27 points on the Washington State Wetland Rating System for Western Washington rating form (12 points for water quality functions, 8 points for hydrologic functions, and 7 points for habitat functions) (see Appendix B). The required buffer width is 50 feet for Category IV wetlands in the city of Sammamish (SMC 21A.50.290).

Wetland Determination

Biologists flagged the boundary of Wetland 19A where indicators of hydrophytic vegetation, hydric soils, and wetland hydrology were present. The wetland edge generally corresponds with a topographic break where one or more of the wetland indicators was lacking.

Wetland 19B

Subbasin: Monohon

USFWS Classification: Palustrine Scrub-Shrub/Palustrine Emergent

HGM Classification: Lake-Fringe/Slope

Ecology Rating: Category III

City of Sammamish Rating: Category III

Data Plots: 19B-SP1, 19B-SP2 Stations: 347+50 to 349+75 Size: Approximately 0.36 acre

Wetland 19B is located on the west side of the trail in a residential area between the trail and Lake Sammamish (see Figure 3-2c). Wetland 19B extends outside the project area to the west, and is associated with Lake Sammamish. This wetland is mostly lawn, and has been modified since the 2007 field investigation. The vicinity of the original W19B-SP1 location has been filled, landscaped, and terraced; therefore, a new sample plot (W19B-SP1 (rev)) was documented in March 2014.

Hydrology

Wetland hydrology is supported by seasonally high groundwater. The wetland drains toward Lake Sammamish. Soil saturation in the upper 12 inches was observed during site visits conducted in October 2007. In March 2014, soil saturation to the surface with standing water in micro-depressions was observed. This wetland has a saturated only water regime.

Vegetation

Wetland 19B is primarily an emergent wetland community. The wetland is mostly residential lawn dominated by mowed unidentified grass. A small scrub-shrub community occurs along the eastern boundary, dominated by Himalayan blackberry and hedge false bindweed, with some red-osier dogwood and rose.

Soils

Soil in Wetland 19B was examined to a depth of 19 inches and consists of two layers. The surface layer is a black (10YR 2/1) gravelly sandy loam. The subsurface layer is a dark gray (10YR 4/1) gravelly clay loam

with yellowish brown (10YR 5/8) redoximorphic features. Soil in the area is mapped as Alderwood gravelly sandy loam.

Buffer

Wetland 19B is located in a residentially developed area and wetland buffer is mostly maintained lawn with some scattered trees and shrubs. Lake Sammamish is adjacent to the wetland to the west. The trail is located to the east of the wetland. Vegetation between the trail and the wetland is mostly landscaped with a row of arborvitae and patches of Himalayan blackberry, English ivy, and salal. Other species include black cottonwood, western swordfern, snowberry, and giant horsetail.

Wetland Classification

Wetland 19B is classified as a palustrine scrub-shrub/palustrine emergent wetland under the Cowardin et al. (1979) system and lake-fringe/slope under the HGM system (Null et al. 2000; Hruby 2004). Wetland 19B is rated a Category III according to the City of Sammamish and Ecology. This wetland scored 35 points on the Washington State Wetland Rating System for Western Washington rating form (20 point for water quality functions, 4 point for hydrologic functions, and 11 points for habitat functions) (see Appendix B). The required buffer width is 50 feet for Category III wetlands scoring less than 20 points for habitat functions in the city of Sammamish (SMC 21A.50.290).

Wetland Determination

Wetland 19B was delineated based on the presence of hydric soil and wetland hydrology. Vegetation was not used for delineation because existing vegetation is mowed lawn and may not reflect hydrologic conditions present on the site.

Wetland 20A

Subbasin: Monohon

USFWS Classification: Palustrine Emergent HGM Classification: Depressional/Slope

Ecology Rating: Category III

City of Sammamish Rating: Category III

Data Plots: 20A-SP1, 20A-SP2 Stations: 352+75 to 355+25

Size: 0.05 acre

Wetland 20A is a vegetated ditch located on the east side of the trail in a residential area between the trail and East Lake Sammamish Place SE (see Figure 3-2c). This wetland is located entirely within the project area.

Hydrology

Wetland hydrology is maintained by groundwater seeps along the slope to the east. Most water in the wetland drains through a pipe at the north end that discharges into Wetland 21B and Unnamed Stream 6. Water in the southern portion of Wetland 20A flows through a small pipe and a ditch to the south, then turns west into another pipe under the trail to Lake Sammamish. Inundation was observed in the ditch and soils were saturated in other portions of the wetland during site visits conducted in November 2007. Soil was saturated in the upper 12 inches during the September 2013 field investigation. This wetland has permanently flooded, seasonally flooded, and saturated only water regimes.

Vegetation

Wetland 20A is an emergent wetland vegetation community. Dominant vegetation in the wetland is reed canarygrass. English ivy covers much of the south end. Other species include Himalayan blackberry, ladyfern, skunk cabbage, common cattail, American speedwell, English ivy, fringed willowherb, giant horsetail, field horsetail (*Equisetum arvense*), climbing nightshade (*Solanum dulcamara*), purple loosestrife, and birdsfoot trefoil.

Soils

Soil in Wetland 20A was examined to a depth of 18 inches and consists of two layers. The surface layer is a 6-inch layer of very dark gray (10YR 3/1) silt loam. The subsurface layer is a 12-inch layer of very dark gray (10YR 3/1) gravelly sandy loam. Soil in the area is mapped as Alderwood gravelly sandy loam.

Buffer

Wetland 20A is located in a residentially developed area; a functional wetland buffer is limited to a slope on the east side of the wetland that extends to the north and south. Vegetation on the slope is dominated by English ivy and Himalayan blackberry. Other species observed include young Oregon ash, beaked hazelnut, salmonberry, Portugal laurel (*Prunus lusitanica*), and black locust (*Robinia pseudoacacia*).

Wetland Classification

Wetland 20A is classified as a palustrine emergent wetland under the Cowardin et al. (1979) system and depressional/slope under the HGM system (Null et al. 2000; Hruby 2004). Wetland 20A is rated a Category III according to the City of Sammamish and Ecology. This wetland scored 45 points on the Washington State Wetland Rating System for Western Washington rating form (18 points for water quality functions, 16 points for hydrologic functions, and 11 points for habitat functions) (see Appendix B). The required buffer width is 50 feet for Category III wetlands scoring less than 20 points for habitat functions in the city of Sammamish (SMC 21A.50.290).

Wetland Determination

Biologists flagged the boundary of Wetland 20A where indicators of hydrophytic vegetation, hydric soils, and wetland hydrology were present. The wetland edge generally corresponds with a topographic break where one or more of the wetland indicators was lacking.

Wetland 21AC
Subbasin: Monohon

USFWS Classification: Palustrine Emergent HGM Classification: Lake-Fringe/Slope

Ecology Rating: Category III

City of Sammamish Rating: Category III

Data Plots: 21A-SP1, 21A-SP2 Stations: 355+50 to 359+25 Size: Approximately 0.40 acre

Wetland 21AC² is located on the west side of the trail between the trail and Lake Sammamish in a residentially developed area west of the intersection of East Lake Sammamish Place SE, East Lake Sammamish Parkway SE, and SE 16th Street (see Figure 3-2c). Wetland 21AC extends outside the project area to the west, and is associated with Lake Sammamish.

Hydrology

Wetland hydrology is maintained primarily by groundwater seeps along the slope. Unnamed Stream 6 flows through the wetland in a rock-lined channel in an area that is landscaped. The wetland is sloped and drains toward Lake Sammamish. Occasional inundation occurs and soil saturation at the surface was observed during site visits in October 2007 and March 2014. This wetland has permanently flooded, occasionally flooded, and saturated only water regimes.

Vegetation

Wetland 21AC is an emergent vegetation community. A majority of the wetland is maintained lawn dominated by unidentified mowed grass, small-fruited bulrush, and creeping buttercup. Other species identified include red-osier dogwood, salmonberry, small-fruited bulrush, common forget-me-not (*Myosotis scorpioides*), and common velvetgrass. An aquatic bed community is present in the lake, outside of the project area.

Soils

Soil in Wetland 21AC was examined to a depth of 16 inches and consists of three layers. The upper layer is a 4-inch very dark gray (10YR 3/1) sandy loam. The lower layers consist of a 5-inch gray (10YR 5/1) loamy sand with strong brown (7.5YR 4/6) redoximorphic features over a 7-inch dark greenish gray (10Y 4/1) gravelly sand. Soil in the area was mapped as Alderwood gravelly sandy loam.

Buffer

Wetland 21AC is situated in a residentially developed area with single-family residences and associated yards to the northeast, southeast, and southwest. Lake Sammamish borders the wetland to the northwest. Buffer vegetation consists primarily of ornamental shrubs with beaked hazelnut, swordfern, salmonberry, and maintained lawn dominated by unidentified mowed grass.

Wetland Classification

Wetland 21AC is classified as a palustrine emergent wetland under the Cowardin et al. (1979) system and lake-fringe/slope under the HGM system (Null et al. 2000; Hruby 2004). Wetland 21AC is rated a

² Wetland 21AC was identified as two separate wetlands (Wetlands 21A and 21C) during the initial wetland delineations (Parametrix 2005).

Category III according to the City of Sammamish and Ecology. This wetland scored 34 points on the Washington State Wetland Rating System for Western Washington rating form (18 points for water quality functions, 4 point for hydrologic functions, and 12 points for habitat functions) (see Appendix B). The required buffer width is 50 feet for Category III wetlands scoring less than 20 points for habitat functions in the city of Sammamish (SMC 21A.50.290).

Wetland Determination

Biologists flagged the boundary of Wetland 21AC where indicators of hydrophytic vegetation, hydric soils, and wetland hydrology were present. The wetland edge generally corresponds with a topographic break where one or more of the wetland indicators was lacking.

Wetland 21B

Subbasin: Monohon

USFWS Classification: Palustrine Forested/Palustrine Scrub-Shrub

HGM Classification: Depressional Ecology Rating: Category III

City of Sammamish Rating: Category III

Data Plots: 21B-SP1, 21B-SP2 Stations: 355+50 to 356+75 Size: Approximately 0.08 acre

Wetland 21B is a depression, located on the east side of the trail in a residentially developed area west of the intersection of East Lake Sammamish Place SE, East Lake Sammamish Parkway SE, and SE 16th Street (see Figure 3-2c). This wetland extends to the east, outside of the project area.

Hydrology

Wetland hydrology is maintained by local area runoff and Unnamed Stream 6. A culvert at the south end of the wetland passes under a residential driveway and discharges surface water from Wetland 20A. Water flows north through the wetland joining Unnamed Stream 6 and exits through a culvert passing west under the trail into Wetland 21AC. Soil saturation to the surface and inundation was observed in a ditched portion of the wetland during site visits conducted in November 2007 and September 2013. This wetland has permanently flooded, occasionally flooded, and saturated only water regimes.

Vegetation

Wetland 21B has two vegetation communities: forested and scrub-shrub. The forested community is dominated by red alder and Oregon ash. The scrub-shrub community is dominated by salmonberry, beaked hazelnut, and red-osier dogwood. Other non-dominant species include black twinberry (*Lonicera involucrata*), stink currant (*Ribes bracteosum*), giant horsetail, ladyfern, reed canarygrass, skunk cabbage, climbing nightshade, stinging nettle (*Urtica dioica*), and Himalayan blackberry.

Soils

Soil in Wetland 21B was examined to a depth of 18 inches and consists of a single layer of black (10YR 2/1) silt loam. Soil in the area is mapped as Alderwood gravelly sandy loam.

Buffer

The wetland is situated in a residentially developed area. The trail separates the wetland from Wetland 21AC to the northwest. Single-family residences exist to the northeast and southwest. An upland forest area exists to the southeast. Vegetation in the forested buffer includes bigleaf maple, western

swordfern, beaked hazelnut, cascara buckthorn (*Rhamnus purshiana*), red elderberry (*Sambucus racemosa*), Oregon ash, salmonberry, stinging nettle, and creeping buttercup. The buffer between Wetlands 21B and 21D (to the northeast) comprises Himalayan blackberry, maintained lawn, and landscaped plantings. The vegetated buffer immediately adjacent to the trail consists of mowed grass, reed canarygrass, and Himalayan blackberry.

Wetland Classification

Wetland 21B is classified as a palustrine forested/palustrine scrub-shrub wetland under the Cowardin et al. (1979) system and depressional under the HGM system (Null et al. 2000; Hruby 2004). Wetland 21B is rated a Category III according to the City of Sammamish and Ecology. This wetland scored 39 points on the Washington State Wetland Rating System for Western Washington rating form (14 points for water quality functions, 10 points for hydrologic functions, and 15 points for habitat functions) (see Appendix B). The required buffer width is 50 feet for Category III wetlands scoring less than 20 points for habitat functions in the city of Sammamish (SMC 21A.50.290).

Wetland Determination

Biologists flagged the boundary of Wetland 21B where indicators of hydrophytic vegetation, hydric soils, and wetland hydrology were present. The wetland edge generally corresponds with a topographic break where one or more of the wetland indicators was lacking.

Wetland 21D

Subbasin: Monohon

USFWS Classification: Palustrine Emergent HGM Classification: Depressional/Slope

Ecology Rating: Category IV

City of Sammamish Rating: Category IV

Data Plots: 21D-SP1 (rev) Stations: 357+50 to 359+25 Size: Approximately 0.15 acre

Wetland 21D is a vegetated swale located on the east side of the trail in residential yards west of the intersection of East Lake Sammamish Place SE, East Lake Sammamish Parkway SE, and SE 16th Street (see Figure 3-2c). This wetland extends upslope, outside the project area to the east.

Hydrology

Wetland hydrology is supported by groundwater discharge, seasonally high groundwater, and local area runoff. Water discharges into the wetland from two drainage sources (pipe and half-pipe) at the north end of the wetland, and seeps from the slope to the east. Water flows south through a swale in the wetland and exits through a culvert at the south end. This pipe appears to join Unnamed Stream 6, which then flows west toward Lake Sammamish through Wetland 21AC. Saturation to the surface and flowing water in the swale was observed during site visits conducted in November 2007 and September 2013. This wetland has permanently flooded and saturated only water regimes.

Vegetation

Wetland 21D is an emergent vegetation community dominated by maintained lawn with unidentified mowed grass. Other species present include small-fruited bulrush, reed canarygrass, common velvetgrass, common rush, fringed willowherb, Himalayan blackberry, Canada thistle (*Cirsium arvense*), spiny sowthistle (*Sonchus asper*), American speedwell, watercress, and ladyfern.

Soils

Soil in Wetland 21D was examined to a depth of 14 inches and consists of two layers. The surface layer is a very dark gray (10YR 3/1) silt loam and the subsurface layer is a very dark gray (10YR 3/1) gravelly sandy loam. Soil in the area is mapped as Alderwood gravelly sandy loam.

Buffer

The wetland is situated in a residential area and surrounded by single-family residences and associated yards. Vegetation consists primarily of maintained lawn and ornamental shrubs. Connectivity to other wetlands is inhibited by development.

Wetland Classification

Wetland 21D is classified as a palustrine emergent wetland under the Cowardin et al. (1979) system and depressional/slope under the HGM system (Null et al. 2000; Hruby 2004). Wetland 21D is rated a Category IV according to the City of Sammamish and Ecology. This wetland scored 18 points on the Washington State Wetland Rating System for Western Washington rating form (2 points for water quality functions, 6 points for hydrologic functions, and 10 points for habitat functions) (see Appendix B). The required buffer width is 50 feet for Category IV wetlands in the city of Sammamish (SMC 21A.50.290).

Wetland Determination

Biologists flagged the boundary of Wetland 21D where indicators of hydrophytic vegetation, hydric soils, and wetland hydrology were present. The wetland edge generally corresponds with a topographic break where one or more of the wetland indicators was lacking.

Wetland 22AB

Subbasin: Monohon

USFWS Classification: Palustrine Forested/Palustrine Scrub-Shrub/Palustrine Emergent

HGM Classification: Depressional/Slope

Ecology Rating: Category III

City of Sammamish Rating: Category III Data Plots: 22AB-SP1, 22AB-SP2 Stations: 361+00 to 367+00

Size: 0.46 acre

Wetland 22AB³ is located on the east side of the trail between the trail and East Lake Sammamish Parkway, northwest of the intersection of East Lake Sammamish Place SE, East Lake Sammamish Parkway SE, and SE 16th Street (see Figures 3-2c and 3-2d). This wetland is located entirely within the project area.

Hydrology

Wetland hydrology is maintained by seasonally high groundwater, local area runoff, and through flow from an adjacent unnamed stream (Unnamed Stream 7). A culvert passes under East Lake Sammamish Parkway conveying Unnamed Stream 7 adjacent to the north end of Wetland 22AB. Water exits the

³ Wetland 22AB was identified as two separate wetlands (Wetlands 22A and 22B) during the initial wetland delineations (Parametrix 2005).

wetland through culverts under the trail at the south end, center, and north end of the wetland and is piped to Lake Sammamish. Soil saturation at the surface and surface water flowing through the wetland and ditch was observed during site visits conducted in November 2007, May 2008, and September 2013. This wetland has permanently flooded, seasonally flooded, occasionally flooded, and saturated only water regimes.

Vegetation

Wetland 22AB has three vegetation communities: forested, scrub-shrub, and emergent. Vegetation in the forested community includes red alder, black cottonwood, Pacific willow (*Salix lucida*), red-osier dogwood, salmonberry, Himalayan blackberry, bigleaf maple, and grape (*Vitus* sp.). Vegetation in the scrub-shrub community includes red-osier dogwood, Sitka willow (*Salix sitchensis*), salmonberry, Himalayan blackberry, Pacific willow, English ivy, thimbleberry (*Rubus parviflorus*), and ornamental shrubs. The emergent community in the wetland includes reed canarygrass, hedge false bindweed, ladyfern, giant horsetail, American skunk cabbage, stinging nettle, small-fruited bulrush, and Robert's geranium (*Geranium robertianum*).

Soils

Two wetland soil pits were examined in Wetland 22AB. The first soil pit (W22AB-SP1) was dug in the forested vegetation community and examined to a depth of 18 inches. The soil pit consists of a single 18-inch layer of black (10YR 2/1) sandy muck. The second soil pit (W22AB-SP2) was dug in scrub-shrub vegetation community and consists of three layers. The upper layer is a 6-inch layer of black (10YR 2/1) mucky loam. The middle layer is a 2-inch layer of black (10YR 2/1) mucky sandy loam. The lower layer is a 10-inch layer of black (2.5Y 2. 5/1) mucky loam. Soil in the area is mapped as Alderwood gravelly sandy loam.

Buffer

Wetland 22AB is situated in a residentially developed area. Single-family residences exist to the north, south, and west of the wetland. A small vegetated upland area to the north provides connectivity to Wetland 22CD. A narrow vegetated buffer exists to the east between the wetland and the East Lake Sammamish Parkway in the northern portion of the wetland. Vegetation within this area includes Sitka spruce (*Picea sitchensis*), black cottonwood, and red alder. No vegetation is located between the wetland and the trail.

Wetland Classification

Wetland 22AB is classified as a palustrine forested/palustrine scrub-shrub/palustrine emergent wetland under the Cowardin et al. (1979) system and depressional/slope under the HGM system (Null et al. 2000; Hruby 2004). Wetland 22AB is rated a Category III according to the City of Sammamish and Ecology. This wetland scored 46 points on the Washington State Wetland Rating System for Western Washington rating form (20 points for water quality functions, 6 points for hydrologic functions, and 20 points for habitat functions) (see Appendix B). The required buffer width is 75 feet for Category III wetlands scoring between 20 and 28 points for habitat functions in the city of Sammamish (SMC 21A.50.290).

Wetland Determination

Biologists flagged the boundary of Wetland 22AB where indicators of hydrophytic vegetation, hydric soils, and wetland hydrology were present. The wetland edge generally corresponds with a topographic break where one or more of the wetland indicators was lacking.

Wetland 22CD
Subbasin: Monohon

USFWS Classification: Palustrine Scrub-Shrub/Palustrine Emergent

HGM Classification: Depressional/Slope

Ecology Rating: Category IV

City of Sammamish Rating: Category IV Data Plots: 22CD-SP1(rev), 22CD-SP2(rev)

Stations: 368+00 to 370+50

Size: 0.06 acre

Wetland 22CD is located on the east side of the trail between the trail and East Lake Sammamish Parkway (see Figure 3-2d). This wetland is located entirely within the project area.

Hydrology

Wetland hydrology is supported by local area runoff and seasonally high groundwater. The wetland is drained by a ditch running along the toe of the trail prism. Water flows from both the north and the south and drains through a culvert that passes under the trail and flows west to Lake Sammamish. An upland area separates the northern and southern portion of the wetland, but hydrologic connectivity is maintained by a culvert. In October 2013, gravel was observed in the ditch adjacent to the lawn area to the north. Water was not visible in this portion of the ditch due to the gravel depth. Soil was saturated during the November 2007 and October 2013 site visits. Standing water in the southern portion of the ditch was also observed in 2013. This wetland has occasionally flooded and saturated only water regimes.

Vegetation

Wetland 22CD has two vegetation communities: scrub-shrub and emergent. The scrub-shrub community is in the center of the wetland, dominated by Himalayan blackberry. Emergent communities are located at the north and south ends. The northern emergent community is the largest portion of the wetland, dominated by mowed grass and creeping buttercup. The southern emergent community is dominated by reed canarygrass, small-fruited bulrush, and fowl bluegrass (*Poa palustris*). Other species present include red-osier dogwood, giant horsetail, redtop (*Agrostis gigantea*), common velvetgrass, hedge false bindweed, common rush, and birdsfoot trefoil. Common duckweed was observed in standing water in the ditch.

Soils

Soil examined in Wetland 22CD consisted of a 16-inch layer of black (10YR 2/1) gravelly sandy loam over a very dark gray (N 3/-) sandy loam. Soil in the area is mapped as Alderwood gravelly sandy loam.

Buffer

Wetland 22CD is situated in a residentially developed area. The vegetated buffer to the east consists of a lawn with a few trees including Lombardy poplar, Japanese knotweed (*Fallopia japonica*), Himalayan blackberry, western redcedar, red alder, red-osier dogwood, and ornamental plum (*Prunus* sp.). The buffer between the wetland and the trail is composed of a narrow band of maintained herbaceous vegetation. A vegetated area to the south of the wetland provides a corridor to Wetland 22AB. East Lake Sammamish Shore Lane SE is located to the north of Wetland 22CD.

Wetland Classification

Wetland 22CD is classified as a palustrine scrub-shrub/palustrine emergent wetland under the Cowardin et al. (1979) system and depressional/slope under the HGM system (Null et al. 2000; Hruby 2004). Wetland 22CD is rated a Category IV according to the City of Sammamish and Ecology. This wetland scored 22 points on the Washington State Wetland Rating System for Western Washington rating form (6 points for water quality functions, 7 points for hydrologic functions, and 9 points for habitat functions) (see Appendix B). The required buffer width is 50 feet for Category IV wetlands in the city of Sammamish (SMC 21A.50.290).

Wetland Determination

Biologists flagged the boundary of Wetland 22CD where indicators of hydrophytic vegetation, hydric soils, and wetland hydrology were present. The wetland edge generally corresponds with a topographic break where one or more of the wetland indicators was lacking.

Wetland 22E

Subbasin: Monohon

USFWS Classification: Palustrine Emergent

HGM Classification: Depressional Ecology Rating: Category IV

City of Sammamish Rating: Category IV

Data Plot: 22E-SP1

Stations: 365+25 to 365+75

Size: <0.01 acre

Wetland 22E is a narrow swale located on the west side of the trail between the trail and East Lake Sammamish Shore Lane SE (see Figures 3-2c and 3-2d). This wetland is located entirely within the project area, within the maintained portion of the corridor.

Hydrology

Wetland hydrology is supported by local area runoff and seasonally high groundwater with no surface water inlets or outlets. Soil was saturated to the surface during the October 2013 site visit. This wetland has a saturated only water regime.

Vegetation

Vegetation in Wetland 22E is an emergent community consisting of giant horsetail, reed canarygrass, small-fruited bulrush, creeping buttercup, skunk cabbage, Cooley's hedgenettle (*Stachys chamissonis*), yellow flag (*Iris pseudacorus*), and birdsfoot trefoil.

Soils

Soil examined in Wetland 22E consisted of a 13-inch layer of very dark brown (10YR 2/2) silt loam over a dark greenish gray (10Y 4/1) gravelly sandy loam. Soil in the area is mapped as Alderwood gravelly sandy loam.

Buffer

Wetland 22E is situated in a residentially developed area. The vegetated buffer is limited between the trail and East Lake Sammamish Shore Lane SE, consisting of maintained grasses, English ivy, and a row of arborvitae.

Wetland Classification

Wetland 22E is classified as a palustrine emergent wetland under the Cowardin et al. (1979) system and depressional under the HGM system (Null et al. 2000; Hruby 2004). Wetland 22E is rated a Category IV according to the City of Sammamish and Ecology. This wetland scored 26 points on the Washington State Wetland Rating System for Western Washington rating form (8 points for water quality functions, 9 points for hydrologic functions, and 9 points for habitat functions) (see Appendix B). The required buffer width is 50 feet for Category IV wetlands in the city of Sammamish (SMC 21A.50.290).

Wetland Determination

Biologists flagged the boundary of Wetland 22E where indicators of hydrophytic vegetation, hydric soils, and wetland hydrology were present. The wetland edge generally corresponds with a topographic break where one or more of the wetland indicators was lacking.

Wetland 23A

Subbasin: Monohon

USFWS Classification: Palustrine Emergent HGM Classification: Depressional/Slope

Ecology Rating: Category IV

City of Sammamish Rating: Category IV

Data Plots: 23A-SP1, 23A-SP2 Stations: 373+50 to 374+25

Size: 0.03 acre

Wetland 23A is located on the east side of the trail between the trail and East Lake Sammamish Parkway (see Figure 3-2d). This wetland is located entirely within the project area.

Hydrology

Wetland hydrology is maintained by groundwater seeps from the slope to the east and local area runoff collected in the trailside ditch from the north and south. Standing water was observed in the associated ditch during the September 2013 site visit. This wetland has saturated only and permanently flooded water regimes.

Vegetation

Wetland 23A contains an emergent vegetation community. Dominant vegetation includes reed canarygrass and giant horsetail. Other species observed include small-fruited bulrush, red fescue, common scouring rush (*Equisetum hyemale*), common ladyfern, bentgrass (*Agrostis* sp.), common cattail, common velvetgrass, common rush, fringed willowherb, black twinberry, and cluster rose (*Rosa pisocarpa*). American speedwell and common duckweed were present in the ditch.

Soils

Soil examined in Wetland 23A consisted of a 10-inch layer of very black (10YR 2/1) gravelly sandy loam over a very dark gray (2.5Y 3/1) gravelly sandy loam with dark yellowish brown (10YR 4/6) redoximorphic features. Soil in the area is mapped as Alderwood gravelly sandy loam.

Buffer

Wetland buffer consists of a narrow strip between the trail and East Lake Sammamish Parkway. Vegetation in the buffer includes bigleaf maple, English ivy, bracken fern, giant horsetail, common scouring rush, salal, cluster rose, Himalayan blackberry, western swordfern, and red alder. The trail and

a very narrow band of maintained reed canarygrass is located to the west of the wetland. A forested area to the north of the wetland provides a vegetated corridor to Wetland 23C.

Wetland Classification

Wetland 23A is classified as a palustrine emergent wetland under the Cowardin et al. (1979) system and depressional/slope under the HGM system (Null et al. 2000; Hruby 2004). Wetland 23A is rated a Category IV according to the City of Sammamish and Ecology. This wetland scored 27 points on the Washington State Wetland Rating System for Western Washington rating form (14 points for water quality functions, 7 points for hydrologic functions, and 7 points for habitat functions) (see Appendix B). The required buffer width is 50 feet for Category IV wetlands in the city of Sammamish (SMC 21A.50.290).

Wetland Determination

Biologists flagged the boundary of Wetland 23A where indicators of hydrophytic vegetation, hydric soils, and wetland hydrology were present. The wetland edge generally corresponds with a topographic break where one or more of the wetland indicators was lacking.

Wetland 23B

Subbasin: Monohon

USFWS Classification: Palustrine Scrub-Shrub/Palustrine Emergent

HGM Classification: Lake-Fringe/Slope

Ecology Rating: Category III

City of Sammamish Rating: Category III

Data Plots: 23B-SP1, 23B-SP2 Stations: 374+00 to 374+75 Size: Approximately 0.05 acre

Wetland 23B is located on the west side of the trail between the trail and Lake Sammamish (see Figure 3-2d). Wetland 23B extends outside the project area to the west, and is associated with Lake Sammamish.

Hydrology

Wetland hydrology is supported by Lake Sammamish, seasonally high groundwater, and groundwater seeps. Soil saturation in the upper 12 inches was observed during site visits conducted in October 2007. The wetland is sloped and drains to Lake Sammamish. This wetland has a saturated only water regime.

Vegetation

Wetland 23B has scrub-shrub and emergent wetland communities. The scrub-shrub community is dominated by red-osier dogwood, Himalayan blackberry, common scouring rush, and yellow flag. Dominant vegetation in the emergent area includes common ladyfern, small-fruited bulrush, field horsetail, and birdsfoot trefoil.

Soils

Soil in Wetland 23B was examined to a depth of 16 inches and consists of two layers. The upper layer is a 10-inch layer of black (10YR 2/1) mucky loam. The lower layer is a dark reddish gray (2.5YR 4/1) gravelly sand. Soil in the area is mapped as Alderwood gravelly sandy loam.

Buffer

Wetland 23B is situated in a residentially developed area. Single-family residences exist to the north and the south. Lake Sammamish borders the wetland to the west. The wetland is separated from Wetland 23A to the east by the trail. Vegetation in the surrounding buffer area is dominated by Himalayan blackberry, trailing blackberry (*Rubus ursinus*), and hedge false bindweed, with black cottonwood, western redcedar, giant horsetail, common scouring rush, bracken fern, and western swordfern.

Wetland Classification

Wetland 23B is classified as a palustrine scrub-shrub/palustrine emergent wetland under the Cowardin et al. (1979) system and lake-fringe/slope under the HGM system (Null et al. 2000; Hruby 2004). Wetland 23B is rated a Category III according to the City of Sammamish and Ecology. This wetland scored 34 points on the Washington State Wetland Rating System for Western Washington rating form (20 points for water quality functions, 4 points for hydrologic functions, and 10 points for habitat functions) (see Appendix B). The required buffer width is 50 feet for Category III wetlands scoring less than 20 points for habitat functions in the city of Sammamish (SMC 21A.50.290).

Wetland Determination

Biologists flagged the boundary of Wetland 23B where indicators of hydrophytic vegetation, hydric soils, and wetland hydrology were present. The wetland edge generally corresponds with a topographic break where one or more of the wetland indicators was lacking.

Wetland 23C

Subbasin: Pine Lake

USFWS Classification: Palustrine Scrub-Shrub/Palustrine Emergent

HGM Classification: Depressional Ecology Rating: Category III

City of Sammamish Rating: Category III

Data Plots: 23C-SP1, 23C-SP2 Stations: 377+25 to 378+50

Size: 0.09 acre

Wetland 23C is located on the east side of the trail between the trail and East Lake Sammamish Parkway, south of Pine Lake Creek, and approximately 600 feet southeast of SE 8th Street (see Figure 3-2d). This wetland is located entirely within the project area.

Hydrology

Wetland hydrology is supported by seasonally high groundwater and local area runoff. Saturation was observed during site visits conducted in November 2007. Although no inundation was observed during the site visit, soils were saturated in the upper 12 inches. The wetland drains to the trailside ditch to the south that is connected downgradient to Wetland 23A. This wetland has permanently flooded (in ditch), occasionally flooded, and saturated only water regimes.

Vegetation

Wetland 23C has two vegetation communities: scrub-shrub and emergent. The scrub-shrub community is dominated by Himalayan blackberry and salmonberry with other species including Pacific willow, Sitka willow, black twinberry, common ladyfern, giant horsetail, and red elderberry. Some reed canarygrass is growing in this community. The emergent community is dominated by reed canarygrass, ladyfern, and creeping buttercup. Other species include giant horsetail and common duckweed (in ditch).

Soils

Soil in Wetland 23C was examined to a depth of 18 inches and consists of two layers. The upper layer is an 11-inch layer of black (10YR 2/1) loam. The lower layer is a dark gray (5Y 4/1) loamy clay with strong brown (7.5YR 4/6) redoximorphic features. Soil in the area is mapped as Alderwood gravelly sandy loam.

Buffer

Single-family residences and the trail exist to the west of the wetland. Vegetated areas to the north and east of the wetland are dominated by Himalayan blackberry and disturbed vegetation with few trees; connections to other habitats are disrupted by roads and driveways. A vegetated corridor to the south of the wetland provides connectivity to Wetland 23A. Vegetation in the buffer to the south includes ornamental plum, Himalayan blackberry, bracken fern, and reed canarygrass.

Wetland Classification

Wetland 23C is classified as a palustrine scrub-shrub/palustrine emergent wetland under the Cowardin et al. (1979) system and depressional under the HGM system (Null et al. 2000; Hruby 2004). Wetland 23C is rated a Category III according to the City of Sammamish and Ecology. This wetland scored 38 points on the Washington State Wetland Rating System for Western Washington rating form (10 points for water quality functions, 14 points for hydrologic functions, and 14 points for habitat functions) (see Appendix B). The required buffer width is 50 feet for Category III wetlands scoring less than 20 points for habitat functions in the city of Sammamish (SMC 21A. 50. 290).

Wetland Determination

Biologists flagged the boundary of Wetland 23C where indicators of hydrophytic vegetation, hydric soils, and wetland hydrology were present. The wetland edge generally corresponds with a topographic break where one or more of the wetland indicators was lacking.

Wetland 24A

Subbasin: Pine Lake

USFWS Classification: Palustrine Forested/Palustrine Scrub-Shrub/Palustrine Emergent

HGM Classification: Depressional/Riverine

Ecology Rating: Category III

City of Sammamish Rating: Category III

Data Plots: 24A-SP1

Stations: 379+25 to 385+25

Size: 0.60 acre

Wetland 24A is located on the east side of the trail between the trail and East Lake Sammamish Parkway west of the intersection of East Lake Sammamish Parkway and SE 8th Street (see Figure 3-2d). This wetland is located entirely within the project area.

Hydrology

Wetland hydrology is supported by seasonally high groundwater, local area runoff, and overbank flow of Unnamed Stream 8 and Pine Lake Creek. Pine Lake Creek drains into the southern end of Wetland 24A and Unnamed Stream 8 drains into the northern end. Pine Lake Creek continues west through Wetland 24A through a culvert under the trail to Wetland 24B. Historically, Unnamed Stream 8 flowed west through Wetland 24A to Wetland 24B via a pipe under the trail. However, the channel of Unnamed Stream 8 has been altered and flows travel both west (as South Fork Unnamed Stream 8, to Wetland 24B) and north (as North Fork Unnamed Stream 8) to Wetland 24C via a pipe under a driveway. A ditch

runs along the west side of the wetland, parallel to the trail. Surface water occurs in this ditch between Pine Lake Creek and Unnamed Stream 8. This wetland has occasionally flooded and saturated only water regimes. The ditch has permanent standing water. Soils were saturated during the wetland delineation and standing water was observed in the ditch during the September 2013 site visit.

Vegetation

Wetland 24A has three vegetation communities: forested, scrub-shrub, and emergent. The forested community is dominated by red alder with an understory of salmonberry and giant horsetail. Other species include reed canarygrass, black twinberry, Pacific willow, cluster rose, and common ladyfern. The scrub-shrub community consists of red-osier dogwood, Himalayan blackberry, salmonberry, black twinberry, reed canarygrass, cluster rose, and giant horsetail. The emergent vegetation, primarily located in the ditch adjacent to the trail, includes reed canarygrass, common ladyfern, giant horsetail, yellow flag, small-fruited bulrush, common rush, Cooley's hedgenettle, and large-leaf avens (*Geum macrophyllum*).

Soils

Soil in Wetland 24A was examined to a depth of 18 inches and consists of two layers. The upper layer consists of a 12-inch layer of black (10YR 2/1) silt loam. The lower layer is a very dark gray (10YR 3/1) sandy loam. Soil in the area is mapped as Seattle muck.

Buffer

A narrow band of maintained herbaceous vegetation is located between the wetland and East Lake Sammamish Parkway. Wetland 24B is located to the west of the wetland, but the connection is disrupted by the trail. Driveways separate Wetland 24A from Wetland 23C to the south and Wetland 24C to the north. A very narrow strip of maintained herbaceous vegetation is located between the wetland and the trail.

Wetland Classification

Wetland 24A is classified as a palustrine forested/palustrine scrub-shrub wetland under the Cowardin et al. (1979) system and depressional/riverine under the HGM system (Null et al. 2000; Hruby 2004). Wetland 24A is rated a Category III according to the City of Sammamish and Ecology. This wetland scored 42 points on the Washington State Wetland Rating System for Western Washington rating form (12 points for water quality functions, 12 points for hydrologic functions, and 18 points for habitat functions) (see Appendix B). The required buffer width is 50 feet for Category III wetlands scoring less than 20 points for habitat functions in the city of Sammamish (SMC 21A.50.290).

Wetland Determination

Biologists flagged the boundary of Wetland 24A where indicators of hydrophytic vegetation, hydric soils, and wetland hydrology were present. The wetland edge generally corresponds with a topographic break where one or more of the wetland indicators was lacking.

Wetland 24B

Subbasin: Pine Lake

USFWS Classification: Palustrine Forested/Palustrine Scrub-Shrub

HGM Classification: Depressional/Riverine

Ecology Rating: Category III

City of Sammamish Rating: Category III

Data Plots: 24B-SP1, 24B-SP2 Stations: 379+25 to 384+75 Size: Approximately 1.75 acres

Wetland 24B is located on the west side of the trail in a residential area west of the intersection of East Lake Sammamish Parkway and SE 8th Street (see Figure 3-2d). Wetland 24B extends outside the project area to the west.

Hydrology

Wetland hydrology is maintained by seasonally high groundwater, overbank flow of Pine Lake Creek, South Fork Unnamed Stream 8, and surface water from Wetland 24A. Pine Lake Creek drains from Wetland 24A to the southern end of Wetland 24B via a culvert under the trail. South Fork Unnamed Stream 8 flows west from Wetland 24A to the northern end of Wetland 24B via a culvert under the trail. Inundation was observed in the wetland during site visits conducted in November 2007. This wetland has permanently flooded, occasionally flooded, and saturated only water regimes. Surface water was observed on adjacent property at the southwest corner (near Pine Lake Creek) and at the north end associated with the South Fork Unnamed Stream 8 during the September 2016 site visit.

Vegetation

Wetland 24B is a forested and shrub wetland. Forested vegetation in the wetland includes weeping willow, Pacific willow, red alder, and black cottonwood, with a shrub understory consisting of salmonberry, red-osier dogwood, and Himalayan blackberry. Some areas lack an overstory and are dominated by salmonberry, red-osier dogwood, and Himalayan blackberry. Non-dominant understory species include black twinberry, Sitka willow, Scouler's willow (*Salix scouleriana*), western swordfern, reed canarygrass, giant horsetail, common ladyfern, and hedge false bindweed.

Soils

Soil in Wetland 24B was examined and consists of a single 16-inch layer of black (10YR 2/1) silt loam. Soil in the area is mapped as Kitsap silt loam.

Buffer

Wetland 24B is situated in a residential area with single-family residences and maintained yards to the north, west, and south. Wetland 24A exists to the east, but connectivity is disrupted by the trail. Buffer is limited to a narrow band of vegetation around the wetland. Buffer vegetation includes Pacific ninebark (*Physocarpus capitatus*), Himalayan blackberry, reed canarygrass, thimbleberry, red alder, black cottonwood, and giant horsetail. The buffer between the trail and the wetland is dominated by maintained herbaceous vegetation, reed canarygrass, and hedge false bindweed.

Wetland Classification

Wetland 24B is classified as a palustrine forested/palustrine scrub-shrub wetland under the Cowardin et al. (1979) system and depressional/riverine under the HGM system (Null et al. 2000; Hruby 2004). Wetland 24B is rated a Category III according to the City of Sammamish and Ecology. This wetland

scored 43 points on the Washington State Wetland Rating System for Western Washington rating form (12 points for water quality functions, 12 points for hydrologic functions, and 19 points for habitat functions) (see Appendix B). The required buffer width is 50 feet for Category III wetlands scoring less than 20 points for habitat functions in the city of Sammamish (SMC 21A.50.290).

Wetland Determination

Biologists flagged the boundary of Wetland 24B where indicators of hydrophytic vegetation, hydric soils, and wetland hydrology were present. The wetland edge generally corresponds with a topographic break where one or more of the wetland indicators was lacking. Wetland 24B extends west outside of the study area.

Wetland 24C

Subbasin: Pine Lake

USFWS Classification: Palustrine Forested /Palustrine Emergent

HGM Classification: Depressional/Riverine

Ecology Rating: Category III

City of Sammamish Rating: Category III

Data Plots: 24C-SP1, 24C-SP2 Stations: 385+50 to 390+25

Size: 0.16 acre

Wetland 24C is located on the east side of the trail between the trail and East Lake Sammamish Parkway northwest of the intersection of East Lake Sammamish Parkway and SE 8th Street (see Figure 3-2d). This wetland is located entirely within the project area.

Hydrology

Wetland hydrology is maintained by local area runoff and by overbank flow of North Fork Unnamed Stream 8. This stream enters the wetland from a culvert that discharges at the southeast corner from Wetland 24A. The stream flows northwest and exits through a culvert that passes under the trail and continues west, likely piped to Lake Sammamish. Soils were saturated during the wetland delineation. This wetland has a seasonally flooded water and saturated only regime.

Vegetation

Wetland 24C has two vegetation communities: forested and emergent. The forested community is dominated by red alder, Himalayan blackberry, black twinberry, Pacific ninebark, Sitka willow, and Pacific willow. Herbaceous vegetation in the understory includes small-fruited bulrush, slough sedge, hedge false bindweed, common ladyfern, giant horsetail, fringed willowherb, and skunk cabbage. An emergent community makes up the narrow portion along the ditch to the north, dominated by reed canarygrass with some small-fruited bulrush and American speedwell.

Soils

Soil in Wetland 24C was examined to a depth of 18 inches and consists of four layers. The upper and first layer is a 6-inch layer of black (10YR 2/1) loam. The second layer is a 4-inch layer of a very dark gray (10YR 3/1) gravelly sandy loam. The third layer is a 6-inch layer of dark grayish brown (10YR 4/2) gravelly sandy loam. The lowest layer is a gray (10YR 5/1) silt with yellowish brown (10YR 5/6) redoximorphic features. Soil in the area is mapped as Seattle muck.

Buffer

Wetland 24C is situated in a residentially developed area. Single-family residential homes are to the west and East Lake Sammamish Parkway to the east. Wetland 24A is south of the wetland, but connectivity is disrupted by a residential driveway. A vegetated upland area occurs north of the wetland between the trail and East Lake Sammamish Parkway. Vegetation in the buffer consists primarily of Himalayan blackberry, red alder, black cottonwood, reed canarygrass, and giant horsetail with some conifers to the north.

Wetland Classification

Wetland 24C is classified as a palustrine forested/palustrine emergent wetland under the Cowardin et al. (1979) system and depressional/riverine under the HGM system (Null et al. 2000; Hruby 2004). Wetland 24C is rated a Category III according to the City of Sammamish and Ecology. This wetland scored 34 points on the Washington State Wetland Rating System for Western Washington rating form (10 points for water quality functions, 10 points for hydrologic functions, and 14 points for habitat functions) (see Appendix B). The required buffer width is 50 feet for Category III wetlands scoring less than 20 points for habitat functions in the city of Sammamish (SMC 21A.50.290).

Wetland Determination

Biologists flagged the boundary of Wetland 24C where indicators of hydrophytic vegetation, hydric soils, and wetland hydrology were present. The wetland edge generally corresponds with a topographic break where one or more of the wetland indicators was lacking.

Wetland 25A

Subbasin: Monohon

USFWS Classification: Palustrine Forested HGM Classification: Depressional/Riverine

Ecology Rating: Category III

City of Sammamish Rating: Category III

Data Plots: 25A-SP1, 25A-SP2 Stations: 400+00 to 403+00

Size: 0.25 acre

Wetland 25A is located on the east side of the trail between the trail and East Lake Sammamish Parkway (see Figure 3-2e). This wetland is located entirely within the project area.

Hydrology

Wetland hydrology is maintained by local area runoff, overbank flow of Stream 0155, and surface water from Wetland 25B. The tributary enters the wetland at the northeast corner through a culvert that flows under East Lake Sammamish Parkway. The tributary flows southwest through the wetland and exits to a culvert in the center of the wetland's west boundary. The culvert is piped west to Lake Sammamish. Wetland 25A also receives surface water from Wetland 25B to the north through a pipe under a residential driveway near East Lake Sammamish Parkway. A maintained ditch from the south may also contribute seasonal surface water. Inundation was observed through most of the wetland during field visits conducted in November 2007 and September 2013. This wetland has permanently flooded and seasonally flooded water regimes.

Vegetation

Wetland 25A has a forested vegetation community dominated by Pacific willow with red-osier dogwood, black twinberry, Sitka willow, reed canarygrass, Himalayan blackberry, slough sedge, small-fruited bulrush, cluster rose, and yellow flag. Duckweed is present in small pockets of standing water.

Soils

Soil in Wetland 25A was examined to a depth of 18 inches and consists of two layers. The upper layer is an 8-inch layer of very dark gray (10YR 3/1) silt loam. The lower layer is a black (10YR 2/1) loam. Soil in the areas is mapped as Norma sandy loam.

Buffer

Wetland 25A is situated in a residentially developed area. Single-family residences and the trail are to the west of the wetland and East Lake Sammamish Parkway is to the east. Beyond the parkway is a large wetland labeled as East Lake Sammamish #64 under King County's wetland inventory. Driveways disrupt connectivity between Wetland 25A and Wetland 25B to the north and a forested area to the south. Buffer is limited to small patches at the north and south end of the wetland and a narrow band running along the shoulder of the parkway. Buffer vegetation includes Himalayan blackberry, hedge false bindweed, reed canarygrass, and lawn with landscaped trees and shrubs.

Wetland Classification

Wetland 25A is classified as a palustrine forested wetland under the Cowardin et al. (1979) system and depressional/riverine under the HGM system (Null et al. 2000; Hruby 2004). Wetland 25A is rated a Category III according to the City of Sammamish and Ecology. This wetland scored 46 points on the Washington State Wetland Rating System for Western Washington rating form (20 points for water quality functions, 12 points for hydrologic functions, and 14 points for habitat functions) (see Appendix B). The required buffer width is 50 feet for Category III wetlands scoring less than 20 points for habitat functions in the city of Sammamish (SMC 21A.50.290).

Wetland Determination

Biologists flagged the boundary of Wetland 25A where indicators of hydrophytic vegetation, hydric soils, and wetland hydrology were present. The wetland edge generally corresponds with a topographic break where one or more of the wetland indicators was lacking.

Wetland 25B

Subbasin: Monohon

USFWS Classification: Palustrine Forested/Palustrine Scrub-Shrub/Palustrine Emergent

HGM Classification: Depressional Ecology Rating: Category III

City of Sammamish Rating: Category III Data Plots: 25B-SP1, 25B-SP2, 25B-SP3

Stations: 403+50 to 407+75

Size: 0.33 acre

Wetland 25B is located on the east side of the trail between the trail and East Lake Sammamish Parkway (see Figure 3-2e). This wetland is located entirely within the project area.

Hydrology

Wetland hydrology is maintained by seasonally high groundwater and local area runoff. Soils were saturated during the wetland delineation. A swale runs north and south along the east side of the trail and drains the wetland through a culvert at the south end of the swale, which passes under a residential driveway and discharges into Wetland 25A. This wetland has seasonally flooded, occasionally flooded, and saturated only water regimes.

Vegetation

Wetland 25B has three vegetation communities: forested, scrub-shrub, and emergent. The forested community is dominated by Oregon ash with an understory of Himalayan blackberry and red-osier dogwood. The shrub community consists of black twinberry, rose, red-osier dogwood, Himalayan blackberry, Sitka willow, Douglas spirea (*Spiraea douglasii*), reed canarygrass, and Pacific willow. The emergent community consists of reed canarygrass, slough sedge, hedge false bindweed, giant horsetail, creeping buttercup, and field horsetail.

Soils

Two wetland soil pits were examined in Wetland 25B. The first soil pit (25B-SP1) was dug in an emergent vegetation community. Soil pit 25B-SP1 was examined to a depth of 17 inches and consists of two layers. The upper layer is a 6-inch layer of very dark grayish brown (10YR 3/2) gravelly silt loam. The lower layer is a very dark gray (10YR 3/1) silt loam with dark brown (10YR 3/3) redoximorphic features. The second soil pit (25B-SP3) was dug in a forested vegetation community. Soil pit 25B-SP3 was examined to a depth of 20 inches and consists of three layers. The upper layer is a 7-inch layer of black (10YR 2/1) loam. The middle layer is a 10-inch layer of dark gray (2.5Y 4/1) clay loam with strong brown (7.5YR 4/6) redoximorphic features. The lower layer is a gray (10YR 5/1) clay loam with strong brown redoximorphic features. Soil in the area is mapped as Norma sandy loam.

Buffer

Wetland 25B is situated in a residentially developed area. Single-family residences and the trail are to the west of the wetland and East Lake Sammamish Parkway is to the east. Beyond the parkway is a large wetland labeled as East Lake Sammamish #64 under King County's wetland inventory. Driveways disrupt connectivity between Wetland 25B and Wetland 25A to the south and Wetland 25C to the north. Vegetated buffer is limited to small patches of Himalayan blackberry and reed canarygrass at the south end of the wetland. Vegetation includes Himalayan blackberry, reed canarygrass, creeping buttercup, hedge false bindweed, Robert's geranium, stickywilly (*Galium aparine*), and curly dock (*Rumex crispus*). The buffer between the wetland and trail consists of maintained reed canarygrass, creeping buttercup, and Himalayan blackberry.

Wetland Classification

Wetland 25B is classified as a palustrine forested/palustrine scrub-shrub/palustrine emergent wetland under the Cowardin et al. (1979) system and depressional under the HGM system (Null et al. 2000; Hruby 2004). Wetland 25B is rated a Category III according to the City of Sammamish and Ecology. This wetland scored 48 points on the Washington State Wetland Rating System for Western Washington rating form (18 points for water quality functions, 10 points for hydrologic functions, and 18 points for habitat functions) (see Appendix B). The required buffer width is 50 feet for Category III wetlands scoring less than 20 points for habitat functions in the city of Sammamish (SMC 21A.50.290).

Wetland Determination

Biologists flagged the boundary of Wetland 25B where indicators of hydrophytic vegetation, hydric soils, and wetland hydrology were present. The wetland edge generally corresponds with a topographic break where one or more of the wetland indicators was lacking.

Wetland 25C

Subbasin: Thompson

USFWS Classification: Palustrine Forested/Palustrine Emergent

HGM Classification: Depressional Ecology Rating: Category III

City of Sammamish Rating: Category III

Data Plots: 10C-SP1

Stations: 408+50 to 411+00

Size: 0.25 acre

Wetland 25C is located on the east side of the trail between the trail and East Lake Sammamish Parkway (see Figure 3-2e). This wetland is located entirely within the project area.

Hydrology

Wetland hydrology is supported by seasonally high groundwater and local area runoff. Soils were saturated during the wetland delineation. A ditch runs north and south along the east side of the wetland. A culvert located at the north end of the ditch passes under a driveway and discharges into Wetland 25F and Ebright Creek. This wetland has seasonally flooded and saturated only water regimes.

Vegetation

Wetland 25C has two vegetation communities: forested and emergent. The forested community is dominated by red alder and Scouler's willow. The understory is vegetated with Himalayan blackberry, snowberry (*Symphoricarpos albus*), red-osier dogwood, rose, black twinberry, and bracken fern. The emergent community is dominated by reed canarygrass.

Soils

Soil in Wetland 25C was examined to a depth of 18 inches and consists of two layers. The upper layer is a 10-inch layer of disturbed soil that is very dark gray (10YR 3/1) and grayish brown (10YR 5/2) loam with yellowish brown (10YR 5/6) redoximorphic features. The lower layer is a very dark gray (10YR 3/1) silt loam. Soil in the area is mapped as mixed alluvial land.

Buffer

Wetland 25C is situated in a residentially developed area. Single-family residences and the trail are to the west of the wetland and East Lake Sammamish Parkway is to the east. Beyond the parkway is a large wetland labeled as East Lake Sammamish #64 under King County's wetland inventory. Driveways disrupt connectivity between Wetland 25C and Wetland 25B to the south and Wetland 25F to the north. Buffer around Wetland 25C is limited to the roadside shoulder of East Lake Sammamish Parkway and the maintained edges of the driveway and trail. Vegetation in the buffer consists primarily of reed canarygrass.

Wetland Classification

Wetland 25C is classified as a palustrine forested/palustrine emergent wetland under the Cowardin et al. (1979) system and depressional under the HGM system (Null et al. 2000; Hruby 2004). Wetland 25C is

rated a Category III according to the City of Sammamish and Ecology. This wetland scored 42 points on the Washington State Wetland Rating System for Western Washington rating form (14 points for water quality functions, 14 points for hydrologic functions, and 14 points for habitat functions) (see Appendix B). The required buffer width is 50 feet for Category III wetlands scoring less than 20 points for habitat functions in the city of Sammamish (SMC 21A.50.290).

Wetland Determination

Biologists flagged the boundary of Wetland 25C where indicators of hydrophytic vegetation, hydric soils, and wetland hydrology were present. The wetland edge generally corresponds with a topographic break where one or more of the wetland indicators was lacking.

Wetland 25F

Subbasin: Thompson

USFWS Classification: Palustrine Forested

HGM Classification: Depressional Ecology Rating: Category III

City of Sammamish Rating: Category III

Data Plots: 25F-SP1

Stations: 411+25 to 412+00

Size: 0.06 acre

Wetland 25F is located on the east side of the trail, immediately south of Ebright Creek, and between the trail and East Lake Sammamish Parkway (see Figure 3-2e). This wetland is located entirely within the project area.

Hydrology

Wetland hydrology is maintained by seasonally high groundwater and local area runoff. The wetland drains into Ebright Creek. Surface water from Wetland 25C passes under a driveway to the south and flows north along the east side of the wetland in a ditch and discharges into Ebright Creek. This wetland has occasionally flooded and saturated only water regimes.

Vegetation

Wetland 25F has a forested vegetation community. Vegetation includes red alder, Sitka willow, and Pacific willow. Understory vegetation is dominated by red-osier dogwood with Himalayan blackberry, hedge false bindweed, reed canarygrass, creeping buttercup, ladyfern, western swordfern, and English holly (*Ilex aquifolium*).

Soils

Soil in Wetland 25F was examined to a depth of 18 inches and consists of two layers. The upper layer is a 10-inch layer of black (10YR 2/1) silt loam. The lower layer is a dark gray (10YR 4/1) sandy loam with (7.5Y 4/6) redoximorphic features. Soil in the area is mapped as mixed alluvial land.

Buffer

Wetland 25F is situated in a residentially developed area. Single-family residences and the trail are to the west of the wetland and East Lake Sammamish Parkway is to the east. Beyond the parkway is a large wetland. Driveways disrupt connectivity between Wetland 25F and Wetland 25C to the south. Wetland 25D is located to the southwest, but connectivity is disrupted by a residential driveway and the trail. Buffer around Wetland 25C is limited to a small area to the north of the wetland. Vegetation in this area

is dominated by Himalayan blackberry and Sitka willow with one corkscrew willow, one western redcedar, and one ornamental plum. Lawn covers the area closest to the driveway. The buffer between the trail and the wetland is primarily composed of mowed reed canarygrass, creeping buttercup, and Himalayan blackberry.

Wetland Classification

Wetland 25F is classified as a palustrine forested wetland under the Cowardin et al. (1979) system and depressional under the HGM system (Null et al. 2000; Hruby 2004). Wetland 25F is rated a Category III according to the City of Sammamish and Ecology. This wetland scored 30 points on the Washington State Wetland Rating System for Western Washington rating form (12 points for water quality functions, 6 points for hydrologic functions, and 12 points for habitat functions) (see Appendix B). The required buffer width is 50 feet for Category III wetlands with habitat points less than 20 in the city of Sammamish (SMC 21A.50.290).

Wetland Determination

Biologists flagged the boundary of Wetland 25F where indicators of hydrophytic vegetation, hydric soils, and wetland hydrology were present. The wetland edge generally corresponds with a topographic break where one or more of the wetland indicators was lacking.

Wetland 26A

Subbasin: Monohon

USFWS Classification: Palustrine Forested/Palustrine Scrub-Shrub/Palustrine Emergent

HGM Classification: Depressional/Riverine

Ecology Rating: Category III

City of Sammamish Rating: Category III Data Plots: 26A-SP1, 26A-SP2, 26A-SP3

Stations: 421+25 to 431+50

Size: 0.91 acre

Wetland 26A is located on the west side of the trail between the trail and East Lake Sammamish Parkway, south of the intersection of East Lake Sammamish Parkway and Louis Thompson Road (see Figures 3-2e and 3-2f). This wetland is located entirely within the project area.

Hydrology

Wetland hydrology is maintained by seasonally high groundwater and local area runoff. Zackuse Creek flows through the wetland from a culvert that passes under East Lake Sammamish Parkway. The stream flows west through the wetland before entering a culvert and passes under the trail, then to another culvert under a roadway, eventually to Lake Sammamish. Inundation was observed at the north end of the wetland during site visits conducted in November 2007 and small areas of ponding were observed in September 2013. This wetland has seasonally flooded, occasionally flooded, and saturated only water regimes.

Vegetation

Wetland 26A has three vegetation communities: forested, scrub-shrub, and emergent. The forested community is dominated by Pacific willow, red alder, and red-osier dogwood with cascara and Sitka willow. The scrub-shrub community is dominated by red-osier dogwood, black twinberry, Douglas spirea, Himalayan blackberry, cluster rose, salmonberry, Sitka willow, and red alder. One paper birch (*Betula papyrifera*) is also growing in this community. The emergent community is dominated by reed

canarygrass. Other species in the emergent area include giant horsetail, ladyfern, small-fruited bulrush, common rush, hedge false bindweed, and ornamental bamboo.

Soils

Soil in Wetland 26A (26A-SP1) was examined to a depth of 16 inches and consists of one layer. It is black (10YR 2/1) silt with no redoximorphic features. Soil in the area is mapped as Alderwood and Kitsap soils and mixed alluvial land.

Buffer

Wetland 26A is situated between the trail and East Lake Sammamish Parkway. Buffer is minimal to the east and west. West of the wetland between the trail and Lake Sammamish are single-family residences. A large forested wetland is located to the east of the wetland, but connectivity is disrupted by the parkway. A vegetated buffer exists to the north of the wetland. A small patch of upland buffer also exists at the south end of the wetland that includes a row of western redcedar. Vegetation in the buffer is primarily Himalayan blackberry and reed canarygrass with bigleaf maple and some Douglas fir to the north. The buffer between the trail and the wetland consists primarily of maintained herbaceous vegetation, reed canarygrass, and hedge false bindweed.

Wetland Classification

Wetland 26A is classified as a palustrine forested/palustrine scrub-shrub/palustrine emergent wetland under the Cowardin et al. (1979) system and depressional/riverine under the HGM system (Null et al. 2000; Hruby 2004). Wetland 26A is rated a Category III according to the City of Sammamish and Ecology. This wetland scored 47 points on the Washington State Wetland Rating System for Western Washington rating form (16 points for water quality functions, 12 points for hydrologic functions, and 19 points for habitat functions) (see Appendix B). The required buffer width is 50 feet for Category III wetlands scoring less than 20 points for habitat functions in the city of Sammamish (SMC 21A.50.290).

Wetland Determination

Biologists flagged the boundary of Wetland 26A where indicators of hydrophytic vegetation, hydric soils, and wetland hydrology were present. The wetland edge generally corresponds with a topographic break where one or more of the wetland indicators was lacking.

Wetland 26B

Subbasin: Monohon

USFWS Classification: Palustrine Emergent

HGM Classification: Slope Ecology Rating: Category IV

City of Sammamish Rating: Category IV

Data Plots: 26B-SP1, 26B-SP2 Stations: 425+25 to 425+50

Size: 0.02 acre

Wetland 26B is located on the west side of the trail north of Zackuse Creek and approximately 800 feet south of the intersection of East Lake Sammamish Parkway and Louis Thompson Road (see Figure 3-2f). This wetland is located entirely within the project area.

Hydrology

Wetland hydrology is maintained by seasonally high groundwater. No inlet or outlet exists. Soil saturation in the upper 12 inches was observed during site visits conducted in November 2007 and March 2014. This wetland has a saturated only water regime.

Vegetation

Wetland 26B is an emergent vegetation community. The area is maintained lawn including white clover (*Trifolium repens*), creeping bentgrass (*Agrostis stolonifera*), bluegrass (*Po asp.*), common velvetgrass, common dandelion (*Taraxacum officinale*), and small-fruited bulrush.

Soils

Soil in Wetland 26B was examined to a depth of 16 inches and consists of two layers. The upper layer is a 12-inch layer of black (10YR 2/1) sandy loam. The lower layer is a very dark grayish brown (2.5Y 4/2) sand with yellowish brown (10YR 5/6) redoximorphic features. Soil in the area is mapped as Alderwood and Kitsap soils.

Buffer

The area west of the wetland between the trail and Lake Sammamish is developed with single-family residences. Wetland 26A is located to the east, but connectivity is disrupted by the trail. Lawn, landscaped areas (e.g., rhododendrons, camellias, and magnolias), and gravel parking areas exist to the north and south of the wetland providing disturbed connectivity to Zackuse Creek. Vegetation in the upland buffer includes maintained lawn, apple (*Malus* sp.), reed canarygrass, and giant horsetail.

Wetland Classification

Wetland 26B is classified as a palustrine emergent wetland under the Cowardin et al. (1979) system and slope under the HGM system (Null et al. 2000; Hruby 2004). Wetland 26B is rated a Category IV according to the City of Sammamish and Ecology. This wetland scored 12 points on the Washington State Wetland Rating System for Western Washington rating form (4 points for water quality functions, 0 points for hydrologic functions, and 8 points for habitat functions) (see Appendix B). The required buffer width is 50 feet for Category IV wetlands in the city of Sammamish (SMC 21A.50.290).

Wetland Determination

Biologists flagged the boundary of Wetland 26B where indicators of hydrophytic vegetation, hydric soils, and wetland hydrology were present. The wetland edge generally corresponds with a topographic break where one or more of the wetland indicators was lacking.

Wetland 26C

Subbasin: Monohon

USFWS Classification: Palustrine Scrub-shrub/Palustrine Emergent

HGM Classification: Depressional Ecology Rating: Category IV

City of Sammamish Rating: Category IV Data Plots: 26C-SP1, 26C-SP2, 26C-SP3

Stations: 423+25 to 424+25

Size: 0.03 acre

Wetland 26C is located on the west side of the trail south of Zackuse Creek and is located entirely within the project area (see Figures 3-2e and 3-2f).

Hydrology

Wetland hydrology is maintained by seasonally high groundwater. Soil saturation in the upper 12 inches was observed during site visits conducted in October 2007 and March 2014, along with standing water in micro-depressions. This wetland has a saturated only water regime.

Vegetation

Wetland 26C has two vegetation communities: scrub-shrub and emergent. A majority of the wetland is a maintained lawn (emergent community), with creeping buttercup, bluegrass, dandelion, bentgrass, and white clover. The scrub-shrub community is dominated by red-osier dogwood, Pacific ninebark, rose, Douglas spirea, and willow. Other species include Himalayan blackberry, reed canarygrass, small-fruited bulrush, creeping buttercup, and giant horsetail.

Soils

Soil in Wetland 26C was examined to a depth of 16 inches and consists of a single layer of very dark gray (10YR 3/1) gravelly sandy loam with (10YR 3/6) redoximorphic features. Soil in the area is mapped as Alderwood and Kitsap soils.

Buffer

East Lake Sammamish Shore Lane SE borders the wetland to the west and single-family residences exist between East Lake Sammamish Shore Lane SE and Lake Sammamish. The trail exists on the eastern border of the wetland. Vegetated buffer with gravel parking areas is present on the north and south ends of the wetland providing disturbed connectivity to Zackuse Creek. Vegetation in the buffer between trail and wetland includes Pacific silver fir (*Abies amabilis*), apple, reed canarygrass, maintained lawn, Himalayan blackberry, and giant horsetail.

Wetland Classification

Wetland 26C is classified as a palustrine scrub-shrub/palustrine emergent wetland under the Cowardin et al. (1979) system and depressional under the HGM system (Null et al. 2000; Hruby 2004). Wetland 26C is rated a Category IV according to the City of Sammamish and Ecology. This wetland scored 27 points on the Washington State Wetland Rating System for Western Washington rating form (4 points for water quality functions, 12 points for hydrologic functions, and 11 points for habitat functions) (see Appendix B). The required buffer width is 50 feet for Category IV wetlands in the city of Sammamish (SMC 21A.50.290).

Wetland Determination

Biologists flagged the boundary of Wetland 26C where indicators of hydrophytic vegetation, hydric soils, and wetland hydrology were present. The wetland edge generally corresponds with a topographic break where one or more of the wetland indicators was lacking.

Wetland 26D

Subbasin: Monohon

USFWS Classification: Palustrine Scrub-shrub/Palustrine Emergent

HGM Classification: Riverine/Lake-fringe

Ecology Rating: Category III

City of Sammamish Rating: Category III

Data Plots: 26D-SP1

Stations: 431+75 to 432+75 Size: Approximately 0.13 acre

Wetland 26C is located on the west side of the trail associated with Unnamed Stream 9, located partially within the project area and sloping west to Lake Sammamish (see Figure 3-2f). This wetland is part of a wetland/stream restoration site with large woody debris (LWD), recent plantings, and irrigation on site. The buffer to the north has also been planted between the wetland and nearby house.

Hydrology

Unnamed Stream 9 and Lake Sammamish are the primary sources of hydrology, along with a shallow groundwater table. Unnamed Stream 9 flows out of a pipe under the trail at the northeast corner of the wetland, then flows south along the east boundary, turning west in the southeast corner where it continues to Lake Sammamish. Soil saturation to the surface, along with standing water in microdepressions, was observed during the site visit conducted in March 2014. Water was also flowing in the channel of Unnamed Stream 9. This wetland has occasionally flooded and saturated-only water regimes.

Vegetation

Wetland 26D has two vegetation communities: scrub-shrub and emergent. Planted vegetation includes red-osier dogwood, Pacific ninebark, and ovate spikerush (*Eleocharis ovata*). Other species include red alder (primarily saplings with few large trees near stream outlet to lake), willow, American speedwell, reed canarygrass, common rush, watercress, small-fruited bulrush, and hardstem bulrush (*Schoenoplectus acutus*).

Soils

Soil in Wetland 26D consists of a black (10YR 2/1) gravelly silt loam over a light brownish gray (2.5Y 6/2) with strong brown (7.5YR 5/8) redoximorphic features. Soil in the area is mapped as Ragnar-Indianola association.

Buffer

A rock wall and quarry spalls immediately border the wetland and stream system along the south and east edges. Single-family residences exist farther to the south and north and the trail is to the east. The planted buffer to the north consists of western redcedar, Douglas fir, Sitka spruce, rose, tall Oregon grape (*Mahonia aquifolium*), red-osier dogwood, and willow.

Wetland Classification

Wetland 26D is classified as a palustrine scrub-shrub/palustrine emergent wetland under the Cowardin et al. (1979) system and riverine/lake-fringe under the HGM system (Null et al. 2000; Hruby 2004). Wetland 26D is rated a Category III according to the City of Sammamish and Ecology. This wetland scored 48 points on the Washington State Wetland Rating System for Western Washington rating form (16 points for water quality functions, 18 points for hydrologic functions, and 14 points for habitat

functions) (see Appendix B). The required buffer width is 50 feet for Category III wetlands scoring less than 20 points for habitat functions in the city of Sammamish (SMC 21A.50.290).

Wetland Determination

Biologists flagged the boundary of Wetland 26D where indicators of hydrophytic vegetation, hydric soils, and wetland hydrology were present. The wetland edge generally corresponds with a topographic break where one or more of the wetland indicators was lacking.

Wetland 28A

Subbasin: Panhandle

USFWS Classification: Palustrine Forested HGM Classification: Depressional/Riverine

Ecology Rating: Category IV

City of Sammamish Rating: Category IV

Data Plots: 28A-SP1, 28A-SP2 Stations: 448+75 to 450+50

Size: 0.08 acre

Wetland 28A is located on the east side of the trail between the trail and East Lake Sammamish Parkway and approximately 800 feet north of the intersection of East Lake Sammamish Parkway and NE 7th Court, associated with Unnamed Stream 10 (see Figures 3-2f and 3-2g). The wetland is located entirely within the project area.

Hydrology

Wetland hydrology is maintained by groundwater seeps and the overbank flow of Unnamed Stream 10. Water from seeps is retained in a ditch along the toe of the trail prism. The stream flows from a culvert that passes under East Lake Sammamish Parkway and discharges into the wetland. The stream flows northwest through the wetland and exits through a culvert passing west under the trail. Ditches running along the toe of the trail prism drain the northern and southern portions of the wetland and feed into Unnamed Stream 10. Soil saturation in the upper 12 inches was observed during site visits conducted in November 2007. This wetland has permanently flooded and saturated only water regimes.

Vegetation

Wetland 28A has a forested vegetation community dominated by red alder, Himalayan blackberry, and salmonberry. A layer of emergent vegetation is present in the understory and includes giant horsetail, reed canarygrass, and common ladyfern.

Soils

Soil in Wetland 28A was examined to a depth of 18 inches and consists of three layers. The upper layer is a 10-inch layer of very dark gray (10YR 3/1) loam. The lower layers are a 2-inch layer of very dark gray loamy sand over a black (10YR 2/1) sandy loam. Soil in the area is mapped as Alderwood and Kitsap soil.

Buffer

Buffer around Wetland 28A is limited by residential development. Single-family residences are found to the west of the trail. East Lake Sammamish Parkway is to the east of the wetland. The areas north and south of the wetland are paved and used for parking. A small patch of upland buffer is found at the northeast corner of the wetland. Vegetation in the buffer is dominated by Himalayan blackberry, red

alder, and western swordfern. The buffer between the trail and the wetland consists primarily of maintained herbaceous vegetation.

Wetland Classification

Wetland 28A is classified as a palustrine forested wetland under the Cowardin et al. (1979) system and depressional/riverine under the HGM system (Null et al. 2000; Hruby 2004). Wetland 28A is rated a Category IV according to the City of Sammamish and Ecology. This wetland scored 27 points on the Washington State Wetland Rating System for Western Washington rating form (8 points for water quality functions, 6 points for hydrologic functions, and 13 points for habitat functions) (see Appendix B). The required buffer width is 50 feet for Category IV wetlands in the city of Sammamish (SMC 21A.50. 290).

Wetland Determination

Biologists flagged the boundary of Wetland 28A where indicators of hydrophytic vegetation, hydric soils, and wetland hydrology were present. The wetland edge generally corresponds with a topographic break where one or more of the wetland indicators was lacking.

Wetland 28B

Subbasin: Panhandle

USFWS Classification: Palustrine Scrub-Shrub HGM Classification: Depressional/Slope

Ecology Rating: Category IV

City of Sammamish Rating: Category IV

Data Plots: 28B-SP1, 28B-SP2 Stations: 436+75 to 437+50

Size: 0.02 acre

Wetland 28B is located on the east side of the trail, approximately 300 feet north of the intersection of East Lake Sammamish Parkway and Louis Thompson Road (see Figure 3-2f). The wetland is located entirely within the project area.

Hydrology

Wetland hydrology is maintained by a culvert that passes under East Lake Sammamish Parkway and discharges into the wetland. Water flows from east to west through the wetland and then flows south in a ditch that runs along the toe of the trail prism. The water then flows through a culvert that passes under the trail and is piped to Lake Sammamish. Soil saturation was observed in the upper 12 inches during site visits conducted in November 2007. This wetland has a saturated only water regime.

Vegetation

Wetland 28B contains a palustrine scrub-shrub vegetation community. Vegetation in the wetland includes Douglas spirea, Himalayan blackberry, cluster rose, and reed canarygrass.

Soils

Soil in Wetland 28B was examined to a depth of 18 inches and consists of two layers. The upper layer is a 12-inch layer of a very dark gray (10YR 3/1) silt loam. The lower layer is very dark gray (10YR 3/1) silt loam with red (2.5YR 4/6) redoximorphic features. Soil in the area is mapped as mixed alluvial land.

King County

Buffer

Wetland 28B is located in a vegetated corridor between the trail and East Lake Sammamish Parkway. Forested upland exists to the south and shrubs with few trees are to the north. Vegetation in the upland buffer includes Himalayan blackberry, bigleaf maple, giant horsetail, and reed canarygrass. The buffer to the south provides connectivity to Wetland 26A. East Lake Sammamish Parkway is located to the east of the wetland. The trail, East Lake Sammamish Shore Lane, and single-family residences are to the west of the wetland. The buffer between the trail and the wetland consists primarily of maintained reed canarygrass.

Wetland Classification

Wetland 28B is classified as a palustrine scrub-shrub wetland under the Cowardin et al. (1979) system and depressional/slope under the HGM system (Null et al. 2000; Hruby 2004). Wetland 28B is rated a Category IV according to the City of Sammamish and Ecology. This wetland scored 21 points on the Washington State Wetland Rating System for Western Washington rating form (12 points for water quality functions, 3 points for hydrologic functions, and 6 points for habitat functions) (see Appendix B). The required buffer width is 50 feet for Category IV wetlands in the city of Sammamish (SMC 21A.50.290).

Wetland Determination

Biologists flagged the boundary of Wetland 28B where indicators of hydrophytic vegetation, hydric soils, and wetland hydrology were present. The wetland edge generally corresponds with a topographic break where one or more of the wetland indicators was lacking.

Wetland 28C

Subbasin: Panhandle

USFWS Classification: Palustrine Scrub-shrub/Palustrine Emergent

HGM Classification: Depressional Ecology Rating: Category IV

City of Sammamish Rating: Category IV

Data Plots: 28C-SP1

Stations: 455+50 to 456+25

Size: 0.02 acre

Wetland 28C is located on the east side of the trail approximately 800 feet south of the intersection of East Lake Sammamish Parkway and Inglewood Hill Road (see Figure 3-2g). The entire wetland is located entirely within the project area.

Hydrology

Wetland hydrology is primarily maintained by local area runoff from the trail and the slope to the east. Two pipes are also located at the north end of the wetland. The wetland drains into an Unnamed Stream 13, which flows west through the wetland from a culvert passing under East Lake Sammamish Parkway. The stream continues west into a culvert that passes under the trail. Soil saturation in the upper 12 inches was observed during site visits conducted in November 2007. Wetland 28C has saturated only and occasionally flooded water regimes.

Vegetation

Wetland 28C contains scrub-shrub and emergent vegetation communities. The scrub-shrub community consists of cotoneaster creeping into the wetland from the edge and buffer. The emergent community is

dominated by giant horsetail and common ladyfern. Other species include small-fruited bulrush, creeping buttercup, watercress, little western bittercress, climbing nightshade, European mountain ash (*Sorbus aucuparia*), and Himalayan blackberry.

Soils

Soil in Wetland 28C was examined to a depth of 18 inches and consists of two layers. The upper layer is a 12-inch layer of very dark gray (10YR 3/1) silt loam. The lower layer is a 6-inch layer of very dark gray gravelly loam. Soil in the area is mapped as mixed alluvial land.

Buffer

Wetland 28C is located in a narrow corridor between the trail and East Lake Sammamish Parkway; most of the surrounding area is developed. Gravel parking areas exist to the north, east, and south. The trail is located to the west of the wetland. The small vegetated areas are maintained consisting of creeping buttercup, giant horsetail, hedge false bindweed, and common ladyfern.

Wetland Classification

Wetland 28C is classified as a palustrine scrub-shrub/palustrine emergent wetland under the Cowardin et al. (1979) system and depressional under the HGM system (Null et al. 2000; Hruby 2004). Wetland 28C is rated a Category IV according to the City of Sammamish and Ecology. This wetland scored 28 points on the Washington State Wetland Rating System for Western Washington rating form (12 points for water quality functions, 3 points for hydrologic functions, and 13 points for habitat functions) (see Appendix B). The required buffer width is 50 feet for Category IV wetlands in the city of Sammamish (SMC 21A.50.290).

Wetland Determination

Biologists flagged the boundary of Wetland 28C where indicators of hydrophytic vegetation, hydric soils, and wetland hydrology were present. The wetland edge generally corresponds with a topographic break where one or more of the wetland indicators was lacking.

Wetland 28D

Subbasin: Panhandle

USFWS Classification: Palustrine Emergent

HGM Classification: Depressional Ecology Rating: Category IV

City of Sammamish Rating: Category IV

Data Plots: 28D-SP1, 28D-SP2 Stations: 453+00 to 453+25

Size: <0.01 acre

Wetland 28D is small depression located on the east side of the trail, between the trail and a gravel driveway, and approximately 1,200 feet north of the intersection of East Lake Sammamish Parkway and NE 7th Court (see Figure 3-2g). The entire wetland is located entirely within the project area.

Hydrology

Wetland hydrology is maintained by local area runoff and a shallow groundwater table. A catch basin is located south of the wetland and water discharges to Unnamed Stream 11 and Wetland 29C. Soil saturation to the surface was observed during site visits conducted in November 2007 and September

2013. Inundation was also observed in September 2013. Wetland 28D has saturated only and permanently flooded water regimes.

Vegetation

Wetland 28D contains an emergent vegetation community. Dominant vegetation consists primarily of reed canarygrass, mowed Himalayan blackberry, and common duckweed in standing water. Other vegetation present includes giant horsetail, fringed willowherb, and hedge false bindweed.

Soils

Soil in wetland 28D was examined to a depth of 18 inches and consists of a single layer of black (10YR 2/1) gravelly loam. Soil in the area is mapped as a mixed alluvial land.

Buffer

Wetland 28D is surrounded by a gravel driveway to the north, east, and south. The trail borders the wetland to the west. Buffer around the wetland is a few feet wide and vegetation consists of maintained Himalayan blackberry, English ivy, hedge false bindweed, and some giant horsetail.

Wetland Classification

Wetland 28D is classified as a palustrine emergent wetland under the Cowardin et al. (1979) system and depressional under the HGM system (Null et al. 2000; Hruby 2004). Wetland 28D is rated a Category IV according to the City of Sammamish and Ecology. This wetland scored 16 points on the Washington State Wetland Rating System for Western Washington rating form (2 points for water quality functions, 5 points for hydrologic functions, and 9 points for habitat functions) (see Appendix B). The required buffer width is 50 feet for Category IV wetlands in the city of Sammamish (SMC 21A.50.290).

Wetland Determination

Biologists flagged the boundary of Wetland 28D where indicators of hydrophytic vegetation, hydric soils, and wetland hydrology were present. The wetland edge generally corresponds with a topographic break where one or more of the wetland indicators was lacking.

Wetland 28E

Subbasin: Panhandle

USFWS Classification: Palustrine Emergent

HGM Classification: Depressional Ecology Rating: Category III

City of Sammamish Rating: Category III

Data Plots: 28E-SP1, 28E-SP2 Stations: 445+50 to 446+50

Size: 0.02 acre

Wetland 28E is a closed depression located on the east side of the trail, between the trail and East Lake Sammamish Parkway, and approximately 450 feet north of the intersection of East Lake Sammamish Parkway and NE 7th Court (see Figures 3-2f and 3-2g). The entire wetland is located entirely within the project area.

Hydrology

Wetland hydrology is maintained by local area runoff and a shallow groundwater table. No surface water inlets or outlets were identified during field investigations. Soil saturation to the surface, pockets

of inundation, and standing water in the ditch were observed during the November 2013 site visit. Wetland 28E has a saturated only water regime.

Vegetation

Wetland 28E has an emergent vegetation community primarily dominated by reed canarygrass with American speedwell in the ditch. Common ladyfern, hedge false bindweed, and cluster rose are also present.

Soils

Soil in Wetland 28E consists of a 6-inch black (10YR 2/1) sandy loam over a very dark gray (10YR 3/1) gravelly sandy loam with dark yellowish brown (10YR 3/6) redoximorphic features and cobbles. Soil in the area is mapped as Everett very gravelly sandy loam.

Buffer

Wetland 28E is located in a narrow corridor between the trail and East Lake Sammamish Parkway; most of the surrounding area is developed. Disturbed and residential areas are located to the north. The trail is located to the west. Vegetated areas to the east and south are dominated by bigleaf maple in the overstory and Himalayan blackberry in the understory. Other species include red alder, thimbleberry, cluster rose, beaked hazelnut, giant horsetail, and bracken fern.

Wetland Classification

Wetland 28E is classified as a palustrine emergent wetland under the Cowardin et al. (1979) system and depressional under the HGM system (Null et al. 2000; Hruby 2004). Wetland 28E is rated a Category III according to the City of Sammamish and Ecology. This wetland scored 42 points on the Washington State Wetland Rating System for Western Washington rating form (16 points for water quality functions, 18 points for hydrologic functions, and 8 points for habitat functions) (see Appendix B). The required buffer width is 50 feet for Category III wetlands with a habitat score less than 20 points in the city of Sammamish (SMC 21A.50.290).

Wetland Determination

Biologists flagged the boundary of Wetland 28E where indicators of hydrophytic vegetation, hydric soils, and wetland hydrology were present. The wetland edge generally corresponds with a topographic break where one or more of the wetland indicators was lacking.

Wetland 29B

Subbasin: Panhandle

USFWS Classification: Palustrine Emergent

HGM Classification: Slope Ecology Rating: Category IV

City of Sammamish Rating: Category IV

Data Plots: 29B-SP1, 29B-SP2 Stations: 457+25 to 458+25 Size: Approximately 0.03 acre

Wetland 29B is a maintained yard located on the west side of the trail approximately 700 feet south of the intersection of East Lake Sammamish Parkway and Inglewood Hill Road (see Figure 3-2g). Wetland 29B extends outside of the project area to the west.

Hydrology

Wetland hydrology is maintained by seasonally high groundwater. The wetland slopes toward Lake Sammamish. Saturation in the upper 12 inches was observed during site visits conducted in November 2007 and March 2014. This wetland has a saturated only water regime.

Vegetation

Wetland 29B contains an emergent vegetation community that is maintained as lawn. Identified species include common velvetgrass, swordleaf rush (*Juncus ensifolius*), creeping buttercup, giant horsetail, white clover, narrowleaf plantain (*Plantago lanceolata*), and small-fruited bulrush.

Soils

Soil in Wetland 29B was examined to a depth of 16 inches and consists of two layers. The upper layer is a 6-inch black (10YR 2/1) loam. The lower layer is a very dark grayish brown (10YR 3/2) gravelly sandy loam with light yellowish brown (10YR 6/4) and yellowish brown (10YR 5/8) redoximorphic features and cobbles. Soil in the area is mapped as Alderwood gravelly sandy loam.

Buffer

Wetland 29B is situated in a residentially developed area. Single-family residences and associated yards are located to the north, west, and south. Surrounding upland buffer consists of maintained yards vegetated with unidentified grasses and ornamental shrubs. Wetland 29D is located to the east of the wetland, but connectivity is disrupted by the trail.

Wetland Classification

Wetland 29B is classified as a palustrine emergent wetland under the Cowardin et al. (1979) system and slope under the HGM system (Null et al. 2000; Hruby 2004). Wetland 29B is rated a Category IV according to the City of Sammamish and Ecology. This wetland scored 7 points on the Washington State Wetland Rating System for Western Washington rating form (2 points for water quality functions, 0 point for hydrologic functions, and 5 points for habitat functions) (see Appendix B). The required buffer width is 50 feet for Category IV wetlands in the city of Sammamish (SMC 21A.50.290).

Wetland Determination

Biologists flagged the boundary of Wetland 29B where indicators of hydrophytic vegetation, hydric soils, and wetland hydrology were present within the project area. The wetland edge generally corresponds with a topographic break where one or more of the wetland indicators was lacking.

Wetland 29C

Subbasin: Panhandle

USFWS Classification: Palustrine Forested HGM Classification: Lake-fringe/Slope

Ecology Rating: Category III

City of Sammamish Rating: Category III

Data Plots: 29C-SP1, 29C-SP2 Stations: 452+75 to 454+00 Size: Approximately 0.06 acre

Wetland 29C is located on the west side of the trail approximately 1,000 feet north of the intersection of East Lake Sammamish Parkway and NE 7th Court (see Figure 3-2g). Wetland 29C extends outside of the project area to the west.

Hydrology

Wetland hydrology is maintained by seasonally high groundwater. The wetland is sloped and drains toward Lake Sammamish. An Unnamed Stream 11 flows west through the wetland from a culvert that passes under the trail. Soil saturation in the upper 12 inches was observed during site visits conducted in November 2007 and March 2014. Wetland 29C has a saturated only water regime.

Vegetation

Wetland 29C contains a forested vegetation community with understory shrubs. The vegetation in the wetland is dominated by black cottonwood, Pacific willow, salmonberry, Pacific ninebark, Himalayan blackberry, English ivy, giant horsetail, and scouring rush. Other species include red alder, black twinberry, red-osier dogwood, slough sedge, and common ladyfern.

Soils

Soil in Wetland 29C was examined to a depth of 16 inches and consists of two layers. The upper layer is a 12-inch layer of black (10YR 2/1) peaty loam. The lower layer is a mixed sand and gravel. Soil in the area is mapped as Kitsap silt loam.

Buffer

Wetland 29C is located in a residentially developed area. Single-family residences exist to the north and the south. The wetland is bordered on the west by Lake Sammamish and the trail is located to the east. Some small patches of vegetated upland buffer exist at the northeast and southeast corner of the wetland. Vegetation in the buffer includes giant horsetail, field horsetail, English ivy, salmonberry, red alder, bigleaf maple, Douglas fir, Himalayan blackberry, western swordfern, and bamboo (*Bambusa vulgaris*) near the stream.

Wetland Classification

Wetland 29C is classified as a palustrine forested wetland under the Cowardin et al. (1979) system and lake-fringe/slope under the HGM system (Null et al. 2000; Hruby 2004). Wetland 29C is rated a Category III according to the City of Sammamish and Ecology. This wetland scored 45 points on the Washington State Wetland Rating System for Western Washington rating form (18 points for water quality functions, 12 points for hydrologic functions, and 15 points for habitat functions) (see Appendix B). The required buffer width is 50 feet for Category III wetlands scoring less than 20 points for habitat functions in the city of Sammamish (SMC 21A.50.290).

Wetland Determination

Biologists flagged the boundary of Wetland 29C where indicators of hydrophytic vegetation, hydric soils, and wetland hydrology were present within the project area. The wetland edge generally corresponds with a topographic break where one or more of the wetland indicators was lacking.

Wetland 29D

Subbasin: Panhandle

USFWS Classification: Palustrine Scrub-Shrub/Palustrine Emergent

HGM Classification: Depressional/Slope

Ecology Rating: Category IV

City of Sammamish Rating: Category IV Data Plots: 29D-SP1, 29D-SP2, 29D-SP3

Stations: 457+75 to 460+50

Size: 0.08 acre

Wetland 29D is located on the east side of the trail, between the trail and East Lake Sammamish Parkway, approximately 600 feet south of the intersection of East Lake Sammamish Parkway and Inglewood Hill Road (see Figure 3-2g). Wetland 29D extends outside the trail right-of-way to the east.

Hydrology

Wetland hydrology is maintained by groundwater seeps and local area runoff. A culvert discharges water into the wetland at the south end. Water collects in a ditch located at the toe of the trail prism. Water flows both north and south in the ditch. At the north end, water passes through a culvert under a residential driveway, and feeds into Stream 0143L (South Fork). At the south end, water is conveyed under the trail to Wetland 29B. Water from the groundwater seeps and inundation in the ditch was observed during the September 2103 site visits. The sloped portion of the wetland has a saturated only water regime, while the ditched portion has an occasionally flooded water regime.

Vegetation

Wetland 29D has two vegetation communities: scrub-shrub and emergent. The scrub-shrub community consists of Himalayan blackberry and beaked hazelnut. Vegetation in the emergent community includes common ladyfern, small-fruited bulrush, giant horsetail, and English ivy.

Soils

Two soil pits were examined in Wetland 29D. The first wetland soil pit (W29D-SP1) was dug in the emergent vegetation community and consists of a 12-inch layer of black (10YR 2/1) gravelly loam. The second soil pit was dug in the scrub-shrub vegetation community and consists of an 18-inch layer of black (10YR 2/1) mucky loam. Soil in the area is mapped as Alderwood gravelly sandy loam.

Buffer

Wetland 29D is situated in a vegetated corridor between the trail and East Lake Sammamish Parkway. The trail is adjacent to the wetland on the western boundary. Vegetated buffer exists to the south and to the east between the wetland and the parkway. Vegetation includes beaked hazelnut, bigleaf maple, salmonberry, black cottonwood, and Pacific madrone. Wetland 30B exists to the north; however, connectivity is disrupted by a residential driveway.

Wetland Classification

Wetland 29D is classified as a palustrine scrub-shrub/palustrine emergent wetland under the Cowardin et al. (1979) system and depressional/slope under the HGM system (Null et al. 2000; Hruby 2004). Wetland 29D is rated a Category IV according to the City of Sammamish and Ecology. This wetland scored 25 points on the Washington State Wetland Rating System for Western Washington rating form (12 points for water quality functions, 1 point for hydrologic functions, and 12 points for habitat

functions) (see Appendix B). The required buffer width is 50 feet for Category IV wetlands in the city of Sammamish (SMC 21A.50.290).

Wetland Determination

Biologists flagged the boundary of Wetland 29D where indicators of hydrophytic vegetation, hydric soils, and wetland hydrology were present. The wetland edge generally corresponds with a topographic break where one or more of the wetland indicators was lacking.

Wetland 30B

Subbasin: Panhandle

USFWS Classification: Palustrine Forested HGM Classification: Depressional/Slope

Ecology Rating: Category III

City of Sammamish Rating: Category III

Data Plots: 30B-SP1, 30B-SP2 Stations: 461+00 to 463+50

Size: 0.20 acre

Wetland 30B is located on the east side of the trail approximately 200 feet south of the intersection of East Lake Sammamish Parkway and Inglewood Hill Road (see Figure 3-2g). The wetland and buffer has been planted as part of a wetland mitigation effort for the interim trail. Wetland 30B extends outside of the trail right-of-way to the east.

Hydrology

Wetland hydrology is maintained primarily by groundwater seeps from the slope to the east. Stream 0413L discharges into the wetland and diverges into two channels flowing north (North Fork) and south (South Fork) along the toe of the trail prism. The streams pass under the trail through culverts located at the north and south ends of the wetland and flow west toward Lake Sammamish. Soil saturation at the surface was observed throughout most of the wetland during site visits conducted in January 2008 and September 2013. Wetland 30B has saturated only and seasonally inundated water regimes.

Vegetation

Wetland 30B has a forested vegetation community dominated by red alder, red-osier dogwood, and Pacific ninebark. Other species include Oregon ash, western redcedar, salmonberry, Himalayan blackberry, common ladyfern, climbing nightshade, water parsley (*Oenanthe sarmentosa*), reed canarygrass, giant horsetail, scouring rush, and bigleaf maple. Shrubs and trees have been planted in the wetland.

Soils

Soil in Wetland 30B was examined to a depth of 17 inches and consists of three layers. The upper layer is a 5-inch layer of black (10YR 2/1) silt loam. The middle layer is a 5-inch layer of very dark gray (10YR 3/1) sandy gravelly loam. The lower layer is black (7.5YR 2.5/1) muck. Soil in the area is mapped as Alderwood gravelly sandy loam.

Buffer

Wetland 30B is situated in a vegetated corridor between the trail and East Lake Sammamish Parkway. The trail borders the wetland to the west and a residential driveway is to the south. A vegetated upland buffer exists to the north and the east. Vegetation in the buffer includes salmonberry, Himalayan

blackberry, western swordfern, trailing blackberry, bigleaf maple, and giant horsetail. The buffer to the west (between the wetland and the trail) is maintained herbaceous vegetation. Wetland 29D is located to the south of the wetland, but connectivity is disrupted by a driveway.

Wetland Classification

Wetland 30B is classified as a palustrine forested wetland under the Cowardin et al. (1979) system and depressional/slope under the HGM system (Null et al. 2000; Hruby 2004). Wetland 30B is rated a Category III according to the City of Sammamish and Ecology. This wetland scored 46 points on the Washington State Wetland Rating System for Western Washington rating form (22 points for water quality functions, 10 points for hydrologic functions, and 14 points for habitat functions) (see Appendix B). The required buffer width is 50 feet for Category III wetlands scoring less than 20 points for habitat functions in the city of Sammamish (SMC 21A.50.290).

Wetland Determination

Biologists flagged the boundary of Wetland 30B where indicators of hydrophytic vegetation, hydric soils, and wetland hydrology were present. The wetland edge generally corresponds with a topographic break where one or more of the wetland indicators was lacking.

3.3 Streams

Seventeen stream crossings were identified in the project area (Table 3-3; Figures 3-2a through 3-2g). Most of the streams in the South Sammamish Segment B project area are small and perennial, but little public resource information is available. Generally, these are short streams with silt or sand substrates that flow through culverts or conduits that are barriers to fish passage. For the majority of these streams, information is lacking on fish presence or absence. Field reconnaissance was used to determine the quality and quantity of available salmonid habitat (where access was allowed); therefore, the likelihood of fish use was assessed qualitatively based on the professional judgment of Parametrix biologists familiar with local hydrologic and fish habitat conditions. This approach was conservative because it is extremely unlikely that all streams that meet the criteria for presumed fish presence and/or contain fish habitat features are currently occupied.

All of the drainage structures in the project area, including the ones that convey the streams identified in this report, were evaluated for their suitability for future fish passage improvements (Parametrix 2015). Several of these streams were removed from consideration for structure replacement, based on a lack of characteristics (hydrology, catchment area, adequate channel, and buffer width, etc.) that could support a viable enhanced stream or restore a former stream. Nonetheless, the 17 streams identified in this analysis meet the definition of "streams" as specified in SMC 21A.15.1240.

Table 3-3. Summary of Streams Crossing the Project Area

Stream Name	Station	City of Sammamish Stream Classification ^a	Buffer Width ^b (feet)
Unnamed Stream 4	316+20	F	150
Unnamed Stream 5	316+95	F	150
Unnamed Stream 6	356+90	F	150
Unnamed Stream 7	367+00	F	150
Pine Lake Creek	379+10, 379+15	F	150
Unnamed Stream 8 (South Fork)	384+25	F	150
Unnamed Stream 8 (North Fork)	386+60	F	150
Stream 0155	401+75	F	150
Ebright Creek	411+85, 411+90	F	150
Zackuse Creek	424+60	F	150
Unnamed Stream 9	432+80	F/Np	150
George Davis	441+35, 441+40	F	150
Unnamed Stream 10	449+95	F	150
Unnamed Stream 11	452+95	F	150
Unnamed Stream 13	455+80	F	150
Stream 0143L (South Fork)	460+25	F	150
Stream 0143L (North Fork)	464+25	F	150

^a Per SMC 21A.15.1240. F = Fish-bearing (salmonids only); Np = Non-fish-bearing, perennial.

Unnamed Stream 4 Subbasin: Monohon

Stream Classification: Type F

Station: 316+20

Unnamed Stream 4 is the southernmost stream in the South Segment B project area, near Unnamed Stream 5 (see Figure 3-2b). This stream receives off-site flow from adjacent hillside properties and roadways, including East Lake Sammamish Parkway to the east. It also receives water from Wetland 15BC. The stream channel flows north from a culvert into Wetland 15BC, then turns west to a pipe under the Interim Use Trail. After emerging from the pipe under the trail, the stream flows off site on the adjacent property in an open channel and a short distance through two pipes before emptying to Lake Washington. Riparian vegetation consists of lawn, English ivy, disturbed areas from adjacent property owners, a few deciduous and coniferous trees, salmonberry, scouring rush, and Wetland 15BC. Unnamed Stream 4 meets the criteria for presumed fish presence and is therefore classified as a Type F stream. The required buffer width for Type F streams in the city of Sammamish is 150 feet (SMC 21A.50.330).

^b Per SMC 21A.50.330.

*Unnamed Stream 5*Subbasin: Monohon

Stream Classification: Type F

Station: 316+95

Unnamed Stream 5 is in the southern portion of the South Segment B project area, near Unnamed Stream 4 (see Figure 3-2b). This stream receives off-site flow from adjacent hillside properties and roadways, including East Lake Sammamish Parkway to the east. It also receives water from Wetlands 15BC and 15A. The stream channel flows south from a culvert into Wetland 15BC, then turns west to a pipe under the Interim Use Trail. After emerging from the pipe under the trail, the stream flows along the south side of Wetland 15A before emptying to Lake Washington. Riparian vegetation consists of lawn, English ivy, disturbed areas from adjacent property owners, a few deciduous and coniferous trees, and Wetlands 15A and 15BC. Unnamed Stream 5 meets the criteria for presumed fish presence and is therefore classified as a Type F stream. The required buffer width for Type F streams in the city of Sammamish is 150 feet (SMC 21A.50.330).

Unnamed Stream 6
Subbasin: Monohon

Stream Classification: Type F

Station: 356+90

Unnamed Stream 6 is in the southern portion of the South Segment B project area, near the intersection of East Lake Sammamish Place SE and SE 16th Street (see Figure 3-2c). This stream receives off-site flow from adjacent hillside properties and roadways, including East Lake Sammamish Place SE and East Lake Sammamish Parkway SE to the southeast. It also receives water from Wetlands 21B and 21AC. The stream enters the project area from the southeast into Wetland 21B, then flows into a pipe under the Interim Use Trail. After emerging from the pipe under the trail, the stream continues in a landscaped channel in Wetland 21AC before emptying to Lake Washington. Riparian vegetation consists of native forested wetland vegetation (Wetland 21B) and landscaped yards and lawns. Unnamed Stream 6 meets the criteria for presumed fish presence and is therefore classified as a Type F stream. The required buffer width for Type F streams in the city of Sammamish is 150 feet (SMC 21A.50.330).

Unnamed Stream 7
Subbasin: Monohon

Stream Classification: Type F

Station: 367+00

Unnamed Stream 7 is north of the intersection of East Lake Sammamish Parkway SE and SE 14th Street, south of Pine Lake Creek (see Figure 3-2d). This stream receives off-site flow from adjacent hillside properties and roadways, including East Lake Sammamish Parkway SE to the east. The stream enters the project area from the east, flows adjacent to a small portion of Wetland 22AB, then west under the Interim Use Trail through a pipe. After emerging from the pipe under the trail, the stream continues through developed properties before emptying to Lake Washington. Riparian vegetation consists of native forested wetland vegetation (Wetland 22AB) to the southeast, some trees with an understory of Himalayan blackberry to the northeast, and developed residential properties west of the trail. Unnamed Stream 7 meets the criteria for presumed fish presence and is therefore classified as a Type F stream. The required buffer width for Type F streams in the city of Sammamish is 150 feet (SMC 21A.50.330).

Pine Lake Creek
Subbasin: Pine Lake

Stream Classification: Type F Stations: 379+10, 379+15

Pine Lake Creek is a 2.84-mile-long stream in the Pine Lake subbasin. WDFW (2016a) indicates that kokanee (*Oncorhynchus nerka*), coho (*O. kisutch*), and winter-run steelhead (*O. mykiss*) have been documented in the stream; the presence of sockeye⁴ and fall-run Chinook salmon (*O. tshawytscha*) has been modeled. Records indicate that the lower reaches of Pine Lake Creek support spawning by late-run kokanee salmon (Berge and Higgins 2003). Sockeye salmon or stray Chinook salmon may also use the lower reaches of the stream. Resident cutthroat trout (*O. clarki*) and rainbow trout (*O. mykiss*) are reported to spawn and rear throughout the stream to its headwaters, with resident-only fish present above river mile (RM) 1.8 (King County 1990). This likely refers to Kanim Creek (a tributary to Pine Lake Creek) because the outlet of Pine Lake typically dries up in the late summer and fall, leaving a dry channel at least several hundred yards to the site of a now-removed outlet screen structure (WDFW file records, Mill Creek). Excellent riffle/pool habitat remains in the lower reaches, especially where the stream descends from the plateau to Lake Sammamish. During stream surveys in 2001 and 1999, no fish were observed in the stream within 100 feet on either side of the project corridor.

The Lake Sammamish Kokanee Work Group (2014) identifies Pine Lake Creek as a primary spawning stream for kokanee, one of four streams in the Lake Sammamish basin that has supported the vast majority of spawning by late-run kokanee in recent years. Replacement or improvement of the culverts under the Interim Use Trail and at East Lake Sammamish Shore Lane SE is included on a list of suggested stream restoration and enhancement projects needed to help improve the health of native kokanee populations (Lake Sammamish Kokanee Work Group 2014).

At the Interim Use Trail (i.e., the former railbed), the stream is diverted under the railroad ballast through two 36-inch concrete culverts. During field surveys conducted for this study, one of the culverts was found to be partially filled with gravel at the upstream opening. The WDFW Fish Passage and Diversion Screening Inventory Database identifies these culverts as a partial barrier to fish passage. The stream experiences 25- and 100-year flood flows of 64 and 78 cubic feet per second (cfs), respectively. Approximately 150 feet downstream of the Interim Use Trail, the stream passes through a 36-inch round concrete culvert under East Lake Sammamish Shore Lane. The stream empties to Lake Sammamish approximately 500 feet downstream of the Interim Use Trail (see Figure 3-2d).

Two root wads are present in the stream channel immediately downstream of the Interim Use Trail. In 1999, the King County Department of Natural Resources and Parks placed approximately 10 logs in and across the stream channel in this reach and planted riparian vegetation in an effort to increase habitat diversity. Downstream of East Lake Sammamish Shore Lane, the King County Department of Natural Resources and Parks has placed eight 4-inch pieces of LWD within the stream, as part of a restoration project. Riparian vegetation consists of black cottonwood, reed canarygrass, giant horsetail, ferns, and Himalayan blackberry. Pine Lake Creek is associated with Wetlands W24A and W24B.

Channel morphology within 100 feet of the corridor consists of riffle/glide/pool combinations. Substrate composition is suitable for salmonid spawning upstream of the Interim Use Trail, with cobble and gravel as

⁴ Sockeye salmon and kokanee are two forms of the same species. Sockeye are anadromous, migrating to marine waters before returning to freshwater to spawn. Kokanee, in contrast, remain in stream and lake habitats their entire lives.

the predominant substrate. However, the plunge pool immediately downstream of the Interim Use Trail culverts appears to contain only silt and sand.

Approximately 50 feet upstream of the Interim Use Trail, the stream passes under East Lake Sammamish Parkway, flowing through a 4-foot by 3-foot concrete box culvert and a 36-inch round corrugated metal pipe. All of the streamflow appears to pass through the box culvert, with no flow in the pipe. In the pool located downstream of the box culvert outlet, two large root wads provide bank stabilization and instream fish habitat. The WDFW Fish Passage and Diversion Screening Inventory Database identifies the culvert under East Lake Sammamish Parkway as a total barrier to fish passage.

Pine Lake Creek is classified as a Type F stream with a required buffer width of 150 feet (SMC 21A.50.330).

Unnamed Stream 8 (South Fork, North Fork)

Subbasin: Monohon

Stream Classification: Type F Stations: 384+25, 386+60

Unnamed Stream 8 is in the vicinity of the intersection of East Lake Sammamish Parkway SE and SE 8th Street, north of Pine Lake Creek (see Figure 3-2d). This stream receives off-site flow from adjacent hillside properties and roadways, including East Lake Sammamish Parkway SE to the east. The stream enters the project area from the southeast, flowing into Wetland 24A on the east side of the Interim Use Trail. The stream diverges into two separate channels. The southern channel (South Fork) flows northwest in a pipe under the trail to Wetland 24B then continues through residential properties to Lake Sammamish. The northern channel (North Fork) flows parallel to the trail through a pipe under a residential roadway and then into Wetland 24C. From there, the stream changes direction and flows into a pipe under the trail that continues to Lake Sammamish. Riparian vegetation in the project area is mostly wetland vegetation (described above for Wetlands 24A, 24B, and 24C) with mowed grass, Himalayan blackberry, English ivy, and reed canarygrass. Unnamed Stream 8 meets the criteria for presumed fish presence and is therefore classified as a Type F stream. The required buffer width for Type F streams in the city of Sammamish is 150 feet (SMC 21A.50.330).

Stream 0155
Subbasin: Monohon

Stream Classification: Type F

Station: 401+75

Stream 0155 is located north of the intersection of East Lake Sammamish Parkway SE and SE 8th Street, south of Ebright Creek (see Figure 3-2e). This stream receives off-site flow from adjacent hillside properties and roadways to the east, including East Lake Sammamish Parkway SE, and from a large wetland across the parkway (labeled as East Lake Sammamish #64 under King County's wetland inventory). The stream enters the project area from the southeast, flowing into Wetland 25A on the east side of the Interim Use Trail. The water flows southwest through Wetland 25A to a catch basin with a trash rack and is piped northwest under the Interim Use Trail and adjacent residential properties before it enters Lake Sammamish. Riparian vegetation in the project area is mostly wetland vegetation (described above for Wetland 25A) with Himalayan blackberry, hedge false bindweed, reed canarygrass, and lawn with landscaped trees and shrubs. A driveway disrupts connectivity between Wetland 25A and Wetland 25B to the north. The presence of fall-run Chinook, winter-run steelhead, coho, and sockeye is modeled in the stream (WDFW 2016a). Stream 0155 meets the criteria for presumed fish presence and is therefore classified as a Type F stream. The required buffer width for Type F streams in the city of Sammamish is 150 feet (SMC 21A.50.330).

Ebright Creek
Subbasin: Thompson

Stream Classification: Type F Stations: 411+85, 411+90

Ebright Creek is located in the Thompson subbasin (see Figure 3-2e). WDFW (2016a) indicates that kokanee, coho, winter-run steelhead, and sockeye have been documented in the stream, and the presence of fall-run Chinook is modeled. Late-run kokanee are known to spawn in Ebright Creek, and coho salmon (spawning and rearing) and sockeye salmon (spawning) may be present in the lower reaches downstream of a man-made fish barrier (Berge and Higgins 2003). Ebright Creek also supports cutthroat trout (spawning and rearing) and rainbow trout (spawning and rearing) throughout its 2.65mile length (King County 1990). In the lower reaches, the stream has characteristics that favor spawning and rearing by coho salmon and spawning by sockeye and kokanee salmon (King County 1990). Farther upstream, the gradient sometimes approaches 5 percent through the ravines, forming tiered or staircase features that result in patch gravel and small-volume pools that are favored by trout (King County 1990). During stream surveys in 1999, six adult kokanee salmon (25 to 35 centimeters in length) were observed spawning within 10 feet of the former railbed and two redds were observed. An adult coho salmon carcass was also found on the stream bank, 5 feet to the east of the former railbed. On December 9, 1999, two adult coho salmon spawners were observed in the stream adjacent to the former railbed. The King County Volunteer Salmon Watcher Program reported over 100 kokanee between RM 0.2 and RM 0.9 during November and December 2001 (Vanderhoof 2002). In addition, one coho salmon was reported at RM 0.2.

The Lake Sammamish Kokanee Work Group (2014) identifies Ebright Creek as a primary spawning stream for kokanee, one of four streams in the Lake Sammamish basin that has supported the vast majority of spawning by late-run kokanee in recent years. Replacement or improvement of the culverts under the Interim Use Trail is included on a list of suggested stream restoration and enhancement projects needed to help improve the health of native kokanee populations (Lake Sammamish Kokanee Work Group 2014).

Channel morphology downstream of the Interim Use Trail (i.e., the former railbed) is a riffle/pool combination. Pool quality is excellent, with two pools directly downstream of the project corridor. The stream banks immediately below the corridor are stable, having been stabilized with the placement of three pieces of LWD (10 to 50 feet long, 18 to 24 inches in diameter) and large boulders. More LWD has been added in the stream channel downstream of the Interim Use Trail.

At the Interim Use Trail, the stream flows through two 36-inch concrete culverts, both of which are in good condition and unblocked. The stream undergoes 25- and 100-year flood flows of 39 and 45 cfs, respectively. However, the culverts beneath the Interim Use Trail may block fish migration at high flows (White 1999). The WDFW Fish Passage and Diversion Screening Inventory Database identifies these culverts as a partial barrier to fish passage.

Substrate composition consists of 20 percent cobble, 50 percent gravel, and 30 percent sand and silt, forming habitat suitable for adult salmonid spawning. However, a substantial concentration of sediment and fines (greater than 80 percent composition) was observed at the tail end of the pool immediately downstream of the culverts crossing the Interim Use Trail. Although the stream does not appear to be downcutting its bed in the area, the plunge pool below the culverts is retaining sediment, sand, and fines.

Upstream of the Interim Use Trail, 10 feet to the east, the stream is partially blocked with vegetation. The vegetation blockage may be reducing stream flows through the culverts, contributing to sediment deposition in the plunge pool.

Riparian vegetation consists of giant horsetail, red alder, Himalayan blackberry, bigleaf maple, reed canarygrass, and Scotch broom. Ebright Creek is associated with Wetland 25F.

Ecology (1994) identified an erosion problem in Ebright Creek upstream from East Lake Sammamish Parkway to the impassable barrier at RM 0.45. Bed and bank erosion in the upper and middle reaches of the stream result in sedimentation of salmonid spawning and rearing habitat in lower reaches and of culverts under East Lake Sammamish Parkway (Ecology 1994). The WDFW Fish Passage and Diversion Screening Inventory Database identifies the culvert under East Lake Sammamish Parkway as a partial barrier to fish passage.

Ebright Creek is classified as a Type F stream with a required buffer width of 150 feet (SMC 21A.50.330).

Zackuse Creek
Subbasin: Monohon

Stream Classification: Type F

Station: 424+60

Zackuse Creek lies in the Monohon subbasin (see Figure 3-2f). WDFW (2016a) indicates that coho salmon have been documented in the stream, and the presence of winter steelhead, sockeye, and fall Chinook is modeled. The stream likely supports cutthroat trout (spawning and rearing), and it may support late-run kokanee salmon and coho salmon spawning near the stream mouth. The stream is 1.18 miles in length, but only 0.05 mile is accessible to anadromous or adfluvial fish (King County 1990). There is a culvert barrier at East Lake Sammamish Parkway (King County 1990). At one time, this stream may have supported coho, kokanee, and/or sockeye salmon in the lower reaches prior to the creation of fish barrier(s) near the mouth. During the large run of Lake Sammamish kokanee in 2012-13, up to 60 mature adults were observed in Zackuse Creek, although it is unclear whether most of the fish spawned in the creek or moved to another tributary to spawn (Lake Sammamish Kokanee Work Group 2014). During stream surveys in 1999, no fish were observed within 100 feet of the Interim Use Trail.

The Lake Sammamish Kokanee Work Group (2014) identifies Zackuse Creek as a small secondary stream that has the potential for kokanee spawning. Replacement or improvement of the culverts under East Lake Sammamish Shore Lane, the Interim Use Trail, and East Lake Sammamish Parkway is included on a list of suggested stream restoration and enhancement projects needed to improve the health of native kokanee populations (Lake Sammamish Kokanee Work Group 2014).

Downstream of the Interim Use Trail, channel morphology is a riffle/glide combination. Substrate composition in this downstream reach consists of 40 percent cobble and 60 percent sand and gravel, which is suitable for salmonid spawning. The stream banks appear to be stable, with no evidence of deep erosional sides or soil sloughing.

No LWD is present in the downstream reach of Zackuse Creek. A broken clay pipe lies across the channel approximately 50 feet downstream of the Interim Use Trail. The stream passes through a bridge under a private driveway before entering a culvert that runs underneath a residence. Eventually, the stream emerges and flows into Lake Sammamish.

The stream flows underneath the Interim Use Trail in a 36-inch concrete culvert, which is in good condition. There is no sediment in the culvert or culvert outlet blockage. The stream experiences 25- and 100-year flood flows of 28 and 43 cfs, respectively. Flow depth in the culvert averages 2.5 inches. The culvert beneath the Interim Use Trail may act as a partial fish barrier (White 1999). The WDFW Fish Passage and Diversion Screening Inventory Database identifies this culvert as a partial barrier to fish passage. At the culvert outlet, the stream has created a plunge pool. From the culvert, the stream drops 12 to 18 inches into a 3-foot by 10-foot plunge pool. This is the only pool within 100 feet of the corridor.

Riparian vegetation consists of giant horsetail, Himalayan blackberry, reed canarygrass, and red alder, which are typical of a disturbed riparian zone. Bigleaf maple and Scotch broom are also present. Upstream from the Interim Use Trail, the stream channel is choked with Himalayan blackberry and forms a part of Wetland 26A. East Lake Sammamish Parkway lies 75 feet east of the Interim Use Trail and slightly uphill. Beyond East Lake Sammamish Parkway is another large wetland. In this wetland, the stream channel is braided and choked with vegetation. The culvert beneath East Lake Sammamish Parkway is partially blocked with sediment and vegetation. The WDFW Fish Passage and Diversion Screening Inventory Database identifies the culvert under East Lake Sammamish Parkway as a partial barrier to fish passage.

Zackuse Creek is classified as a Type F stream with a required buffer width of 150 feet (SMC 21A.50.330).

*Unnamed Stream 9*Subbasin: Monohon

Stream Classification: Type F / Type Np

Station: 432+80

Unnamed Stream 9 is located in the vicinity of the intersection between East Lake Sammamish Parkway SE and Louis Thompson Road NE, south of George Davis Creek (see Figure 3-2f). This stream receives off-site flow from adjacent hillside properties and roadways, including East Lake Sammamish Parkway SE and Louis Thompson Road NE to the east. The stream enters the project area from the east and flows over a quarry spall-lined slope (no defined channel) to the Interim Use Trail, where it is piped under the trail into Wetland 26D west of the trail. Unnamed Stream 9 flows out of the pipe under the trail at the northeast corner of the wetland, then flows south along the eastern boundary before turning west in the southeast corner and continuing to Lake Sammamish. West of the trail, this stream is part of a wetland/stream restoration site with LWD, recent plantings, and irrigation. The riparian buffer to the northwest has also been planted between the wetland and nearby house. Riparian vegetation east of the trail is primarily Himalayan blackberry. Unnamed Stream 9 meets the criteria for presumed fish presence downgradient of the trail and is therefore classified as a Type F stream. Upgradient of the trail the stream lacks a defined channel on the steep quarry spall slope and is classified as Type Np. The required buffer width for Type F streams in the city of Sammamish is 150 feet, and the buffer for Type Np streams is 75 feet (SMC 21A.50.330).

George Davis Creek
Subbasin: Inglewood

Stream Classification: Type F Stations: 441+35, 441+40

George Davis Creek lies in the Inglewood subbasin (see Figure 3-2f). This stream is also known locally as Inglewood Creek or Eden Creek (King County 1994). WDFW (2016a) indicates coho and winter steelhead have been documented in the stream, and the presence of sockeye and fall Chinook is modeled. The stream is believed to support late-run kokanee salmon, coho salmon (rearing), cutthroat trout (spawning and rearing), and rainbow trout (spawning and rearing) (Williams et al. 1975; King County 1990). The Lake Sammamish Kokanee Work Group (2014) identifies George Davis Creek as a small secondary stream that has the potential for kokanee spawning. Adult kokanee have occasionally been observed in George Davis Creek since 2009, following a project that restored approximately 100 feet at the mouth of Lake Sammamish. Approximately 15 kokanee were observed spawning in the stream (Lake Sammamish Kokanee Work Group 2014).

The stream is 3.46 miles in length, but only about 100 feet is accessible to anadromous or adfluvial fish (Lake Sammamish Kokanee Work Group 2014). At one time, this stream likely supported coho, kokanee, and/or sockeye salmon in the lower reaches prior to the creation of fish barriers near its mouth. Sedimentation and the stream culvert under an adjacent residence severely limit the amount of usable salmonid habitat in the portion downstream of the Interim Use Trail.

A section of the stream downstream of the Interim Use Trail has been piped under a private driveway and a house. This culvert also acts as a partial barrier to fish passage (Ecology 1994). Underneath the Interim Use Trail, there are two concrete culverts, 24 and 36 inches in diameter, which are 50 percent blocked by sediment. The WDFW Fish Passage and Diversion Screening Inventory Database identifies these culverts as a potential but unevaluated barrier to fish passage. Pool quality and quantity are poor. Because of restricted access, no survey was performed in the reach downstream of King County right-of-way. However, lakeshore spawning by kokanee salmon may occur near the outlet of the stream (Ecology 1994).

Upstream of the Interim Use Trail, a culvert under East Lake Sammamish Parkway also creates a barrier to salmonid migration, as does a second culvert at RM 0.81 (King County 1990). The WDFW Fish Passage and Diversion Screening Inventory Database identifies the culvert under East Lake Sammamish Parkway as a total barrier to fish passage. Upstream of the Parkway, between RMs 0.2 and 0.8, the stream channel contains sufficient amounts of LWD and habitat conditions that are generally favorable for salmonids (Ecology 1994). In general, the upper tributary streams in the Inglewood Basin all have some rearing habitat available for resident cutthroat trout and some limited spawning areas (Ecology 1994).

The stream reach upstream of East Lake Sammamish Parkway (beyond the impassable barriers) has been identified as a problem area for erosion/sedimentation and water quality (Ecology 1994). Salmonid habitat on the Sammamish Plateau has been degraded by past agricultural practices, such as ditching, clearing, and poor pasture management; only short reaches have not been straightened or dredged to drain fields more rapidly or to eliminate wetlands. The stream above RM 2.0 has been grossly modified through channelization and dredging (King County 1990).

The 25- and 100-year flood flows for this stream are 35 and 42 cfs, respectively. Near the Interim Use Trail, the channel has been deeply eroded (greater than 10 feet), exposing tree roots on the bank. Riparian vegetation is dominated by bigleaf maple and Himalayan blackberry. Other species observed include Douglas fir, Portuguese laurel, English laurel, hedge false bindweed, English ivy, beaked hazelnut, thimbleberry, and western swordfern. The stream has downcut its channel and exposed a gravel/cobble substrate in the streambed near the Interim Use Trail.

George Davis Creek is classified as a Type F stream with a required buffer width of 150 feet (SMC 21A.50.330).

Unnamed Stream 10 Subbasin: Panhandle

Stream Classification: Type F

Station: 449+95

Unnamed Stream 10 is located south of the intersection between East Lake Sammamish Parkway SE and NE Inglewood Hill Road, north of George Davis Creek (see Figures 3-2f and 3-2g). This stream receives off-site flow from adjacent hillside properties and roadways, including East Lake Sammamish Parkway SE to the east. The stream enters the project area from the east and flows into Wetland 28A, where it turns north and enters a pipe under the Interim Use Trail. West of the trail, the stream flows through a quarry spall-lined channel with some gravel, then enters a plastic pipe under a walkway associated with the adjacent residential property before its outlet to Lake Sammamish. The riparian area east of the trail is

dominated by wetland vegetation associated with Wetland 28A, and improved areas for parking used by adjacent residential properties. The riparian area west of the trail consists of improved areas associated with the adjacent residential property (i.e., structures, sport court, and landscaped yard). Unnamed Stream 10 meets the criteria for presumed fish presence and is therefore classified as a Type F stream. The required buffer width for Type F streams in the city of Sammamish is 150 feet (SMC 21A.50.330).

Unnamed Stream 11
Subbasin: Panhandle

Stream Classification: Type F

Station: 452+95

Unnamed Stream 11 is located south of the intersection between East Lake Sammamish Parkway SE and NE Inglewood Hill Road (see Figure 3-2g). This stream receives off-site flow from adjacent hillside properties and roadways, including East Lake Sammamish Parkway SE to the east. The stream enters the project area from the east and continues west. It is associated with Wetlands 28D and 29C. Much of the riparian area is developed as part of the adjacent residential properties with little native vegetation. Unnamed Stream 11 meets the criteria for presumed fish presence and is therefore classified as a Type F stream. The required buffer width for Type F streams in the city of Sammamish is 150 feet (SMC 21A.50.330).

Unnamed Stream 13 Subbasin: Panhandle

Stream Classification: Type F

Station: 455+80

Unnamed Stream 13 is located south of the intersection between East Lake Sammamish Parkway SE and NE Inglewood Hill Road, south of Stream 0143L (see Figure 3-2g). This stream receives off-site flow from adjacent hillside properties and roadways, including East Lake Sammamish Parkway SE to the east. The stream enters the project area from the east and continues west. It is associated with Wetland 28C. Much of the riparian area is developed as part of the adjacent residential properties and little native vegetation is present. Unnamed Stream 13 meets the criteria for presumed fish presence and is therefore classified as a Type F stream. The required buffer width for Type F streams in the city of Sammamish is 150 feet (SMC 21A.50.330).

Stream 0143L (South Fork, North Fork)

Subbasin: Panhandle

Stream Classification: Type F Stations: 460+25, 464+25

Stream 0143L is located south of the intersection of East Lake Sammamish Parkway SE and NE Inglewood Hill Road, near the northern terminus of the project area (see Figure 3-2g). WDFW (2016a) does not identify this as a fish-bearing stream. The Lake Sammamish Kokanee Work Group (2014) identifies Stream 0143L as likely to have limited potential for kokanee spawning. The stream receives off-site flow from adjacent hillside properties and roadways, including East Lake Sammamish Parkway SE and NE Inglewood Hill Road to the east. The stream enters the project area from the east and hits a dissipating rock structure that splits the stream into two channels, the South Fork and North Fork. The South Fork flows south along the Interim Use Trail for a short distance before crossing under the trail in a pipe to the west side, where it continues in an incised channel to Lake Sammamish. Riparian habitat along the South Fork is dominated by upland forest with a disturbed understory and developed residential areas farther south. The North Fork flows north adjacent to the trail and along Wetland 30B

before turning west to a pipe under the Interim Use Trail. The stream continues in an incised channel west of the trail through an area used as a community beach. Riparian habitat along the North Fork consists mostly of native forest with wetland vegetation (Wetland 30B) on the east side of the trail and upland forest with a disturbed understory west of the trail. Stream 0143L meets the criteria for presumed fish presence and is therefore classified as a Type F stream. The required buffer width for Type F streams in the city of Sammamish is 150 feet (SMC 21A.50.330).

3.4 Lake Sammamish

Lake Sammamish, with a surface area of approximately 4,900 acres, is one of the largest lakes in the Puget Sound Basin (King County 1990). The lake receives flow primarily from Issaquah Creek and discharges north through the Sammamish River to Lake Washington, Lake Union, and Puget Sound. Most of the watershed is located within the King County urban growth area boundary and is (or is proposed to be) developed with high-density residential and commercial land uses (King County 1994; KCCFM 2000). Within the project area residential development has been concentrated between the East Lake Sammamish Parkway and the lakeshore.

Lake Sammamish serves as a rearing environment and migratory pathway for both resident and anadromous salmonids, with Chinook, coho, sockeye, and kokanee salmon; steelhead; and coastal cutthroat trout likely to be found in the lake and its tributaries (King County 1990; Pfeifer 1992). Other than one unconfirmed anecdotal account, there is no documentation of bull trout presence in the Lake Sammamish Watershed. Tributary thermal regimes are unsuitable for reproduction by this species, and there is no known local spawning population in low-elevation tributaries of either Lake Washington or Lake Sammamish (WDFW 1998). Lake Sammamish also contains a diverse population of resident non-salmonid species, including largemouth bass (*Micropterus salmoides*), yellow perch (*Perca flavescens*), brown bullhead (*Ameiurus nebulosus*), and black crappie (*Pomoxis nigromaculatus*) (King County 1990).

Lake Sammamish is a shoreline of the state, regulated under the City of Sammamish SMP (effective August 31, 2011). The project area has a Shoreline Residential shoreline designation. According to SMP 25.06.020(9), Lake Sammamish has a 50-foot shoreline setback. Residential structures and associated landscaping cover the majority of the setback in the project area, with a small area of native forest and a disturbed understory near the northern terminus.

3.5 Fish and Wildlife Habitat Conservation Areas

Based on a review of existing information and site conditions, the following areas with which state or federally designated endangered, threatened, or sensitive species have a primary association are present in the project area:

 Pine Lake Creek, Ebright Creek, and George Davis Creek, where steelhead (listed as threatened under the Endangered Species Act [ESA]) have been documented

Please note that, since the submittal of the CAS, in December 2016, the Washington Fish and Wildlife Commission removed the bald eagle from the list of state sensitive species (WAC 232-12-011). As a result, bald eagles are no longer among the species for which FWHCAs are established in the City of Sammamish, per SMC 21A.15.468.

No other areas with which state or federally designated endangered, threatened, or sensitive species have a primary association are present in the project area. There are no state natural area preserves, natural resource conservation areas, or wildlife habitat corridors in the project area.

According to SMC 21A.50.325(1), if a fish and wildlife habitat conservation area is also classified as a stream, lake, pond, or a wetland, then the appropriate protection standards for the stream, lake, pond, or wetland shall apply and habitat management shall be addressed as part of the stream, lake, pond, or wetland review. The protection standards for Pine Lake Creek, Ebright Creek, and George Davis Creek (which are designated as fish and wildlife habitat conservation areas based on the documented presence of steelhead) are specified in the pertinent discussions in Section 3.3, above. Habitat conservation areas that are lakes are governed by the requirements of the Sammamish SMP (SMC 21A.50.325(3)). See Sections 3.2, 3.3, and 3.4 for information on wetlands, streams, and Lake Sammamish.

Pileated woodpeckers use forested habitats in the project area and have been observed in the northern portion of the trail corridor (TWC 2017). However, WDFW (2016b) has not identified any pileated woodpecker breeding areas in the project area. Although the City code (SMC 21A.15.468) does not establish FWHCAs for pileated woodpeckers, the City has directed the County to add pileated woodpecker to the FWHCA sections of the CAS and to protect pileated woodpecker habitat.

WDFW has developed recommendations for the management of habitat for pileated woodpeckers in urban and suburban areas, such as the project area. Recommendations applicable to the proposed project include (1) targeting larger forest patches with large trees and snags for conservation during the planning process and (2) retaining or creating snags and retaining live trees in the largest size classes available. Areas that provide opportunities for the implementation of these recommendations are available in the northern portion of the trail corridor.

3.6 Critical Aquifer Recharge Areas

City of Sammamish CARA maps identify Class 3 wellhead protection zones in the southern portion of the project area (see Figure 3-2a).

4. IMPACT ASSESSMENT

This section describes the extent and type of permanent and temporary impacts on critical areas and associated buffers that will occur as a result of the proposed project. Wetland buffers, stream buffers, and the shoreline setback often overlap in the project area. Where overlap occurs, impacts are calculated and presented in descending order of priority from wetland buffer, stream buffer, and lastly shoreline setback.

4.1 Wetlands

Permanent and temporary impacts on wetlands and buffers are unavoidable (Table 4-1; Appendix D). This section describes the extent and type of temporary and permanent impacts on wetland and wetland buffers that will occur as a result of constructing the proposed trail project. Only impacts on areas that are defined solely as wetland buffers are reported in this section.

Table 4-1. Summary of Impacts on Wetlands and Buffers

	Ecology/	Wet	tland	Вι	ıffer
Wetland	Sammamish Rating ^a	Perm. Impacts acres (SF)	Temp. Impacts acres (SF)	Perm. Impacts acres (SF)	Temp. Impacts acres (SF)
15A	III	-	0.02 (679)	0.04 (1,807)	0.04 (1,828)
15BC	IV	-	0.01 (216)	0.05 (2,099)	0.08 (3,667)
15D	IV	-	0.03 (1,247)	0.03 (1,169)	0.07 (3,048)
15E ^b	IV	0.05 (2,022)	-	-	-
18C	III	-	-	0.03 (1,193)	0.04 (1,622)
19A ^b	IV	0.01 (278)	-	-	-
19B	III	-	0.01 (532)	0.07 (3,228)	0.10 (4,307)
20A ^b	III	0.05 (2,087)	-	-	-
21AC	III	-	0.01 (574)	0.10 (4,298)	0.09 (3,913)
21B	III	-	<0.01 (52)	<0.01 (7)	0.02 (825)
21D	IV	-	-	< 0.01 (99)	0.03 (1,440)
22AB	III	-	0.03 (1,426)	0.14 (5,941)	0.11 (4,949)
22CD	IV	-	0.01 (286)	0.06 (2,752)	0.07 (3,156)
22E ^b	IV	<0.01 (191)	-	-	-
23A	IV	-	0.01 (265)	0.01 (285)	0.03 (1,130)
23B	III	<0.01 (65)	0.01 (626)	0.04 (1,830)	0.03 (1,410)
23C	III	-	0.01 (383)	0.03 (1,299)	0.05 (2,341)
24A	III	-	0.06 (2,583)	0.01 (593)	0.04 (1,937)
24B	III	0.05 (2,301)	0.11 (4,840)	0.09 (4,096)	0.02 (1,027)
24C	III	-	0.02 (992)	0.08 (3,496)	0.29 (12,811)
25A	III	-	0.04 (1,617)	0.08 (3,306)	0.18 (7,709)
25B	III	-	0.02 (679)	0.08 (3,293)	0.13 (5,765)
25C	III	-	0.02 (790)	0.08 (3,440)	0.11 (4,988)
25F	III	-	<0.01 (244)	0.02 (1,061)	0.07 (2,963)
26A	III	<0.01 (9)	0.09 (4,100)	0.14 (6,086)	0.35 (15,434)
26B	IV	-	<0.01 (99)	0.02 (744)	0.03 (1,444)
26C	IV	0.01 (455)	0.01 (497)	0.03 (1,102)	0.05 (2,233)

	Ecology/ -	Wet	tland	Вι	ıffer
Wetland	Sammamish Rating ^a	Perm. Impacts acres (SF)	Temp. Impacts acres (SF)	Perm. Impacts acres (SF)	Temp. Impacts acres (SF)
26D	III	-	<0.01 (186)	0.06 (2,753)	0.11 (4,708)
28A	IV	0.01 (175)	0.01 (382)	0.04 (1,779)	0.07 (2,998)
28B	IV	-	<0.01 (156)	0.03 (1,133)	0.02 (882)
28C ^b	IV	0.02 (837)	-	-	-
28D ^b	IV	<0.01 (201)	-	-	-
28E	III	-	0.01 (323)	0.04 (1,588)	0.04 (1,803)
29B	IV	0.01 (295)	0.01 (477)	0.02 (931)	0.02 (775)
29C	III	-	<0.01 (27)	0.01 (581)	0.04 (1,687)
29D	IV	0.01 (464)	0.03 (1,105)	0.01 (600)	0.01 (485)
30B	III	-	0.01 (218)	0.07 (2,908)	0.09 (4,045)
	Total	0.22 (9.380)	0.59 (25.581)	1.51 (65.596)	2.46 (107.320

Table 4-1. Summary of Impacts on Wetlands and Buffers

Perm. = Permanent, Temp. = Temporary, SF = square feet. Note that the sums of individual acre values may not match total values due to rounding errors.

4.1.1 Permanent Wetland Impacts

Permanent impacts to wetlands occur when there is a permanent loss of wetland area, typically as a result of paving or grading. Thirteen wetlands will be permanently affected by the proposed project, totaling 0.22 acre (see Table 4-1 and Appendix D). Six of these wetlands will be affected in their entirety (Wetlands 15E, 19A, 20A, 22E, 28C, and 28D), all of which are 0.05 acre or less. The majority of impacts to wetland are to palustrine emergent wetlands that are near the Interim Use Trail and are currently maintained as part of current trail activities, or are maintained by adjacent property owners as yard. Four of these are Category III wetlands with the other nine being Category IV wetlands.

4.1.2 Temporary Wetland Impacts

Construction activities that will result in temporary wetland impacts include culvert replacements, associated stormwater drainage facilities, construction access, and installation of silt and construction fencing. A total of 29 wetlands will be temporarily affected during construction. The net impact area is 0.59 acre, with impacts ranging from less than 0.01 acre to 0.11 acre. Vegetation in these areas often consists of reed canarygrass, giant horsetail, Himalayan blackberry, disturbance-tolerant herbaceous species, native shrubs, or maintained yard. Temporarily disturbed wetlands will be restored by reseeding or replanting with appropriate native species when construction activities are completed.

4.1.3 Permanent Wetland Buffer Impacts

Permanent impacts occur when there is a permanent loss of wetland buffer area, typically as a result of paving or permanent clearing. Construction activities that will result in permanent wetland buffer impacts include trail widening, driveway reconfigurations, stair replacements, culvert replacements, and stormwater drainage features. The project will permanently affect portions of 31 wetland buffers (see Table 4-1). Approximately 1.51 acres of wetland buffer will be eliminated as a result of trail widening and realignment. The buffers of Wetlands 22AB and 26A have the largest affected area (0.14 acre each),

 $^{^{\}mathrm{a}}$ Hruby (2004), as specified in SMC 21A.15.1415

^b Wetland impacted in entirety

which accounts for approximately 19 percent of the total permanent buffer impacts. The remaining affected wetland buffer areas are 0.10 acre or less. The majority of the wetland buffers to be affected by the project are narrow linear swathes immediately adjacent to the Interim Use Trail vegetated with herbaceous species that are currently disturbed by routine trail maintenance activities, landscaped plants associated with adjacent residences, Himalayan blackberry, and native trees and shrubs. Minimal effects on wetland buffer functions are anticipated.

4.1.4 Temporary Wetland Buffer Impacts

The buffer of 31 wetlands will be temporarily affected during construction. In total, construction will temporarily affect 2.46 acres of wetland buffer (see Table 4-1). Temporary impacts on wetland buffers consist of minor clearing and grading outside of the trail footprint to enable project construction. These construction work areas along the edge of the proposed trail have been conservatively estimated for this project. Once construction is complete, regrowth is expected relatively quickly from the seeds, roots, tubers, stems, and other propagules in the soil under the temporary impact areas. The majority of the wetland buffers to be cleared and graded are primarily vegetated with herbaceous species that are currently disturbed by routine trail maintenance activities, landscaped plants associated with adjacent residences, Himalayan blackberry, and native trees and shrubs. Temporarily disturbed buffers will be restored by reseeding or replanting with appropriate native species when construction activities are completed.

4.2 Streams

Although the project was designed with specific features to avoid and minimize impacts on critical areas, some unavoidable impacts on streams and stream buffers will result from the trail widening, realignment, and drainage improvements (Table 4-2; Appendix D). Stream buffers, wetland buffers, and the shoreline setback overlap in the project area at many locations. Where overlap occurs, impacts are calculated in descending order of priority from wetland buffer, stream buffer, and lastly shoreline setback. Only impacts on areas that are defined solely as stream buffers are reported in this section.

Stream channel and stream buffer impacts can be classified as either permanent or temporary:

- Permanent impacts occur when fill is placed in a stream or a stream is piped, or when a designated stream buffer area is permanently cleared, resulting in a net loss of open stream channel or buffer.
- Stream impacts are considered temporary when a stream is temporarily diverted or relocated to accommodate construction, a stream channel is regraded, or when a designated stream buffer area is temporarily cleared to allow for project construction activities.

Stream channel loss results in permanent loss of instream habitat. Instream habitat directly supports fish and other aquatic life by providing specific physical and biological elements for the rearing, feeding, spawning, and migration of aquatic species.

Stream buffers are also important, contributing both directly and indirectly to the health of streams and the fish that inhabit those streams. Properly functioning stream buffers provide shade and a source of LWD, contribute organic debris to the stream, stabilize stream banks, reduce fine sediment input into streams, filter nutrients and pollutants, and reduce and detain flood waters (Beschta et al. 1987; McDade et al. 1990; Sedell and Beschta 1991). The effectiveness of a stream buffer is dependent on three primary factors: the type of vegetation within the buffer, the density of the vegetation, and the width of the buffer. Mature forest provides the highest level of riparian functions; mature conifer forest provides greater riparian function than mature hardwood forest, particularly LWD recruitment (McDade et al. 1990). Riparian communities dominated by immature forest or shrubs can support some riparian

functions (stream bank stabilization, nutrient input, filtration of fine sediment), although these functions are provided at a significantly lower level than in mature forested systems, and some functions (e.g., LWD recruitment) are almost completely lacking. Likewise, riparian systems consisting of herbaceous vegetation (e.g., grasses) provide minimal riparian functions, particularly in regards to supporting habitat needs of salmonids (cold, clear water; habitat complexity; and instream cover).

4.2.1 Stream Channel Impacts

Stream channels are permanently affected at locations where a stream passes under the trail in a culvert that requires lengthening, or where a stream falls within the footprint of the proposed trail. Based on current design, 24 linear feet (114 square feet) of three streams (Unnamed Streams 7, 8 [South Fork], and 13, all classified as Type F will be permanently lost due to culvert extensions (Table 4-2).

The replacement of culverts on six Type F streams (Pine Lake Creek, Stream 0155, Ebright Creek, Zackuse Creek, George Davis Creek, and Stream 0143L [North Fork]) at six trail crossings will result in a gain of 93 linear feet (681 square feet) of stream channel in those streams. The other eight streams in the project area will have no gain or loss of channel (see Table 4-2). Details on specific culvert replacements are provided below. Detailed depictions of proposed culvert replacements will be included in the engineering design drawings for this project.

Temporary impacts on channels will occur on some streams where regrading is needed for culvert replacements. Regrading of the channel (upstream and downstream) at culvert replacement areas will improve stream profile and slope. Temporary stream bypasses will be used during construction of the new culverts. A small portion (158 square feet) of Unnamed Stream # 10 will be temporarily graded for trail construction. The stream waters will be bypassed in a pipe until construction is complete. After construction the channel will be reconstructed in its current location.

Pine Lake Creek (at the trail) (Sta. 379+14)

The existing twin 36-inch concrete culverts are each 32 feet long. The culverts will be replaced by a precast reinforced split box culvert. Pine Lake Creek has an average measured bankfull width of 10.2 feet, and the stream has slopes of approximately 2.5 percent downstream of the culvert. The new culvert will be 14 feet wide, 7 feet high, and 19 feet long. The reduced length of the new culvert will increase the length of open channel stream by 13 feet. The invert of the culvert will be countersunk, and the streambed slope will be approximately 1.5 percent through the culvert. Replacing these two culverts near the mouth of Lake Sammamish will enhance access to approximately 30 feet of upstream habitat between the Interim Use Trail and East Lake Sammamish Parkway, with the potential for access to an additional 10,330 feet of habitat in Pine Lake Creek upstream of East Lake Sammamish Parkway.

Pine Lake Creek (downstream of trail)

This segment of the stream is on private property and is not within the trail corridor. The existing culvert is a single 36-inch-diameter concrete culvert that is 41 feet long with a slope of 0.76 percent. The culvert will be replaced by a 32-foot-long box culvert with a 14-foot span and a height of 7 feet. The reduced culvert length of the new culvert will increase the length of open-channel stream by 9 feet. The invert of the culvert will be countersunk, and the streambed slope will transition from 2.91 percent at the culvert inlet to 0.22 percent through the culvert until the slope matches existing grade approximately 20 feet downstream of the culvert outlet.

Table 4-2. Summary of Impacts on Stream Channels and Buffers

	City of	Stream	Stream Channel	Stream	Stream Channel	Stream	Stream Channel	Stream	Stream Buffer
	Sammamish	Perm. Loss	ı. Loss	Perm	Perm. Gain	Temp.	Temp. Impact	Perm. Impact	Temp. Impact
Stream	Rating ^a	Linear Feet	Square Feet	Linear Feet	Square Feet	Linear Feet	Square Feet	acres (SF)	acres (SF)
Unnamed 4	ш	1	1	1	1	-	ı	0.01 (233)	0.01 (640)
Unnamed 5	ш	1		1	1	1	ı	1	1
Unnamed 6	ш	ı	1		ı	•	ı	1	ı
Unnamed 7	ш	10	20	•	1	•	ı	0.01 (279)	<0.01 (101)
Pine Lake Creek	ш	ı	1	22	202	1	ı	ı	ı
Unnamed 8 (SF)	ш	8	40		ı	•	ı	1	ı
Unnamed 8 (NF)	ш	1	•	•	1	•	ı	1	1
0155	ш	1	•	19	95	•	ı	1	<0.01 (107)
Ebright Creek	ш	1	1	18	160	13	116	0.02 (854)	0.06 (2,752)
Zackuse Creek	ш	1		15 ^b	_q 06	80	480	1	
Unnamed 9	dN	ı	1		ı	•	ı	0.04 (1,565)	0.07 (2,901)
George Davis Creek	ш	1	1	2	20	10	100	0.04 (1,732)	0.07 (2,870)
Unnamed 10	ш	1	1	1	1	45	158	0.01 (513)	0.01 (313)
Unnamed 11	ш	1	1	1	1	1	ı	<0.01 (85)	0.01 (601)
Unnamed 13	ш	9	24		1		ı	0.05 (2,035)	0.06 (2,776)
0143L (SF)	ш	1	1	1	1	1	ı	0.01 (394)	0.01 (648)
0143L (NF)	ш	1	1	14	84	1	ı	0.03 (1,450)	0.06 (2,639)
	Total	24	114	93	681	148	854	0.21 (9,314)	0.41 (17,705)

^a SMC 21A.15.1240

July 2017 | 554-1521-075 (19/09)

^b Stream channel gains on Zackuse Creek will be offset slightly by the loss of approximately 2.5 linear feet (15 square feet) of stream channel due to a culvert replacement downstream of the project area, for a net gain of 15 feet. Perm. = Permanent, Temp. = Temporary, SF = square feet, NA = not applicable

There are two 6-foot-diameter redwood trees flanking either side of the existing culvert on the downstream end. These two trees will be preserved at the request of the homeowners. As a result, the new culvert will shift to the east of its existing location approximately 6 feet on the upstream end. The downstream side will open up approximately 15 feet of new channel, for a net gain of 9 feet; however, because of the proximity of the trees, the channel will not be full width. Replacing this culvert will improve connectivity to approximately 150 feet of habitat between East Lake Sammamish Shore Lane and the Interim Use Trail.

Stream 0155 (Sta. 401+75)

The existing culvert that conveys Stream 0155 under the trail is a 16-inch corrugated plastic pipe. On the east side of the trail, water flows into the top of a type 2 catch basin with a birdcage lid. On the west side of the trail, the pipe connects into a type 2 catch basin with a solid lid. From there, the stream is conveyed to the lake through a 20-inch pipe. The proposed fish passage box culvert will be 19 feet long. The two catch basin structures on either side of the trail will be removed. The catch basin rim on the east side provides a constant overflow elevation for the adjacent wetland. This function will be replaced by adding a rock weir around the entrance to the new culvert. Approximately 9 feet of channel will be opened on the east side. On the west side, the channel will be opened approximately 10 feet to the adjacent driveway. A short retaining wall will be installed along the edge of the driveway to protect the embankment and allow for the short section of open channel between the trail and the driveway.

The bankfull width of Stream 0155 is approximately 5 feet and the proposed box culvert will be 8 feet wide by 8 feet high. The streambed slope through the culvert is approximately 2.8 percent, matching the stream channel elevation on the east end and the assumed pipe invert on the west end. Replacement of the existing culvert will improve connectivity to approximately 130 feet of upstream habitat between the Interim Use Trail and East Lake Sammamish Parkway, with the potential for access to an additional 2,550 feet of habitat upstream of East Lake Sammamish Parkway.

Ebright Creek (Sta. 411+90)

Ebright Creek currently crosses under the trail in twin 36-inch concrete culverts, one 34 feet long and the other 37 feet long. Ebright Creek has an average measured bankfull width of 8.9 feet with an average slope downstream of the trail of 2.7 percent. The new box culvert will have a 14-foot span, a height of 7 feet, and a length of 19 feet, thereby increasing the length of open channel by 18 feet. Additionally, approximately 13 feet of stream will be regraded at the culvert outfall. The short regrade will improve the stream profile by allowing the culvert slope to remain similar to existing conditions, and removing the potential of a perched culvert end. The streambed slope will be 1.8 percent through the culvert. Replacing the twin culverts under the trail will improve connectivity to approximately 60 feet of upstream habitat between the Interim Use Trail and East Lake Sammamish Parkway, with the potential for access to an additional 11,200 feet of habitat upstream of East Lake Sammamish Parkway.

Zackuse Creek (Sta. 424+60)

The existing culvert that conveys Zackuse Creek under the trail is a 34-foot-long, 36-inch-diameter concrete pipe. Consistent with specifications proposed by R2 Resource Consultants, Inc. (2012), the new box culvert will have a 10-foot span, a height of 8 feet, and a length of 19 feet, thereby increasing the length of open channel by 15 feet. Additionally, approximately 45 feet of open channel will be regraded from the East Lake Sammamish Parkway culvert outlet to the inlet of the trail box culvert, and approximately 35 feet of open channel will be regraded from the outlet of the trail box culvert to the inlet of the East Lake Sammamish Shore Lane box culvert. The regraded stream will have an average slope of approximately 3.4 percent. Replacement of the existing culvert will improve connectivity to approximately 40 feet of upstream habitat between the Interim Use Trail and East Lake Sammamish

Parkway, with the potential for access to an additional 3,320 feet of habitat upstream of East Lake Sammamish Parkway.

Zackuse Creek (downstream of trail at East Lake Sammamish Shore Lane)

This segment of the stream is on private property at East Lake Sammamish Shore Lane and is not within the trail corridor. The existing culvert is a small bottomless concrete box that is approximately 2 feet wide by 3 feet tall by 9.5 feet long.

The culvert will be replaced by a 12-foot-long box culvert with a 10-foot span and a height of 5 feet. The extended length of the new culvert will slightly decrease the length of open channel at this crossing, but will allow the road to continue to accommodate vehicular access to private properties. The invert of the culvert will be countersunk, and the streambed slope will continue at the regraded slope of 3.4 percent. Replacing this culvert will improve connectivity to approximately 50 feet of habitat between East Lake Sammamish Shore Lane and the Interim Use Trail.

George Davis Creek (Sta. 441+40)

George Davis Creek currently crosses under the trail in a 36-inch concrete culvert that is 24 feet long, and an 18-inch concrete culvert that is 18 feet long. After the first 100 feet of open channel, the stream enters an enclosed system that navigates steep slopes beneath two private properties and East Lake Sammamish Shore Lane for approximately 180 feet before daylighting west of the trail.

The stream has an average measured bankfull width of 10 feet, with moderate slopes upstream of East Lake Sammamish Parkway averaging 3.5 percent, and steeper slopes downstream of East Lake Sammamish Shore Lane estimated up to 12 percent, where the stream is located in an enclosed pipe. The proposed design will install a 19-foot-long, 14-foot-span, 7-foot-rise concrete culvert. The culvert bed will be countersunk, and the streambed slope will be 1.2 percent through the culvert. The reduced culvert length will increase the length of open channel stream by 5 feet. Additionally, approximately 10 feet of stream will be regraded at both the culvert inlet and outfall. The regrade will provide a consistent channel section through the culvert crossing beneath the trail. Replacing the twin culverts under the trail will improve connectivity to approximately 40 feet of upstream habitat between the Interim Use Trail and East Lake Sammamish Parkway, with the potential for access to an additional 17,300 feet of habitat upstream of East Lake Sammamish Parkway.

Stream 0143L (Sta. 464+28)

The existing culvert that conveys Stream 0143L under the trail is a 34-foot-long, 36-inch-diameter concrete pipe. On the east side of the trail, water flows north in an open channel for approximately 320 feet at an average slope of 3 percent, before turning west and entering the existing concrete culvert. The existing culvert slope is approximately 6.9 percent, and the open channel downstream of the culvert averages 10 percent for approximately 50 feet before entering the lake.

The bankfull width of Stream 0143L is approximately 6 feet and the proposed box culvert will be 10 feet wide by 7 feet tall. The culvert bed will be countersunk, and the streambed slope will be approximately 5.9 percent.

The proposed fish passage box culvert will be 19 feet long. Approximately 9 feet of channel will be opened on the east side and approximately 5 feet of channel will be opened on the west side. Replacement of the existing culvert will improve connectivity to approximately 360 feet of upstream habitat between the Interim Use Trail and East Lake Sammamish Parkway, with the potential for access to an additional 1,750 feet of habitat upstream of East Lake Sammamish Parkway.

4.2.2 Permanent Stream Buffer Impacts

In addition to effects on stream channels, the trail improvements will result in a permanent loss of stream buffers. Similar to permanent impacts on wetland buffers, permanent impacts on stream buffers occur when there is a permanent loss of stream buffer area, typically as a result of paving or permanent clearing. Construction activities that will result in permanent stream buffer impacts include trail widening, driveway reconfigurations, stair replacement, culvert replacements, and stormwater drainage features.

The project will permanently affect portions of 10 stream buffers (see Table 4-2). Approximately 0.21 acre of stream buffer will be eliminated as a result of trail widening and realignment. Impacts on buffers of each individual stream will be 0.05 acre or less. The majority of the stream buffers to be affected by the project are narrow linear swathes immediately adjacent to the Interim Use Trail vegetated with herbaceous species that are currently disturbed by routine trail maintenance activities, landscaped plants associated with adjacent residences, Himalayan blackberry, and native trees and shrubs. Minimal effects on stream buffer functions are anticipated.

4.2.3 Temporary Stream Buffer Impacts

The buffers of 11 streams will be temporarily affected during construction. In total, construction will temporarily affect 0. 41 acre of stream buffer (see Table 4-2). Temporary impacts on stream buffers consist of minor clearing and grading outside of the trail footprint and around culvert replacement sites to enable project construction. These construction work areas have been conservatively estimated for this project. Once construction is complete, regrowth is expected relatively quickly from the seeds, roots, tubers, stems, and other propagules in the soil under the temporary impact areas. The majority of the stream buffers to be cleared and graded are primarily vegetated with herbaceous species that are currently disturbed by routine trail maintenance activities, landscaped plants associated with adjacent residences, Himalayan blackberry, and native trees and shrubs. Temporarily disturbed buffers will be restored by reseeding or replanting with appropriate native species when construction activities are completed.

4.3 Lake Sammamish

Lake Sammamish is outside the project area and will not be permanently or temporarily affected by construction of the proposed trail. However, some permanent and temporary impacts on the outermost portion of the 50-foot shoreline setback are unavoidable (see Appendix D). Wetland buffers, stream buffers, and the shoreline setback often overlap in the project area. Where overlap occurs, impacts are prioritized by wetland buffer, stream buffer, and then shoreline setback. Only impacts on areas that are defined solely as shoreline setback are reported in this section.

4.3.1 Shoreline Setback Impacts

The proposed trail crosses the shoreline setback in a few locations, permanently clearing 0.09 acre (4,115 square feet). An additional 0.17 acre (7,372 square feet) will be temporarily cleared or graded outside of the trail footprint for construction. Temporarily disturbed shoreline setback areas will be restored by reseeding or replanting with appropriate native species when construction activities are completed.

King County

4.4 Fish and Wildlife Conservation Areas

In accordance with the SMP as described in Section 3.5, impacts to fish and wildlife conservation areas that fall within wetlands, streams, or lakes are described in Sections 4.1, 4.2, and 4.3 above.

In December 2016, after the CAS was completed, the USFWS established new rules and procedures for obtaining permits for the incidental take of bald eagles due to disturbance near nest sites. The County will review the permit requirements and apply for a permit and consult with USFWS if necessary. Also in December 2016, the Washington Fish and Wildlife Commission removed the bald eagle from the list of state sensitive species (WAC 232-12-011). As a result, bald eagles are no longer among the species for which FWHCAs are established in the City of Sammamish, per SMC 21A.15.468.

Management guidelines developed by USFWS (2007) are intended to help minimize impacts to bald eagles, including impacts that constitute disturbance. Recommended measures for minimizing the risk of disturbance include (1) keeping a distance between the activity and the nest (disturbance buffers), (2) maintaining preferably forested (or natural) areas between the activity and around nest trees (landscape buffers), and (3) avoiding certain activities within 660 feet of bald eagle nests during the breeding season (typically January 1 through August 15 in Washington State).

King County does not expect trail construction activities within 660 feet of the bald eagle nest to result in substantial disturbance to bald eagles based on current surrounding land uses and activities. The nest is surrounded by residential development with approximately 4 single-family dwellings within 330 feet, and approximately 24 single-family dwellings (7 of which are on the Lake Sammamish waterfront) within 660 feet. Activities associated with the residences include yard and house maintenance (e.g., lawn mowing, leaf blowing), as well as social gatherings and recreational activities. East Lake Sammamish Parkway and local neighborhood roads with vehicular and bicycle traffic are also within the 330-foot and 660-foot distances, and pedestrians and bicyclists currently use the Interim Use Trail.

Typical construction activities that will occur within 660 feet of the nest include site preparation and temporary erosion and sedimentation control installation, clearing and grubbing, and removals; drainage structure replacement; earthwork; trail and driveway crushed surfacing and paving; and finishing work (planting, striping, signing, fencing). Work that generates levels of noise and human activity substantially greater than current conditions will be conducted outside of the bald eagle breeding season (January 1 through August 15) to the extent practicable. Measures implemented to minimize noise to adjacent residents are also expected to avoid or minimize the risk of disturbance to bald eagles. Where practical, native evergreen vegetation will be incorporated into the landscape plan for year-round screening within 660 feet of the nest.

Tree clearing for trail construction may reduce the availability of trees used for nesting or foraging by pileated woodpeckers. The project is consistent with WDFW management recommendations for pileated woodpecker habitat, however. By following the existing cleared area of the rail corridor, trail construction will not result in any new disturbance in large forest patches. Forested areas with the greatest potential to support breeding territories of pileated woodpeckers are upslope of the project area, away from the trail.

In addition, most trees larger than 24 inches diameter at breast height (dbh) will be retained. Almost 900 trees were assessed for the tree preservation study for this project. Approximately 190 of those are larger than 24 inches dbh. Of those, only 38 (20 percent) will need to be removed for trail construction. At the northern end of the project area, where pileated woodpecker habitat is most prevalent, only 4 trees larger than 24 inches dbh will be removed.

4.5 Critical Aquifer Recharge Areas

The city code provides groundwater quality and quantity protection standards for development within CARAs (SMC 21A.50.280). The new trail surface will be non-pollution generating impervious surface; therefore, water quality treatment facilities are not required. Although the project proposes driveway reconfigurations, there are no target areas within the project requiring water quality treatment (Parametrix 2016). More than 50 threshold discharge areas (TDAs) were identified within the project area (Parametrix 2016). Project TDAs are delineated in three ways: areas that runoff directly to the lake via overland flow or manmade conveyance, areas that runoff directly to streams that cross the trail and flow into Lake Sammamish, and areas that runoff to adjacent private property landscaping. The trail has qualified for an exemption for the flow control facilities in 50 of the 56 TDAs (Parametrix 2016). Of the six remaining TDAs, five meet the direct discharge exemption requirements to Lake Sammamish, and an infiltration facility will be used to meet flow control requirements in one (Parametrix 2016).

The trail has qualified for an exception from the flow control facilities and flow control best management practice (BMP) requirements (Parametrix 2016). While there are no flow control facilities proposed for the project, infiltration trenches are proposed in a few areas to infiltrate runoff from the trail. There are no target areas within the project requiring water quality treatment (Parametrix 2016). The new trail surface will be non-pollution generating impervious surface; therefore, water quality treatment facilities are not required. No impacts to critical aquifer recharge areas will occur as a result of the project.

⁵ Threshold discharge area is defined as an on-site area draining to a single natural discharge location, or to multiple natural discharge locations that combine within one-quarter mile downstream, as determined by the shortest flowpath (SMC 24.06.040).

King County

This section describes the sequencing approach used for mitigating project impacts. The mitigation sequencing approach is based on a hierarchy of avoiding and minimizing adverse impacts through careful design, rectifying temporary impacts, and compensating for unavoidable adverse impacts (Ecology et al. 2006). Permanent and temporary impacts on wetlands, wetland buffers, streams, stream buffers, and the Lake Sammamish shoreline setback are shown in Appendix D. Mitigation for project impacts is shown in Appendix E.

5.1 Avoidance and Minimization

The avoidance and minimization of critical area impacts was a guiding principle in the preliminary design of this project. It started with the general alignment of the trail. King County worked diligently to avoid and minimize permanently affecting wetlands and streams. Design refinements were also considered and incorporated, where feasible, to reduce the potential loss of existing wetland and stream habitat. The design incorporates the following design strategies to avoid and minimize critical area and buffer impacts:

- Utilize an alignment that follows the existing Interim Use Trail. The alignment is also the location
 of a former railbed. With this alignment, most wetlands will be avoided and buffer and shoreline
 setback impacts will be limited to the area needed to widen the existing trail.
- Apply the narrowest typical trail section when adjacent to critical areas. In the environmental
 documentation for the proposed trail, King County envisioned a trail as wide as 27 feet in some
 areas, which incorporated a separate soft-surface trail for pedestrian use. Based on the amount
 of impacts that resulted from this configuration and subsequent discussions with the City of
 Sammamish, King County has narrowed the proposed width of the trail to 18 feet (the narrowest
 typical section) throughout Sammamish. This includes 12 feet of pavement, two 2-foot shoulders,
 and two 1-foot clear zones.
- Use retaining walls to narrow the trail section where critical areas are adjacent or crossed. This includes adding 27 retaining walls for a total of 7,784 linear feet adjacent to wetlands, streams, and buffers.
- Shift alignments away from critical areas. Throughout Sammamish, the proposed configuration
 of the trail encompasses the existing gravel trail. Slight shifts in the center line and adjustments
 to the profile were closely examined and incorporated, where practicable, to minimize critical
 area impacts.
- Reduce potential for human intrusion through the use of fencing and signage. King County typically uses split-rail fence between the trail and an adjacent critical area, unless an edge hazard warrants a different kind of fence (e.g., chain link).

In addition, BMPs will be implemented to avoid or reduce adverse impacts on critical areas during construction. BMPs will be implemented for pollution control, 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 water quality impacts are not expected if erosion control BMPs, stormwater, and spill containment measures are properly implemented, monitored, and maintained during construction. A temporary erosion and sedimentation control plan and construction stormwater pollution prevention plan will be implemented to minimize and control pollution and erosion from stormwater.

5.2 Restoration of Temporary Impacts

Temporary impacts on wetlands (0.59 acre), wetland buffers (2.46 acres), stream (<0.01 acre), stream buffers (0.41 acre), and the shoreline setback (0.17 acre) will be restored on site at the affected locations along the project corridor after construction. These temporarily disturbed areas will be reseeded or replanted with appropriate native species when construction activities are completed. Temporary impacts on stream channels will be regraded and substrate will be restored with gravel and rounded cobble.

5.3 Compensatory Mitigation

Even with the implementation of the avoidance and minimization effort above, permanent impacts on wetlands, streams, wetland buffers, stream buffers, and the Lake Sammamish shoreline setback are unavoidable. King County will replace the area and functions lost through compensatory mitigation. Mitigation areas are shown on the plans in Appendix E.

5.3.1 Summary of Proposed Mitigation

King County is proposing to complete compensatory mitigation at a total of 26 sites in the Master Plan Trail right-of-way (Table 5-1; Appendix E). The proposed mitigation will include a minimum of 0.22 acre of wetland creation/restoration credits at an off-site mitigation bank, 0.65 acre of wetland enhancement, 1.53 acres of wetland buffer addition, 0.77 acre of wetland buffer enhancement, 0.24 acre of stream buffer enhancement, and 0.09 acre of shoreline setback enhancement.

Generally, the proposed mitigation sites are currently dominated by invasive species (e.g., Himalayan blackberry, reed canarygrass, and Scotch broom) and maintained lawn or yard with small structures, but are devoid of native trees and shrubs. The proposed compensatory mitigation will include removing invasive vegetation, lawn, landscaped yard, and structures; tilling and amending soil; adding mulch; and planting native vegetation. Deciduous and coniferous tree species and shrubs will be planted to increase plant diversity, increase vegetation complexity, offer visual and aural screening, improve fish and wildlife habitat, and provide shade, leaf litter, future snags, and woody debris. Habitat features (including habitat logs and brush piles) will be added to the mitigation areas. Existing desirable vegetation will be protected where feasible. Fencing will be installed and maintained along the trail adjacent to all mitigation areas to minimize intrusion and disturbance.

5-2

Table 5-1. Proposed Mitigation Locations and Type

Station	Wetland/Stream	Wetland Creation/ Restoration (Acres ^a)	Wetland Enhancement (Acres)	Wetland Buffer Addition Area (Acres)	Wetland Buffer Enhancement (Acres)	Stream Buffer Enhancement (Acres)	Culvert Replacement	Shoreline Setback Enhancement (Acres)
329+00 to 333+50	Name Wetland 18C			0.27	0.18			
339+25 to 342+25	Shoreline Setback			0.27	0.18			0.03
	Wetland 22AB		0.05					0.03
365+50 to 366+00			0.05	0.04	0.24			
367+00 to 371+50	Wetland 22CD		0.07	0.01	0.24	0.00		
367+50 to 367+75	Unnamed Stream 7			0.45		0.03		
371+75 to 374+75	Wetland 23A			0.15				
373+00 to 374+75	Shoreline Setback							0.04
373+00 to 374+75	Wetland 23B		0.03					0.01
374+75 to 378+75	Wetland 23C		0.08	0.16	0.09		.,	
379+14	Pine Lake Creek						Υ	
379+25 to 380+25	Wetland 24B		0.03		0.03			
383+75 to 384+75	Wetland 24B		0.05					
385+50 to 391+75	Wetland 24C							
396+50 to 400+00	Wetland 25A			0.27	0.04			
401+75	Stream 0155						Υ	
403+50 to 405+75	Wetland 25B		0.14		0.02			
410+50 to 413+25	Ebright Creek					0.19	Υ	
418+75 to 422+25	Wetland 26A		0.09	0.15	0.04			
423+00 to 424+00	Wetland 26C		0.02		< 0.01			
424+00 to 424+75	Zackuse Creek					0.02	Υ	
424+75 to 426+25	Wetland 26A		0.08					
434+25 to 438+75	Wetland 28B		0.01	0.30	0.09			
441+40	George Davis Creek						Υ	
464+28	Stream 0143L						Υ	
462+50 to 465+75	Shoreline Setback							0.01
465+70 to 468+00	Wetland 29D			0.22				
	TOTAL	0.22a	0.65	1.53	0.75	0.24		0.09

^a Off-site at mitigation bank

5.3.2 Wetlands, Wetland Buffers, Stream Buffers, and Shoreline Setback

5.3.2.1 Wetland Regulatory Requirements

The City of Sammamish requires compensatory mitigation for alteration to wetlands to achieve equivalent or greater biological functions, as well as a no net loss of area (SMC 21A.50.310). Mitigation actions shall also provide equivalent or greater functions and values compared to conditions existing prior to the proposed alteration. Wetland compensatory mitigation may consist of wetland reestablishment or creation, rehabilitation, or reestablishment or creation and enhancement. To determine the area required for wetland compensatory mitigation, project staff reviewed and compared the regulatory requirements of the City of Sammamish critical areas regulations (SMC 21A.50) and the

guidelines established in Wetland Mitigation in Washington State (Ecology et al. 2006). Tables 5-2 and 5-3 show the recommended mitigation ratios for Category III and IV wetlands as established in those two documents.

The proposed mitigation type for this project is a combination of wetland reestablishment or creation and enhancement. The City of Sammamish and Ecology have similar ratios for this type, except the enhancement component ratio is 4:1 for Category III wetlands under Ecology, and 2:1 under the City requirements. King County will apply the most stringent mitigation ratios (Ecology's) to compensate for wetland loss. The results of applying the recommended mitigation ratios are shown in Table 5-4. King County will provide a minimum of 0.22-acre wetland reestablishment or creation credits (off-site) and 0.65-acre wetland enhancement (on-site).

Table 5-2. City of Sammamish Wetland Mitigation Ratios ^a

Category and Type of Wetland	Wetland Reestablishment or Creation	Wetland Rehabilitation	Wetland Reestablishment or Creation (R/C) and Enhancement (E)
Category III	2:1	4:1	1:1 R/C and 2:1 E
Category IV	1.5:1	3:1	1:1 R/C and 2:1 E

a SMC 21A.50.310

Table 5-3. Ecology-Recommended Wetland Mitigation Ratios for Projects in Western Washington ^a

Category of Wetland Impacts	Wetland Reestablishment or Creation	Wetland Rehabilitation Only	Wetland Reestablishment or Creation (R/C) and Rehabilitation (RH)	Reestablishment or Creation (R/C) and Enhancement (E)	Enhancement Only
Category III	2:1	4:1	1:1 R/C and 2:1 RH	1:1 R/C and 4:1 E	8:1
Category IV	1.5:1	3:1	1:1 R/C and 1:1 RH	1:1 R/C and 2:1 E	6:1

^a Ecology et al. (2006).

Table 5-4. Wetland Mitigation Area Required Applying the Ecology-Recommended Mitigation Ratios for Projects in Western Washington for Reestablishment or Creation and Enhancement ^a

	_	Reestablishment or Creation		Enhan	Enhancement	
Wetland Category	Impact (SF)	Mitigation Ratio	Mitigation Area (SF)	Mitigation Ratio	Mitigation Area (SF)	
Category III	4,462	1:1	4,462	4:1	17,848	
Category IV	4,918	1:1	4,918	2:1	9,936	
Total	9,380		9,380 (0.22 acre)		27,784 (0.64 acre	

5.3.2.2 Wetland Buffer Regulatory Requirements

The City of Sammamish requires compensatory mitigation for alteration to wetland buffers to achieve equivalent or greater biological functions, as well as a no net loss of area (SMC 21A.50.310). Mitigation actions shall also provide equivalent or greater functions and values compared to conditions existing prior to the proposed alteration. King County is proposing a minimum 1:1 mitigation ratio for permanent loss of wetland buffers by increasing the buffer around one wetland and enhancing this area where feasible. For this project, King County will add a minimum of 1.53 acres of wetland buffer.

5.3.2.3 Site Selection

The City of Sammamish has a preference that mitigation actions shall be in-kind and conducted within the same subbasin and on the same site as the alteration. The right-of-way consists of a long, linear corridor that abuts small portions of several wetlands and wetland buffers; the possibility was considered that mitigation areas in the trail corridor would be small and fragmented. However, the project team was able to identify on-site mitigation areas with available acreage and the opportunity to increase the ecological benefits at 16 wetland and wetland buffer locations in the corridor (Table 5-1, Appendix E).

Sites adjacent to the trail also offer easy access for both construction and maintenance with minimal disturbance to other habitats. King County Parks has a formal maintenance program for all its trail projects. The program is directed at maintaining the trail corridors for recreational and aesthetic uses but it also includes many mitigation projects. The County understands that regular maintenance is necessary to achieve its mitigation commitments in public trail corridors. King County has successfully managed a large number of mitigation sites to achieve mitigation goals and standards.

On-site areas will provide an opportunity for visual and aural screening of the East Lake Sammamish Parkway for both wildlife and trail users. Specific mitigation areas are discussed in the following section.

5.3.2.4 Proposed Wetland Mitigation

King County is proposing compensatory mitigation for permanent wetland impacts at an approved mitigation bank. Mitigation credits will be secured to offset the loss of 0.22 acre of wetland in the trail corridor. Although there are four sites suitable for creating wetlands in the corridor (CAS October 2016) and providing some of the desired wetland functions, the ability for these created wetlands to provide habitat functions is limited by buffer availability. At these four sites, wetland buffers would have ranged from 5 feet to the trail to 25 feet to the East Lake Sammamish Parkway.

Wetland mitigation will also include enhancing 0.65 acre of existing wetlands at 11 sites in the trail corridor. Wetland enhancement areas will be planted with trees and shrubs adapted to wetland conditions.

Wetland buffer mitigation will include adding 1.53 acres of upland to existing wetland buffers and enhancing 0.75 acre of existing wetland buffer. In all buffer areas, invasive species will be removed and subsequently planted with native tree and shrub species. Landscape plans showing these areas are presented in Appendix E.

5.3.3 Streams

5.3.3.1 Regulatory Requirements

The City of Sammamish requires compensatory mitigation for alteration to streams in order to achieve equivalent or greater functions (SMC 21A.50.350).

5.3.3.2 Site Selection

The City of Sammamish has a preference that mitigation actions shall be in-kind and conducted within the same subbasin and on the same site as the alteration. Culvert replacement and stream regrading will occur on site as described in Section 4.2.1.

5.3.3.3 Proposed Stream Mitigation

King County is proposing a 1:1.15 mitigation ratio for impacts on stream buffers by applying enhancement. King County will provide a minimum of 0.24-acre stream buffer enhancement.

The project proposes to replace culverts on six streams (all of which are Type F) at six trail crossings, resulting in a net improvement to stream function and habitat. Additionally, two more culvert crossings will be replaced west of the trail. The additional culvert replacement sites are at the downstream road crossing (East Lake Sammamish Shore Lane SE) of Pine Lake Creek and the downstream road crossing (East Lake Sammamish Shore Lane NE) of Zackuse Creek. All but one of the new culverts will be wider and shorter than the existing culverts, resulting in a net gain of 69 linear feet (681 square feet) of open channel in the project area. Unnamed Streams 7, 8 (South Fork), and 13, all classified as Type F, are the only streams where a net loss of open channel will occur (24 linear feet [114 square feet] for the three streams combined). All Type F stream culvert replacements are designed to fish passage standards.

Replacement of the culverts at the six trail crossings will improve connectivity to approximately 660 feet of upstream habitat between the Interim Use Trail and East Lake Sammamish Parkway, with the potential for access to an additional 46,450 feet of habitat upstream of East Lake Sammamish Parkway. Replacement of the culverts on Pine Lake Creek and Zackuse Creek under East Lake Sammamish Shore Lane will improve connectivity to approximately 200 feet of habitat between Lake Sammamish and the trail crossings on those two streams. The culvert replacements are described in Section 4.2.1.

5.3.4 Review of Best Available Science

The City's current Environmental Critical Areas regulations are based on best available science (BAS). By complying with those regulations, the proposed mitigation plan for the ELST project is consistent with BAS.

Ordinance O2016-410 (ECA Amendments to SMP, Amendments to SMC Title 21A.50), approved by the Sammamish City Council on June 7, 2016, determined that the City's Environmental Critical Areas regulations, as amended, "provide protection for critical areas consistent with BAS" and "were developed through a review of the BAS literature," and that the City had followed requirements established in the Growth Management Act for "including and considering BAS in modification of the regulations for critical areas." The mitigation requirements incorporated into the City's Environmental Critical Areas regulations are thus supported by best available science, as required under SMC 21A.50.145(4). By complying with those requirements, the CAS is consistent with BAS.

The CAS complies with the impact avoidance, minimization, and mitigation requirements in the City's Environmental Critical Areas regulations by following the mitigation sequencing approach established in SMC 21A.50.135 and SMC 25.06.020. King County employed a rigorous approach to avoiding and minimizing impacts to critical areas in a manner consistent with the purpose, effectiveness, engineering feasibility, safety, and cost of the project.

Consistent with the requirements of SMC 21A.50.135 and SMC 21A.50.310, King County is compensating for unavoidable impacts by enhancing critical areas and their buffers and by creating replacement critical areas and buffers, thereby achieving no net loss of critical areas and their functions and values. By meeting or exceeding the impact mitigation ratios in SMC 21A.50.310, the project is consistent with the BAS approach for ensuring no net loss of ecological functions and values.

5.3.5 Shoreline Zone Mitigation

Similar to the City of Sammamish Environmentally Critical Areas Regulations, the City's SMP also applies the concept of no net loss of ecological functions (SMC 25.02.010(58)). King County is proposing a 1:1 mitigation ratio for impacts to the shoreline setback by applying enhancement. King County will provide a 0.09-acre shoreline setback enhancement.

The CAS demonstrates the project's compliance with the requirements of the City's Environmental Critical Areas regulations. The CAS is neither required nor intended to address all ecological functions of the shoreline environment; rather, the focus of the CAS is on critical areas. As stated in Sammamish Municipal Code (SMC) Section 21A.25.01, "The SMA [Shoreline Management Act] guidelines require that an SMP [Shoreline Master Program] result in "no net loss" of shoreline ecological functions. This SMP accomplishes that requirement through its goals, policies, and regulations noted above providing restoration program and enhancement incentives to offset the cumulative impacts of new shoreline uses and developments over time." "By complying with the City's development regulations, the East Lake Sammamish Trail will result in no net loss of shoreline ecological functions. No additional mitigation specific to shoreline ecological functions is described in this CAS.

5.3.6 Fish and Wildlife Habitat Conservation Areas Mitigation

The project has added high quality upland forest to already designated critical areas buffers near STA 462+50 to 465+75. In total, potential pileated woodpecker habitat has been protected in the form of designated wetland, wetland buffer, or stream buffer in the north end of the project from approximately STA 457 to 468. Only one private driveway and a set of stairs cross this block of habitat.

5.4 Mitigation Goals, Objectives, and Performance Standards

The overall goal of the mitigation effort is to replace the habitats and functions lost as a result of the project. The proposed mitigation will accomplish this by enhancing 0.65 acre of wetland, increasing the buffer of 8 wetlands by 1.53 acres, enhancing 0.75 acre of wetland buffer, enhancing 0.24 acre of stream buffer, replacing 8 fish barrier culverts on 6 Type F streams with pipes that are fish passable, and enhancing 0.09 acre of shoreline setback. In addition, mitigation for 0.22 acre of permanent wetland impacts will occur at an off-site approved mitigation bank, and thus, this mitigation will not be carried forward in the following sections. Specific goals and objectives formulated to achieve this result are presented below.

5.4.1 Mitigation Goals

The mitigation goals are:

- Enhance 0.65 acre of wetland.
- Increase and enhance the buffer of 8 wetlands by 1.53 acres.
- Enhance 0.75 acre of wetland buffer.
- Enhance 0.24 acre of stream buffer.
- Replace 8 fish barrier culverts on 6 Type F streams with fish passable culverts.
- Enhance 0.09 acre of shoreline setback.

Achievement of these goals is expected to provide the following improvements to wetland, stream, wetland buffer, stream buffer, and shoreline setback functions:

- Provide additional fish habitat by removing fish barriers, increasing open stream channel, and opening up available upstream habitat.
- Increase the production of organic matter by planting trees and shrubs in the created/restored wetland, enhanced wetland, increased wetland buffer, enhanced wetland buffer, enhanced stream buffer, and enhanced shoreline setback.
- Increase fish and wildlife habitat and improve biological diversity by planting with a variety of native wetland and buffer plant species and installing habitat features (habitat logs and brush piles).

5.4.2 Mitigation Objectives and Performance Standards

5.4.2.1 Wetlands

Objective 1: Enhance by planting native species a minimum of 0.65-acre forested and scrubshrub wetland at the enhanced wetland areas.

Performance Standards:

Year 1	Survival of planted woody species in enhanced wetland areas will be at least 80 percent.
Year 2	Record percent cover of native woody species in enhanced wetland area to

establish a baseline for areal cover.

Year 3 Native woody species will achieve a minimum of 25 percent areal cover, including desirable native volunteers, in the enhanced wetland areas.

Year 5 Native woody species will achieve a minimum of 50 percent areal cover, including desirable native volunteers, in the enhanced wetland areas.

Year 7 Native woody species will achieve a minimum of 70 percent areal cover in the enhanced wetland areas.

Year 10 Native woody species will achieve a minimum of 80 percent areal cover in the enhanced wetland area.

5.4.2.2 Streams

Instream Habitat

Objective 2: Replace existing fish barrier culvert at the (six) trail crossings on Pine Lake Creek, Stream 0155, Ebright Creek, Zackuse Creek, George Davis Creek, Stream 0143L, and (two) downstream road crossings on Pine Lake Creek and Zackuse Creek with fish passage culvert to open up available upstream habitat.

Performance Standards:

Year 1, 2, 3, and 5 Constructed habitat elements including the new fish passable culverts, regraded channels, and streambed material will remain in place as constructed at all 8 culvert replacement sites.

5.4.2.3 Wetland and Stream Buffers Areas

Objective 3: Establish a minimum of 2.28-acre forested and scrub-shrub wetland buffer, and 0.24-acre forested stream buffer at the increased/enhanced wetland buffer and enhanced stream buffer areas.

Performance Standards:

Year 1	Survival of planted woody species in increased/enhanced wetland buffer
	and enhanced stream buffer areas will be at least 80 percent.

- Year 2 Record percent cover of native woody species in increased/enhanced wetland buffer and enhanced stream buffer areas to establish a baseline for areal cover.
- Year 3 Native woody species will achieve a minimum of 25 percent areal cover in the increased/enhanced wetland buffer and enhanced stream buffer areas.
- Year 5 Native woody species will achieve a minimum of 50 percent areal cover in the increased/enhanced wetland buffer and enhanced stream buffer setback areas.
- Year 7 Native woody species will achieve a minimum of 70 percent areal cover in the increased/enhanced wetland buffer and enhanced stream buffer areas.
- Year 10 Native woody species will achieve a minimum of 80 percent areal cover in the increased/enhanced wetland buffer and enhanced stream buffer areas.

5.4.2.4 Shoreline Setback Areas

Objective 3: Establish a minimum of 0.09-acre forested habitat at the shoreline setback areas.

Performance Standards:

- Year 1 Survival of planted woody species in enhanced shoreline setback areas will be at least 80 percent.
- Year 2 Record percent cover of native woody species in enhanced shoreline setback areas to establish a baseline for areal cover.
- Year 3 Native woody species will achieve a minimum of 25 percent areal cover in enhanced shoreline setback areas.

Year 5 Native woody species will achieve a minimum of 50 percent areal cover in enhanced shoreline setback areas.
 Year 7 Native woody species will achieve a minimum of 70 percent areal cover in enhanced shoreline setback areas.
 Year 10 Native woody species will achieve a minimum of 80 percent areal cover in enhanced shoreline setback areas.

5.4.2.5 Invasive Species

Objective 4: Limit invasive non-native species throughout the mitigation site planting areas.

Performance Standards:

Year 1, 2, 3, 5, 7, and 10 Himalayan blackberry, cutleaf blackberry, Scotch broom, English

ivy, reed canarygrass, and hedge false bindweed will not exceed

20 percent areal cover in all planting areas.

Year 3 100 percent removal of Japanese knotweed by Year 3 in the

Wetland 22CD buffer enhancement area.

5.4.2.6 Wildlife Habitat

Objective 5: Provide wildlife habitat.

Performance Standards:

Year 1, 2, 3, 5, 7, and 10 Increase in areal cover of native woody species in all

mitigation areas, as measured in Objectives 1, 2, and 3, to be used as a surrogate to indicate increasing habitat functions.

Year 1, 3, 5, 7, and 10 Increase in species richness of native species over preexisting

conditions in all mitigation areas, as measured in Objectives 1,

2, and 3, to be used as a surrogate to indicate increased

habitat functions.

Year 1, 2, 3, 5, 7, and 10 Installed habitat features are present and functional.

5.4.2.7 Anthropogenic Disturbance

Objective 6: Protect the mitigation sites from anthropogenic disturbance.

Performance Standards:

Year 1 through 10 Conduct qualitative monitoring to assess the status of the sites

yearly during the 10-year monitoring period to monitor for human

disturbance, including but not limited to filling, trash, and

vandalism.

Year 1 through 10 Install and maintain fences and appropriate signs along the trail

adjacent to each site to identify their protected status.

5.5 Record Drawings

Record drawings and/or a report documenting the as-built or installed conditions will be prepared after construction and plantings are complete. The report will include the following components: (1) drawings that clearly identify the boundaries of the mitigation areas; (2) locations of the sampling and monitoring sites (including photo-point locations); (3) locations of hydrology monitoring stations; (4) photographs of the mitigation sites; and (5) an analysis of any changes to the mitigation plan that occurred during construction. A copy of the as-built report will be sent to the City and USACE within 60 days of completion of construction and planting.

5.6 Monitoring

The mitigation areas will be monitored during and after construction. During construction, monitoring will ensure that the BMPs are observed to minimize impacts, and the on-site construction work (including grading and planting) will be coordinated to ensure that the sites are constructed as designed.

After construction is completed, long-term monitoring will be performed annually to ensure that the goals and objectives of the mitigation are being met. Monitoring of the mitigation areas will be performed over a 10-year period by a qualified professional (SMC 21A.50.145; 21A.50.300). A combination of quantitative and qualitative monitoring activities will be used to assess the management objectives and associated performance standards described in the mitigation plan. Activities will include site visits to monitor unnatural site disturbance, photographs to document site development, and data collection for the quantitative evaluation of performance standards. The results of the monitoring will be submitted to the permitting agencies.

Appropriate contingency measures will be developed, as needed, by a qualified professional to ensure that the sites develop healthy vegetation that meets the obligations described in this mitigation plan and the associated permits.

5.6.1 Quantitative Monitoring

The following bulleted items describe the methods to be used for the quantitative monitoring, monitoring schedule, and report deadlines.

- The planting sites will be assessed by an appropriate quantitative vegetative field assessment methodology. The line intercept method will be used for determining percent areal cover for woody and invasive species. Plant richness will be determined by a count of native tree and shrub species.
- Quantitative vegetation assessments will follow the same method in each consecutive monitoring year.
- Quantitative vegetation assessments will be performed between June 15 and September 15 of each monitoring year.
- Monitoring reports will be sent to agencies requiring monitoring reports by February 15 of the following year.
- Permanent photographic stations will be established to monitor the development of the sites.
 Photographs will be taken along transect lines and from vantage points that capture the general mitigation area. All photographs will be labeled to identify locations.

5.6.2 Qualitative Monitoring

Qualitative monitoring will be conducted as follows:

- A qualified professional will qualitatively assess the constructed habitat elements including the new fish passable culverts, regraded channels, and streambed material for the first 3 years.
- Qualitative assessment will be performed yearly to visually assess the health of plants and identify areas that may need control of non-native invasive species or other maintenance activities.
- During all qualitative monitoring years, photographic documentation of the sites will occur from permanent photograph stations.

5.7 Maintenance

The proposed mitigation is intended to achieve the performance standards with minimal ongoing maintenance. However, King County will manage and maintain the site for 10 years, or until all performance standards are met and the site is closed with the approval of permitting agencies.

As mentioned previously, King County Parks has a formal maintenance program for its trail mitigation projects. The County understands that regular maintenance is necessary to achieve its mitigation commitments in public trail corridors.

Planted vegetation species are adapted to varying site conditions in the Puget Sound lowland, although supplemental irrigation may be needed during the first two growing seasons after installation to ensure the long-term survival of the plants. The need for irrigation will be evaluated based on the conditions observed during the establishment period.

To ensure rapid establishment of the plant community, trees and shrubs will be planted closer together than would generally occur in natural mature stands. Some natural mortality is expected to occur during the monitoring period. All dead and downed woody material will be left in place to provide microhabitats for wildlife. Plants will be replaced as needed to meet performance standards.

Maintenance to control nuisance species in the mitigation areas will likely be necessary. During the monitoring period, if it becomes evident that invasive species are impeding establishment of desirable native plants, measures will be implemented to control nuisance species. A progressively aggressive approach will be used to control nuisance species. Control measures will first include hand cutting and/or grubbing and removal; if this fails, an environmentally sensitive herbicide (e.g., Rodeo or equivalent) may be applied.

5.8 Contingency Measures

Adaptive management is driven by the monitoring results and the performance standards. If the performance standards are not met, adaptive management activities will be implemented to achieve the desired condition. Management activities may include implementation of contingencies described in Table 5-5, or other appropriate measures. Site conditions will be evaluated to determine the cause of the problem and the most appropriate countermeasure.

Information from the annual monitoring program will be used to identify any maintenance and/or corrective actions. If problems are identified in monitoring, King County biologists will determine the cause of the problem and implement proper maintenance or corrective activities. These activities will be discussed in the annual monitoring report.

5.9 Performance Security/Financial Assurance

This mitigation project will be sponsored by King County. The County will implement a suitable mechanism to ensure that the project is implemented successfully and monitored for a minimum of 10 years, or until the project mitigation is deemed a success by achieving its performance standards.

5.10 Site Protection

The County owns the property underlying the mitigation sites. They will protect the mitigation sites in perpetuity through a legal mechanism that permits maintenance and monitoring of the mitigation area. This mechanism shall be retained by the County and may be submitted to the USACE after permit issuance, if required. In addition, permanent fencing and/or signs indicating that the area is a natural or sensitive or critical area to be protected from disturbance will be posted along the boundaries of each mitigation area.

Table 5-5. Contingency Measures for the Mitigation Sites

Problem	Contingency Measure
Less than 80% of planted woody species survive in Year 1	King County biologists (or other qualified biologist) will assess the sites to determine what conditions are preventing the plants from thriving. Appropriate measures will be taken to correct any conditions that are limiting growth. Plants will be replaced with appropriate native species to achieve the Year 1 standard. Additional measures (such as providing additional protection) will be considered if necessary.
Percent cover for woody species not met during Years 3, 5, or 7	King County biologists (or other qualified biologist) will assess the sites to determine what conditions are preventing the plants from thriving. Appropriate measures, such as increased weed control or extra plantings, will be taken to correct any conditions that are limiting growth.
Invasive species exceed percent cover threshold	Implement/revise invasive species control plan.
Performance standards not met at Year 10	Continue the monitoring regime for 1 additional year. The sites will continue to be evaluated every year until each site has met the stated performance standards associated with management objectives. Other contingency measures may be implemented during this period.

5.11 Long-term Management Plan

The mitigation sites are located on King County property. After attainment of performance standards and acceptance of the mitigation project by the USACE, the County will implement a long-term management plan for the sites as part of trail operations, if required.

Site management activities will include noxious weed control, damage repair from vandalism, trash removal, and signage maintenance.

Monitoring reports or technical memoranda will document annual management activities and identify key issues and actions needed for the following year. Reports are anticipated to be submitted every year to the USACE, by the end of the calendar year, for the first 10 years following attainment of performance standards.

The County will issue a letter of assurance to cover long-term management costs of the mitigation site to the USACE ensuring the County's compliance with the long-term management plan.

6. REFERENCES

- Berge, H.B., and K. Higgins. 2003. The current status of kokanee in the greater Lake Washington Watershed. King County Department of Natural Resources and Parks, Water and Land Resources Division, Seattle, Washington.
- Beschta, R.L., R.E. Bilby, G.W. Brown, L.B. Holtby, and T.D. Hofstra. 1987. Stream temperature and aquatic habitat: fisheries and forestry interactions. *In:* E.O. Salo and T.W. Cundy, eds. Streamside management: forestry and fishery interactions. University of Washington, Seattle, Washington.
- Brinson, M.M. 1993. A Hydrogeomorphic Classification for Wetlands. Wetlands Research Program Technical Report WRP-DE-4. U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, Mississippi.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. FWS/OBS-70/31, U.S. Fish and Wildlife Service, Washington, D.C.
- Ecology (Washington State Department of Ecology). 1994. East Lake Sammamish Basin—Watershed Management Committee, Basin and Nonpoint Action Plan. Olympia, WA.
- Ecology (Washington State Department of Ecology). 1997. Washington State Wetland Identification and Delineation Manual. Publication #96-94. Olympia, Washington.
- Ecology (Washington State Department of Ecology). 2008. Washington Water Resource Inventory (WRIA) Maps. http://www.ecy.wa.gov/services/gis/maps/wria.htm.
- Ecology (Washington State Department of Ecology), U.S. Army Corps of Engineers Seattle District, and U.S. Environmental Protection Agency Region 10. 2006. Wetland Mitigation in Washington State Part 1: Agency Polices and Guidance (Version 1). Washington State Department of Ecology. Publication #06-06-011a. Olympia, Washington. March 2006.
- Environmental Laboratory. 1987. Corps of Engineers Wetland Delineation Manual. Technical Report Y-87-1, Environmental Laboratory, Department of the Army, Waterways Experiment Station, Vicksburg, Mississippi.
- GretagMacbeth. 2000. Munsell soil color charts. New Windsor, New York.
- Hruby, T. 2004. Washington State Wetland Rating System for Western Washington Revised. Washington State Department of Ecology. Publication #04-06-025. Olympia, Washington.
- Kerwin, J. 2001. Salmon and Steelhead Habitat Limiting Factors Report for the Cedar-Sammamish Basin (Water Resource Inventory Area 8). September 2001. Washington Conservation Commission. Olympia, Washington.
- King County. 1990. East Lake Sammamish Basin Conditions Report—Preliminary Analysis. King County Department of Public Works, Surface Water Management Division. Seattle, Washington.
- King County. 1994. Final East Lake Sammamish Basin and Nonpoint Action Plan. December 1994. Seattle, Washington.

- King County. 2010. NEPA/SEPA Final Environmental Impact Statement, Volume I, East Lake Sammamish Master Plan Trail. Prepared for Federal Highway Administration, Washington State Department of Transportation, and King County Facilities Management Division. Seattle, Washington. April 2010.
- KCCFM (King County Department of Construction and Facilities Management). 2000. East Lake Sammamish Interim Use Trail and Resource Protection Plan. Draft EIS. Prepared for KCCFM by Parametrix, Inc., Adolfson Associates, Inc., and associated firms.
- Lake Sammamish Kokanee Work Group. 2014. Blueprint for Restoration and Enhancement of Lake Sammamish Kokanee Tributaries. King County, Washington.
- Lichvar, R.W., M. Butterwick, N.C. Melvin, and W.N. Kirchner. 2014. The National Wetland Plant List: 2014 Update of Wetland Ratings. Phytoneuron 2014-41:1-42. http://rsgisias.crrel.usace.army.mil/NWPL/.
- McDade, M.H., F.J. Swanson, W.A. McKee, J.F. Franklin, and J. Van Sickle. 1990. Source distances for coarse woody debris entering small streams in western Oregon and Washington. Canadian Journal of Forest Research 20:326-330.
- Null, W.S., G. Skinner, and W. Leonard. 2000. Wetland Functions Characterization Tool for Linear Projects. Washington State Department of Transportation, Environmental Affairs Office, Olympia, Washington.
- Parametrix. 2005. East Lake Sammamish Master Plan Trail Wetland Biology Discipline Report. Prepared for King County Facilities Management Division. Bellevue, Washington. October 2005.
- Parametrix. 2006. East Lake Sammamish Master Plan Trail Fish and Fish Habitat Technical Report.

 Prepared for King County Facilities Management Division. Bellevue, Washington. October 2006.
- Parametrix. 2007. Draft Biological Assessment for the East Lake Sammamish Trail Master Plan. Prepared for King County Facilities Management Division and Federal Highway Administration. Bellevue, Washington. April 2007.
- Parametrix. 2015. Evaluation of Existing Drainage Structures for Replacement in the South Sammamish Segment. Technical Memorandum from Paul Fendt to King County. Seattle, Washington. February 26, 2015.
- Parametrix. 2016. East Lake Sammamish Master Plan Trail—South Sammamish Segment B. Draft Technical Information Report. Prepared for King County Facilities Management Division. Seattle, Washington. July 2016.
- Pfeifer, B. 1992. Fisheries Investigations of Lakes Washington and Sammamish—1980-1990. Part V. Wild Cutthroat and Kokanee in Lakes Washington and Sammamish (draft document). Wash. Dep. Game. 210p. (Available from West Coast Sockeye Salmon Administrative Record, Environmental and Technical Services Division, National Marine Fisheries Service, 525 N.E. Oregon Street, Portland, OR 97232.)

- R2 Resource Consultants, Inc. 2012. Technical memorandum re: replacement of the three culverts and realignment of approximately 200 feet of stream channel upstream of East Lake Sammamish Parkway. June 18, 2012.
- Sedell, J.R., and R.L. Beschta. 1991. Bringing back the "bio" in bioengineering. *In:* Fisheries Bioengineering: Proceedings of a Symposium. M.D. Bethesda, J. Colt, and S. Dendall, eds. Pgs. 160-175. American Fisheries Society Publication 10. Bethesda, Maryland.
- Snyder, D., P. Gale, and R. Pringle. 1973. Soil Survey of King County Area, Washington. U.S. Department of Agriculture, Soil Conservation Service, Washington, D.C.
- USACE (U.S. Army Corps of Engineers). 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0). U.S. Army Engineer Research and Development Center Environmental Laboratory. Vicksburg, Mississippi. May 2010.
- USFWS (U.S. Fish and Wildlife Service). 2013. National Wetlands Inventory (NWI), online wetlands mapper. U.S. Department of the Interior, Fish and Wildlife Service, Washington D.C. http://www.fws.gov/wetlands/Data/Mapper.html.
- USFWS (U.S. Fish and Wildlife Service). 2007. National Bald Eagle Management Guidelines. May 2007. 23 pp.
- The Watershed Company (TWC). 2017. East Lake Sammamish Trail Segment B Environmental Peer Review. March 2017.
- Vanderhoof, J. 2002. 2001 Volunteer Salmon Watcher Program in the Lake Washington Watershed and Central Puget Sound Drainages. Report prepared for King County Water and Land Resources Division, in cooperation with Lake Washington/Cedar/Sammamish Watershed Forum, Central Puget Sound Forum, King Conservation District, Snohomish County Surface Water Management, Bellevue Stream Team, Cities of Issaquah, Kirkland, Redmond, Renton, Seattle, and Woodinville. June 2002.
- WDFW (Washington Department of Fish and Wildlife). 1998. 1998 Washington State salmonid stock inventory. Appendix: Bull trout and Dolly Varden. Washington Department of Fish and Wildlife, Olympia, Washington.
- WDFW (Washington Department of Fish and Wildlife). 2016a. SalmonScape online mapping tool. Olympia, Washington.
- WDFW (Washington Department of Fish and Wildlife). 2016b. Priority and Habitat Species on the web. Olympia, Washington.
- WDNR (Washington State Department of Natural Resources). 2016. List of Sections that Contain Natural Heritage Features. Data Current as of August 1, 2016. Olympia, Washington.
- White, R.J. 1999. An inspection of salmonid stream crossings on the proposed East Lake Sammamish Trail. Provided in public scoping comments for the EIS. Edmonds, Washington.
- Williams, R.W., R.M. Laramie, and J.J. Ames. 1975. A Catalog of Washington Streams and Salmon Utilization, Volume 1, Puget Sound. Washington Department of Fisheries, Olympia, Washington.

APPENDIX A

Wetland Determination Data Forms

Data Plot #:	15A-SP1
Wetland:	15A

WETLAND DETERMINATION

(Modified from: 1987 ACOE Wetlands Delineation Manual)

delineation Date: 10/30/2007 Records Delineation Manual

Project/Site: ELST Re-delineation		Date: 10/3	30/2007	Revisited 03-11-14
Applicant/Owner: King County		County: K	ing County	
Investigator: Linda Krippner/Michael Muscari		State: W	/A	
☐ 1987 Method	Method	_	Comn	nunity ID: PFO/PSS 03-11-14 - PFO
Do Normal Circumstances exist on the site?	es X	No		Plot ID: 15A-SP1
Is the site significantly disturbed (Atypical Situation)?	es	No X		FIOUR ID. 13A-3FT
·	es	No X	_	
Remarks (Explain sample location, disturbances, problem This sample plot is located approximately 6' west of flag 15A	,			
This sample plot is located approximately 6 west of liag 157	1-3.			
VEGETATION (✓Dominant species are checked)				03-11-14 Observations Agrostis spp. 40%
Plant Species	% Cove	r Stratum	Indicator	Equisetum telmateia 40%
 Agrostis spp. 	80	Herb	FAC	Phalaris arundinacea 30%
✓ 2. Equisetum telmateia	40	Herb	FACW	Hedera helix 5%
✓ 3. Phalaris arundinacea	30	Herb	FACW	Rubus armeniacus 2% Rubus spectabilis 30%
4. Scirpus microcarpus	10	Herb	OBL	- Alnus rubra 30%
V 5. Rubus spectabilis	30	Shrub	FAC+	Fraxinus latifolia 5%
✓ 6. Alnus rubra	30	Tree	FAC	_ Thuja plicata 10%
7 . Thuja plicata	10	Tree	FAC	_ moss 60%
Percent of Dominant Species that are OBL, FACW, or F		0		
(except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.	100	<u> </u>		
Remarks (Describe disturbances, relevant local variations,	conconal	offooto oto):		
Grasses and shrubs had been mowed. The area is lawn int			nd troop Tho	paraent of dominant appairs that are
hydrophytic is greater than 50 percent. Hydrophytic vegetati			na trees. The	percent of dominant species that are
HYDROLOGY				
Recorded Data (Describe in Remarks):	We	etland Hydro	ology Indicat	tors (Describe in Remarks):
Stream, Lake, or Tide Gage		Primary Ind	icators:	
Aerial Photograph			Inundated	
Other		X	Saturated	in Upper 12 inches
X No Recorded Data Available		Water Marks		
Field Observations:		Drift Lines		
Tield Observations.			Sediment I	•
			_ Drainage F	Patterns in Wetlands
Depth of Surface Water: none (in.)		Secondary	Indicators (2	2 or more required):
Depth to Free Water in Pit: 15 (in.)		Occordary	,	• •
Depth to Saturated Soil: 6 (in.)				Rhizospheres in Upper 12 inches
			_	ined Leaves
				Survey Data
			_	olain in Remarks)
Remarks (As relevant, describe recent precipitation, hydr	ologic modi	fications, loc	al variations,	etc.):
Water collecting in pit at 15" after 5 min.	ralami ault-	ion		
Soil saturation in the upper 12 inches satisfies wetland hydro-	ruiogy criter	IUΠ.		
03-11-14 Observations - No surface water. Soil saturated				
	at surface.	No free water	er in pit.	

Parametrix

								W	etland:	15A	
Project/Site	e: ELST Re-de	elineation				Date:	10/30/20	07		Revisited 03-1	1-14
SOIL Soil Surv	ey Data:										
Map Unit I	Name: Alderv	vood gravelly sandy l	loam,	6 to 15 9	% slopes	3	Drainage	Class: N	loderat	ely well drained	
							Field Obs	ervations	Confir	m Mapped Type	e?
Taxonomy	(Subgroup):	Entic Durochrepts					Yes	No	X	NA	
Profile De	escription:					_					
Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)		Mottle C (Munsell			Mottle Abundan	ce/Contra	st	Texture, Con Rhizospheres	
0-14	0	10YR 2/1		none			none			mucky sand	
14-16	A	10YR 3/1		none			none			sandy gravel	
-	oil Indicators:										
	istosol						d on Hydric		t		
	istic Epipedon ulfidic Odor						n Concretio nic Streakii	-	dy Soile	e	
		ic Moisture Regime					es (Redoxii	•	•		
	educing Condit	_					· (Explain ir	-		,	
X G	leyed or Low-C	Chroma Colors			03-11-		vations -				
Н	igh Organic Co	ntent in Surface Lay	er		0-14 14-18	10YI	R 2/1 (100° R 2/1 (100°	%) no	ne ne	none none	silt loam w. gravel silt loam
Remarks	(Describe soil	disturbances, local v	/ariati	ons, etc.	Rema	rks - High	organic co	ontent thro	oughou	it profile.	Siit ioaiii
Lots of roo	ots mixed in wi	th 0 layer. Low chron	na mu	ıck indica	ates hydr	ric soils.					
WETLA	ND DETER	MINATION									
Hydrophy	rtic Vegetation	Present?	Yes	Χ	No			Is this Sa	mpling	g Point Within	a Wetland?
Hydric So	ils Present?		Yes	X	No			Ye	s X	′ No	
Wetland H	Hydrology Pres	sent?	Yes	Χ	No			16	· 5 ^	(No	_

Data Plot #:

15A-SP1

Remarks

Wetland vegetation, hydrology, and soil criteria are met. Therefore, the sample plot is located in a wetland.

Data Plot #: 15A-SP2
Wetland: Upland near 15A

WETLAND DETERMINATION

(Modified from: 1987 ACOE Wetlands Delineation Manual)

Project/Site: ELST Re-delineation Applicant/Owner: King County Investigator: Linda Krippner/Michael Muscari ☐ 1987 Method	x X x x x x x x x x x x x x x x x x x x	County: No X No X	— Field F —	Revisited 03-11-14 Junity ID: Upland Forest/Herb Plot ID: 15A-SP2
VEGETATION (✓Dominant species are checked) Plant Species ✓ 1. Equisetum telmateia ✓ 2. Phalaris arundinacea 3. Rubus armeniacus ✓ 4. Alnus rubra Percent of Dominant Species that are OBL, FACW, or FA (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, s	100 easonal e	Herb Herb Shrub Tree 0		03-11-14 Observations Equisetum telmateia 70% Calystegia sepium 15% Oemleria cerasiformis 15% Rubus armeniacus 20% Appears that the Alnus rubra have bee cut down. There is a pile of wood in corner of ROW.
HYDROLOGY Recorded Data (Describe in Remarks):				etation criterion is satisfied. Drs (Describe in Remarks):
Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations:	•••	Primary In	dicators:Inundated Saturated in Water Mark Drift Lines Sediment D	n Upper 12 inches ks
Depth of Surface Water: none (in.) Depth to Free Water in Pit: none (in.) Depth to Saturated Soil: none (in.)		Secondary	Oxidized RI Water-Stair Local Soil S	
Remarks (As relevant, describe recent precipitation, hydrologolis moist but not saturated. No primary or secondary indicates the secondary indicates	-			,

arametrix

Revisited 03-11-14 Project/Site: ELST Re-delineation Date: 10/30/2007 **SOIL** Soil Survey Data: Drainage Class: Moderaterly well drained Map Unit Name: Alderwood gravelly sandy loam 6 to 15% slopes Field Observations Confirm Mapped Type? Taxonomy (Subgroup): Entic Durochrepts Yes No X NA **Profile Description:** Depth Horizon Matrix Color Mottle Color Mottle Texture, Concretions, (Inches) Designation (Munsell Moist) (Munsell Moist) Abundance/Contrast Rhizospheres, etc. 0-12 10YR 2/1 rock fill sand Α none none 03-11-14 Observations -10YR 2/1 (100%) none 0-18 gravelly sandy loam none Remarks - Edge of fill material/slope. **Hydric Soil Indicators:** Histosol Listed on Hydric Soils List Histic Epipedon Fe/Mn Concretions Organic Streaking in Sandy Soils Sulfidic Odor Aquic or Peraguic Moisture Regime Mottles (Redoximorphic Features) **Reducing Conditions** Other (Explain in Remarks) X Gleyed or Low-Chroma Colors High Organic Content in Surface Layer Remarks (Describe soil disturbances, local variations, etc.): Low chroma soil matrix indicates hydric soil. Fill material exists on the wetland boundary. WETLAND DETERMINATION **Hydrophytic Vegetation Present?** Is this Sampling Point Within a Wetland? No **Hydric Soils Present?**

Data Plot #:

Yes ____ No _X__

Wetland:

15A-SP2

Upland near 15A

Remarks

Wetland Hydrology Present?

Wetland hydrology criterion is not satisfied. Therefore, the sample plot is not located in a wetland.

No

No

Data Plot #:	15C-SP1
Wetland:	15C

WETLAND DETERMINATION

(Modified from: 1987 ACOE Wetlands Delineation Manual)

(Modified from: 1987 ACCE V	remanus	Delineation	nailuai)
Project/Site: ELST Re-delineation	Date:	10/31/2007	Revisited 03-11-14
Applicant/Owner: King County	County:	King	
Investigator: Chip Maney	State:	WA	
☐ 1987 Method ✓ 1997 WA St. Method		Comm	nunity ID: PEM/PFO 03-11-14 - Pf
Do Normal Circumstances exist on the site? Yes X	No		Plot ID: 15C-SP1
Is the site significantly disturbed (Atypical Situation)? Yes	No	X	
Is the area a potential Problem Area? Yes	No	×	
Remarks (Explain sample location, disturbances, problem areas):			
This plot is located 2 feet east of the ditch and 25 feet north of the el	nd of a laure	el hedge, just outs	side of the red alder canopy. No acce
to an upland plot exists. Unnamed Stream 5			
omanos ocosmo			
VEGETATION (✓Dominant species are checked)			03-11-14 Observations
Plant Species % Co	ver Stratu	m Indicator	Athyrium filix-femina 10%
1. Cardamine oligosperma trace	Н	FAC	Cardamine oligosperma 2% Carex obnupta 2%
2 Carex obnupta trace		OBL	Calystegia sp. 2%
3 Convolvulus spp. trace	Н		Equisetm telmateia 40%
4. Juncus effusus 10	Н	FACW+	Juncus effusus 10%
5. Lythrum salicaria 10	<u>H</u>	OBL	Lythrum salicaria 10% Phalaris arundinacea 60%
✓ 6. Phalaris arundinacea 60	H	FACW	ornamental shrub/tree 35%
✓ 7. Rosa nutkana 35	<u>s</u>	FAC	Rubus armeniacus 8%
8. Rubus spectabilis 10	<u>s</u>	FAC+	Rubus spectabilis 10%
9. Alnus rubra 15	<u>T</u>	FAC	Alnus rubra 15% Fraxinus latifolia 10%
Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, season The percent of dominant species that are hydrophytic is greater than	-	,	getation criterion is satisfied.
HYDROLOGY			
Recorded Data (Describe in Remarks):	Wetland H	vdrology Indicat	tors (Describe in Remarks):
· · · · · · · · · · · · · · · · · · ·		Indicators:	(Besonbe in Hemano).
Stream, Lake, or Tide Gage		Inundated	
Aerial Photograph	×		in Upper 12 inches
Other		Water Marl	* *
X No Recorded Data Available		Drift Lines	
Field Observations:		Sediment [Deposits
		Drainage P	Patterns in Wetlands
Depth of Surface Water: none (in.) Depth to Free Water in Pit: 9 (in.)	Second	lary Indicators (2	or more required):
2 5 5 11 2 11 2 11 2 11 2 11 2 11 2 11		Oxidized R	hizospheres in Upper 12 inches
Depth to Saturated Soil: <u>surface</u> (in.)		Water-Stai	ned Leaves
		Local Soil S	Survey Data
		Other (Exp	lain in Remarks)
Remarks (As relevant, describe recent precipitation, hydrologic m	odifications	, local variations,	etc.):
Saturation in the upper 12 inches satisfies wetland hydrology criteria			
		18	ns, local variations,

Parametrix

					Wetland	15C
Project/Site	e: ELST Re-de	elineation		Date:	10/31/2007	Revisited 03-11-14
SOIL Soil Surv	ey Data:					
Map Unit	Name: Alder	wood gravelly sandy lo	am 6 to 15% slopes		Drainage Class: Modera	tely well drained
					Field Observations Confi	rm Mapped Type?
Taxonom	y (Subgroup):	Entic Durochrepts			Yes NoX	NA
Profile De	escription:					
Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)		Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-17	Α	10YR 3/1	none		none	silt loam
H H S S A A R S G H H Remarks	Reducing Condit Reyed or Low-C ligh Organic Co (Describe soil		riations, etc.):	Fe/M Orga Mottl	d on Hydric Soils List In Concretions nic Streaking in Sandy Soil es (Redoximorphic Feature r (Explain in Remarks)	
LOW CITIO	ma son maunx c	Joiot indicates riyunc s	Olis.			
WETLA	ND DETER	MINATION				
Hydrophy	tic Vegetation	Present?	res X No		Is this Samplin	ng Point Within a Wetland?
Hydric So	oils Present?	`	res X No		Yes	X No
Wetland	Hydrology Pre	sent?	/es <u>X</u> No _	<u> </u>		_

Data Plot #:

15C-SP1

Remarks

Wetland vegetation, hydrology, and soil criteria are met. Therefore, the sample plot is located in a wetland.

WETLAND DETERMINATION DATA FORM

Western Mountains, Valleys, and Coast Supplement to the 1987 COE Wetlands Delineation Manual

Design City	FLCT Do delineatio		 _		Compline	Doto	04.20.00	Revisited	1 09-12	-13
Project Site:	ELST – Re-delineation	<u>n</u>			Sampling		01-30-09	TOVIOLOG	100 12	
Applicant/Owner:	King County				Sampling		W15D-SP1			
Investigator:	M. Maynard; C. Worsl	ey			City/Cou	nty:	City of Samm	iamish		
Section, Township, Range:	S07, T24N, R06E				State:		WA			
Landform (hillslope, terrace,	etc) ditch bottom		Slope (%) 0%		Local relie	f (concave	, convex, none) n	one		
Subregion (LRR) A		Lat			Long		Datum	l		
Soil Map Unit Name Alderwo	od gravelly sandy loam, 6	to 15 percent sl	opes			NWI cla	assification PEM			
Are climatic/hydrologic condi	tions on the site typical for	this time of yea	r? 🛛 Yes	□ No	(If no exp	lain in rem	arks)			
Are "Normal Circumstances" Are Vegetation ⊠, Soil, □, of the Vegetation □, □	present on the site? or Hydrology ☐ significantl	ly disturbed? Ye	Yes Yes	No No	, .		ny answers in Rer	marks.)		
SUMMARY OF FINDING	S – Attach site map sl	howing samp	oling point loca	tions, trans	ects, impo	ortant fea	atures, etc.			
Livelando dia Manadadia a Bas			No. la dela Ca			-4110				
Hydrophytic Vegetation Pre Hydric Soils Present? Wetland Hydrology Presen		Yes □ Yes □ Yes □	No Is this Sa No No	ampling Point	within a w	etiano r	_⊠_ Yes _	No		
Remarks: Wetland 15E	D is located immediately no	orth of SE 26th (Street and east of	the trail Sami	nla nlot is ne	ar the sou	th and of a solit ra	il fance in th	e hottor	n of
a ditch, appr sediment dre	oximately 6 feet NNE of fla	ag W15D-20 and	d 2 feet E of split r							
VEGETATION – Use sci	entific names of plant									
120217111011 000001										
Tree Stratum (Plot size NA)	ı	Absolute % Cover	Dominant Species?	Indicator Status	Domina	nce Test	Worksheet			
1.			•			of Dominar		2		
2.					that are C	OBL, FACV	V, or FAC:		((A)
3.						nber of Do		2		
4.					Species A	Across All	Strata:		((B)
	-		= Total Cover			of Dominar OBL, FACV	nt Species V, or FAC:	100		(A/B)
Sapling/Shrub Stratum (Plo	ot size NA)						_		`	, , , ,
1.					Prevale	nce Inde	x Worksheet			
2.					1	Total % C		Mul	Itiply by	
3.					OBL spec			x 1 =		
4.					FACW sp			x 2 =		
5.					FAC spec			x 3 =		
			= Total Cover		FACU sp	ecies		x 4 =		
	_		•		UPL spec	cies		x 5 =		
Herb Stratum (Plot size 5 fe	et, confined to wetland bou	undar <u>y</u>)			Column to	otals		(A)	(B	3)
 Callitriche heterophylla 		40	Yes	OBL	_					
2. Ranunculus repens		15	Yes	FACW	Preva	lence Inc	dex = B / A =			
3. Lemna minor		10	No	OBL	1					
4. Cardamine oligosperma		10	No	FAC	Hydrop	hytic Ve	getation Indica	tors		
5. Scirpus microcarpus		5	No	OBL	Yes		ice test is > 50%			
Nasturtium officinale		2	No	OBL			ce test is ≤ 3.0 *			
7. Phalaris arundinacea		2	No	FACW	_		ogical Adaptations			g
8.							emarks or on a se)	
9.							Non-Vascular Pla			
10.						Problema	atic Hydrophytic V	egetation * (explain)	
11. 50% = 42; 20% = 16.8		0.4	Total Cayar		* Indicate	ro of budgi		hudrala au m	auat ba	
		84	= Total Cover				c soil and wetland urbed or problema		iust be	
Woody Vine Stratum (Plot 1.	SILE IVA)				1					
2.					Hydroph	ytic Veget	tation			
			= Total Cover		Present?		Yes	\boxtimes	No	
	-									
% Bare Ground in Herb Strat	tum <u>30</u>				<u> </u>					
Remarks: Hedera helix p	present along boundary edg	ge, rooted in ad	jacent upland. 10	0% of the dom	inant specie	s are hydr	ophytic. This satis	sfies the hyd	rophytic	
vegetation crite		•			•	•	-	,		

Sampling Point W15D-SP1

SOIL							Samplin	g Point W15D-SP1				
Brofile Deceri	ntion: (Describe to the	donth noodo	d to document the indicate	or or confi	m the sheepes	of indicato	ro \					
Depth	Matrix	aepin neede		edox Featu		Ji iliulcato	is.)					
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks				
0-18	N 2.5/1	100	- Coloi (Illoist)	- /0	- Type	LUC	Loamy sand	Some gravels and cobbles				
18-20	10Y 3/1	100	-	-	-	† -	sand	Some gravels and cobbles				
10 20	101 0/1	100					bana	Como gravolo ana cossico				
1					2			•				
'Type: C=Con	centration, D=Depletion, I	RM=Reduced	d Matrix, CS=Covered or Co	ated Sand	Grains 'Loc: P	L=Pore Lini	ing, M=Matrix					
Usalvia Cail In	Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils ³											
Histosol (Sandy Redox (S5)			m Muck (A		Solis				
	☐ Histic Epipedon (A2) ☐ Stripped Matrix (S6) ☐ Red Parent Material (TF2)											
	Sulfide (A4)		oamy Gleyed Matrix (F2)		···/ •	inor (oxpiai						
	Below Dark Surface (A11		Depleted Matrix (F3)									
	rk Surface (A12)		Redox Dark Surface (F6)		³ Indicat	ors of hydro	ophytic vegetation	and wetland hydrology must				
	ucky Mineral (S1)		Depleted Dark Surface (F7)		be pres	ent, unless	disturbed or proble	ematic				
☐ Sandy GI	eyed Matrix (S4)	□ F	Redox Depressions (F8)				·					
Da atalatica Lac	('ft)											
Type:	er (if present):						Yes	⊠ No □				
Туре					Hydric soil	present?	163					
Depth (inches)	:											
Remarks:	A thick dark surface satis	fice the budg	io goil oritorion									
ixemaiks.	A lilick dark surface sails	iles the Hyun	c son chierion.									
HYDROLOG	v											
HIDKOLOG	· I											
Wetland Hydr	ology Indicators:											
	ators (minimum of one re	quired: check	k all that apply):			Secona	lary Indicators (2 d	or more required):				
	e water (A1)		parsely Vegetated Concave	Surface (B8	3)			ves (B9) (MLRA 1, 2, 4A & 4B)				
	Vater Table (A2)	□ W	ater-Stained Leaves (excep	t MLRA 1,	2, 4A & 4B) (B9)		rainage Patterns (B10)				
	ition (A3)	☐ Sa	alt Crust (B11)		, , ,		ry-Season Water	Table (C2)				
☐ Water	Marks (B1)	☐ Ac	quatic Invertebrates (B13)			□s	aturation Visible o	n Aerial Imagery (C9)				
☐ Sedim	ent Deposits (B2)	☐ Hy	drogen Sulfide Odor (C1)			G	eomorphic Positio	n (D2)				
☐ Drift D	eposits (B3)		kidized Rhizospheres along	Living Root	s (C3)	S	hallow Aquitard (D	03)				
☐ Algal I	Mat or Crust (B4)	Pr	esence of Reduced Iron (C4	!)		□ F.	AC-Neutral Test ([D5)				
☐ Iron D	eposits (B5)	☐ Re	ecent Iron Reduction in Tilled	d Soils (C6)		R	aised Ant Mounds	(D6) (LRR A)				
☐ Surfac	e Soil Cracks (B6)	St	unted or Stressed Plants (D	1) (LRR A)		☐ F	rost-Heave Humm	ocks				
☐ Inunda	ation Visible on Aerial	Ot	her (explain in remarks)									
Image	ry (B7)											
Field Observa												
Surface Water			lo Depth (in): 2									
Water Table P	resent? 🛛 🖾 Ye	s 🗆 N	lo Depth (in): NA		Wetland Hydro	ology Pres	ent? Yes	⊠ No □				
Saturation Pre		s 🔲 N	lo Depth (in): surfa	ace		,						
(includes capil	lary fringe)		,									
Describe Reco	Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:											
Remarks: The presence of surface water satisfies the wetland hydrology criterion.												
Trainants. The presence of surface water satisfies the wettand hydrology officiron.												
l												

WETLAND DETERMINATION DATA FORM

Western Mountains, Valleys, and Coast Supplement to the 1987 COE Wetlands Delineation Manual

Project Site:	ELST – Re-delineation	•			Sampling	n Date.	01-30-09	Revisite	ed 09-1	2-13
Applicant/Owner:	King County	1			Sampling		W15D-SP2			
Investigator:	M. Maynard; C. Worsl	AV.			City/Cou		City of Sam	mamish		
Section, Township, Range:	S07, T24N, R06E	Су			State:	iity.	WA	mamion		
			01 (01) 10001							
Landform (hillslope, terrace,	etc) hillslope		Slope (%) 100%			ef (concave	e, convex, none)			
Subregion (LRR) A		Lat			Long		Datu	m		
Soil Map Unit Name Alderwo		·	·				assification NA			
Are climatic/hydrologic condi Are "Normal Circumstances"		this time of yea	r? 🛛 Yes	□ No No	(If no, exp	lain in rem	arks.)			
Are Vegetation ☐, Soil, ☐, of Are Vegetation ☐, Soil, ☐, of the vegetation ☐,	or Hydrology significantly	y disturbed? No) <u> </u>		(If needed	l evolain a	ny answers in R	emarke)		
					,	•	•	cinano.,		
SUMMARY OF FINDING	S – Attach site map sh	nowing samp	oling point loca	tions, trans	ects, impo	ortant fea	atures, etc.			—
Hydrophytic Vegetation Pre		Yes 🗵		mpling Point	within a W	etland?	Yes	☑ No		
Hydric Soils Present?		Yes 🔲	No							
Wetland Hydrology Presen	t? <u> </u>	Yes 🛛	No							
	D is located immediately no						plot is approxima	ately 12 feet	northeas	st of
	W15D-20 on slope with ivy				wetland sign	n.				
Only one of	the wetland criteria are sati	sfied indicating	this area is not we	etland.						
VEGETATION – Use sci	entific names of plants	S.								
Tree Stratum (Plot size NA)	1	Absolute %	Dominant	Indicator	Domina	ince Test	t Worksheet			
1.		Cover	Species?	Status	Number	of Dominar	nt Species	1		
2.							V, or FAC:	•		(A)
3.					Total Nur	mber of Do	minant	2		(//)
4.						Across All		_		(B)
			= Total Cover		Percent of	of Dominar	nt Species	50		(D)
	_						V, or FAC:			(A/B)
Sapling/Shrub Stratum (Pl	ot size NA)						-			()
1.	·				Prevale	nce Inde	x Worksheet			
2.					1	Total % C		Mu	ultiply by	<u>/</u>
3.					OBL spe			x 1 =		
4.					FACW sp			x 2 =		
5.			= Total Cover		FAC spec			x 3 =		
	-		= Total Cover		UPL spec			x 4 =		
Herb Stratum (Plot size 5 fe	eet)				Column t			(A)		(B)
Cardamine oligosperma	<u></u> /	5	Yes	FAC					<u> </u>	
2.					Preva	alence Inc	dex = B / A =			
3.										
4.					Hydrop	hytic Ve	getation Indic	ators		
5.					No		nce test is > 50%			
6.							ice test is ≤ 3.0 *	* / ! 1 .		
7. 8.					-		ogical Adaptatior emarks or on a s	VI.		ng
9.							Non-Vascular P		;()	-
10.							atic Hydrophytic		(explain	1)
11.										-
50% = 2.5; 20% = 1	-	5	= Total Cover				c soil and wetlan		must be	
Woody Vine Stratum (Plot	size 30 feet, outside wetlar	nd boundary)			present,	arricos dist	arbed or problem	iatio		
1. Hedera helix	·	80	NA	NL						
2. Rubus armeniacus		2	Yes	FACU		ytic Vege	tation Yes		No	\boxtimes
50% = 1; 20% = 0.4	-	2	= Total Cover		Present	?	103	_	. 10	
% Bare Ground in Herb Strat	ium									
	ne dominant species are hy	drophytic and	wetland hydrology	is not present	The hydro	nhytic veg	etation criterion	is not satisfic	-d	
Themand.	ic dominant species are my	aropriyilo, and	wellana nyarology	is not present	. The Hydre	priyac veg	ctation enterior	is not satisfic	u.	

SOIL							Samplin	g Point W15D-SP2					
Profile Descri	ntion: (Describe to the	denth needs	ed to document the indica	tor or confi	m the absence of	of indicato	re \						
Depth	Matrix	aeptii neede		Redox Featu		n maicato	13.)						
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc²	Texture	Remarks					
0-20	10YR 4/1+	100	7.5YR 5/8	10	С	M	Silt loam and	Textures are mixed					
							sand loam						
¹ Type: C=Cond	centration, D=Depletion, F	RM=Reduce	d Matrix, CS=Covered or C	oated Sand	Grains ² Loc: Pl	L=Pore Lini	ing, M=Matrix						
	Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils ³												
								Soils					
Histosol (Sandy Redox (S5) Stripped Matrix (S6)			m Muck (A							
Black His	pedon (A2)		Loamy Mucky Mineral (F1)	(except MI			Material (TF2) n in remarks)						
	Sulfide (A4)		Loamy Gleyed Matrix (F2)	(cxccpt iiiLi	``'' ├ ~	inci (explai	ii ii i ciiiaikoj						
	Below Dark Surface (A11		Depleted Matrix (F3)										
☐ Thick Dar	rk Surface (A12)		Redox Dark Surface (F6)		³ Indicat	ors of hydro	ophytic vegetation	and wetland hydrology must					
	ucky Mineral (S1)		Depleted Dark Surface (F7))			disturbed or proble						
☐ Sandy Gl	eyed Matrix (S4)		Redox Depressions (F8)										
Restrictive Lay	rer (if present):												
Type:							Yes	⊠ No □					
Depth (inches)					Hydric soil	present?							
Deptil (iliches)	·												
Remarks:	10YR 3/2 inclusions (30%	6). The pres	ence of a depleted matrix s	atisfies the h	ydric soil criterior	١.							
LIVEROL OC	· ·												
HYDROLOG	<u> </u>												
Wetland Hydr	ology Indicators:												
	ators (minimum of one re	quired: chec	k all that apply):			Secono	lary Indicators (2 o	r more required):					
	e water (A1)		parsely Vegetated Concave			V	Vater-Stained Leav	res (B9) (MLRA 1, 2, 4A & 4B)					
	Vater Table (A2)		ater-Stained Leaves (exce	pt MLRA 1,	2, 4A & 4B) (B9)		rainage Patterns (
	ition (A3)		alt Crust (B11)				ry-Season Water						
	Marks (B1)		quatic Invertebrates (B13)					n Aerial Imagery (C9)					
_	ent Deposits (B2)		ydrogen Sulfide Odor (C1)	a Listina Doot	o (C2)		Seomorphic Positio						
	eposits (B3) Mat or Crust (B4)		xidized Rhizospheres along resence of Reduced Iron (C		S (C3)		hallow Aquitard (D AC-Neutral Test (E						
	eposits (B5)		ecent Iron Reduction in Tille				aised Ant Mounds						
	e Soil Cracks (B6)		tunted or Stressed Plants (I				rost-Heave Humm						
	ation Visible on Aerial		ther (explain in remarks)	/ (=/									
Image	ry (B7)		,										
Field Observa	tions												
Surface Water			No Depth (in):										
Water Table P	-		No Depth (in): nor	ne	Wetland Hydro	ology Pres	ent? Yes [□ No 🖾					
Saturation Pres		s 🛛 1	No Depth (in): nor	ne		3,							
(includes capill	lary fringe)												
D 11 D	L. I.D. (. (.)) 'f 'l-11								
Describe Reco	raea Data (stream gauge	, monitoring	well, aerial photos, previou	s inspections	s), if available:								
l													
	No primary or secondary	indicators of	f wetland hydrology are pre	sent.									
	No primary or secondary	indicators of	f wetland hydrology are pre	sent.									
	No primary or secondary	indicators of	f wetland hydrology are pre	sent.									

WETLAND DETERMINATION DATA FORM

Western Mountains, Valleys, and Coast Supplement to the 1987 COE Wetlands Delineation Manual

Project Site:	ELST – Re-delineation	,			Sampling	Date:	01-30-0	na	Revisite	d 09-1	2-13
Applicant/Owner:	King County				Sampling		W15E-				
· · · · · · · · · · · · · · · · · · ·									1 - 1		
Investigator:	M. Maynard; C. Worsle	еу			City/Cou	nty:	City of	Samm	amisn		
Section, Township, Range:	S07, T24N, R06E				State:		WA				
Landform (hillslope, terrace, e	etc) ditch bottom		Slope (%) 0%		Local relie	f (concave	e, convex, n	none) no	one		
Subregion (LRR) A		Lat			Long			Datum			
Soil Map Unit Name Alderwoo	od gravelly sandy loam, 6 t	o 15 percent sl	opes			NWI cla	assification	PEM			
Are climatic/hydrologic condit	ions on the site typical for t	his time of vea	r? X Yes	□ No	(If no. exp	lain in rem	arks.)				
Are "Normal Circumstances"		,	☐ Yes	□ No	(, олр		u				
Are Vegetation ⊠, Soil, □, o		v disturbed? Ye									
Are Vegetation □, Soil, □, o					(If needed	, explain a	ny answers	s in Rer	narks.)		
SUMMARY OF FINDING	S – Attach site map sh	nowing samp	oling point loca	tions, trans	ects, impo	ortant fea	atures, et	c.			
II. I and G. Vanda G. Bu			No. 1. dia 0.		241.1	-41- 10		,			
Hydrophytic Vegetation Pre		Yes 🔲		mpling Point	within a W	etland?	<u> </u>	Yes	☐ No		
Hydric Soils Present?		Yes 🔲	No								
Wetland Hydrology Present	!?	Yes 🔲	No								
Remarks: Wetland 15E	is located immediately nor	rth of SE 26th S	Street and west of	he trail. Sam	ple plot is a	proximate	ely 6 feet S	SE of w	etland flag V	V15E-7	in
	ch, east of Douglas-firs on										
All three wet	land criteria are satisfied in	dicating this are	ea is wetland.		Ü						
		3									
VEGETATION - Use scie	entific names of plants	S.									1
- • • • • • • • • • • • • • • • • • • •		** ** **	5								
Tree Stratum (Plot size NA)		Absolute % Cover	Dominant Species?	Indicator Status	Domina	ince Test	t Worksh	eet			
1.		Covei	Species?	Status	Number	of Dominar	nt Species		-		
							V, or FAC:	•	,		(4)
2.									_		(A)
3.						mber of Do Across All		5)		
4.					Species /	ACIOSS AII	Silala.				(B)
	_		= Total Cover			of Dominar		,	100		
					that are 0	OBL, FACV	V, or FAC:				(A/B)
Sapling/Shrub Stratum (Plo	ot size <u>NA</u>)										
1.					Provale	nce Inde	x Worksh	neet			
2.					- I TOVAIC	Total % C		icci	Mul	Itiply by	
3.					OBL spe				x 1 =	<u>p.,,</u>	
4.					FACW sr				x 2 =		
5.					FAC spe	cies			x 3 =		
	_		= Total Cover		FACU sp	ecies			x 4 =		
					UPL spec				x 5 =		
Herb Stratum (Plot size <u>5 fe</u>	et, confined to wetland bou				Column t	otals			(A)	(B)
Nasturtium officinale		15	Yes	OBL							
Equisetum hyemale		15	Yes	FACW	Preva	lence Inc	dex = B / A	A =			
3. Ranunculus repens		10	Yes	FACW							
4. Lemna minor		10	Yes	OBL	Hydrop	, , , , , , , , , , , , , , , , , , , 	getation I		tors		
5. Poa trivialis		10	Yes	FACW	Yes		ce test is >				
6. Veronica americana		5	No	OBL			ice test is ≤				
7. Holcus lanatus		2	No	FAC	4		• .		* (provide s		ng
8. 9.					-		Non-Vascu		parate sheet)	
10.					 				egetation * (ovnlain	\
11.					 	FIODICITIO	alic i iyurup	niyuc v	egetation (ехріаін	,
50% = 33.5; 20% = 13.4		67	= Total Cover		* Indicate	rs of hvdri	c soil and v	vetland	hydrology m	nust be	
	-						urbed or pr				
Woody Vine Stratum (Plot	size NA)										
1.		- 			1						
2.						ytic Veget	tation	Yes	\boxtimes	No	
	_		= Total Cover		Present	•			_		_
0/ Baro Ground in Harb Ctrate	um 50										
% Bare Ground in Herb Strate		1 (1 71)	tore and the territoria		1						
Remarks: 100% of the do	ominant species are hydrop	nytic. This sat	isties the hydrophy	ric vegetation	criterion.						

SOIL Sampling Point W15E-SP1

SOIL							Sampiin	g Point W15E-SP1				
Brofile Decer	intion. (Describe to the	donth noodo	d to document the indicat	or or confir	m the sheepes o	f indicator	ro \					
	 	iepin neede	d to document the indicat			n muicatoi	is.)					
Depth	Matrix			Redox Featur								
(inches)	Color (moist)	%	Color (moist)	%	Type'	Loc ²	Texture	Remarks				
0-20	10YR 2/1	100	-	-	-	-	Sandy silt	See below				
							loam					
				1								
¹ Type: C=Con	centration D=Depletion F	RM=Reduced	Matrix CS=Covered or Co	nated Sand (Grains ² Loc: PL	=Pore Lini	ing M=Matrix					
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ² Loc: PL=Pore Lining, M=Matrix												
Hydric Soil In	Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils ³											
☐ Histosol	(A1)		Sandy Redox (S5)		☐ 2c	m Muck (A	10)					
☐ Histic Ep	ipedon (A2)		Stripped Matrix (S6)		☐ Re	ed Parent M	Naterial (TF2)					
☐ Black His	stic (A3)		oamy Mucky Mineral (F1)	except MLR	(A 1) 🔲 Ot	her (explair	n in remarks)					
	n Sulfide (A4)	_ L	oamy Gleyed Matrix (F2)									
□ Depleted	Below Dark Surface (A11) 🔲 🛚	Depleted Matrix (F3)		<u> </u>							
	rk Surface (A12)	□ F	Redox Dark Surface (F6)		3 Indicate	ors of hydro	ophytic vegetation	and wetland hydrology must				
☐ Sandy M	ucky Mineral (S1)		Depleted Dark Surface (F7)				disturbed or probl					
☐ Sandy G	leyed Matrix (S4)	□ F	Redox Depressions (F8)		·		•					
D. C. C. C. L.												
	er (if present):						Vaa					
Type:					Hydric soil	present?	Yes	⊠ No □				
Depth (inches)):				, , , , , ,							
. ` `												
Remarks:	Decomposing organic ma	atter and grav	el throughout profile. A thi	ck dark surfa	ice satisfies the h	ydric soil cr	riterion.					
HYDROLOG	Υ											
Wetland Hydr	ology Indicators:											
P <u>rim</u> ary Indic	ators (minimum of one re						lary Indicators (2 c					
	ce water (A1)		parsely Vegetated Concave					/es (B9) (MLRA 1, 2, 4A & 4B)				
	Vater Table (A2)		ater-Stained Leaves (excep	ot MLRA 1, 2	2, 4A & 4B) (B9)		rainage Patterns (
	ation (A3)	☐ Sa	alt Crust (B11)			□ D	ry-Season Water	Table (C2)				
☐ Water	Marks (B1)	☐ Ad	quatic Invertebrates (B13)			☐ S	aturation Visible o	n Aerial Imagery (C9)				
☐ Sedim	ent Deposits (B2)	☐ Hy	drogen Sulfide Odor (C1)			□G	eomorphic Position	n (D2)				
☐ Drift D	eposits (B3)		kidized Rhizospheres along	Living Roots	s (C3)	□ S	hallow Aquitard (D	03)				
☐ Algal I	Mat or Crust (B4)	☐ Pr	esence of Reduced Iron (C	4)		☐ F	AC-Neutral Test (I	D5)				
	eposits (B5)	☐ Re	ecent Iron Reduction in Tille	ed Soils (C6)		□ R	aised Ant Mounds	(D6) (LRR A)				
Surfac	ce Soil Cracks (B6)	St	unted or Stressed Plants (D	01) (LRR A)		□ Fi	rost-Heave Humm	iocks				
	ation Visible on Aerial	☐ Ot	her (explain in remarks)	, , , ,								
	ry (B7)		,									
Field Observa	ations											
Surface Water	Present?	s \square	lo Depth (in): 3									
Water Table P			lo Depth (in): NA				Voc. I					
			1 ()		Wetland Hydro	logy Pres	ent? Yes	⊠ No □				
Saturation Pre		s 🗆 N	lo Depth (in): surf	ace								
(includes capil	lary fringe)											
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:												
Remarks: The presence of surface water satisfies the wetland hydrology criterion.												
Remarks: The presence of surface water satisfies the wetland hydrology criterion.												
I												

WETLAND DETERMINATION DATA FORM

Western Mountains, Valleys, and Coast Supplement to the 1987 COE Wetlands Delineation Manual

					1					
Droinet Cite	FLCT De delinection				Complina	Doto	04 20 00	Revisited	09-1	2-13
Project Site:	ELST – Re-delineation	1			Sampling		01-30-09	- 10 110 110 1		
Applicant/Owner:	King County				Sampling		W15E-SP2			
Investigator:	M. Maynard; C. Worsl	ey			City/Coun	ıty:	City of Samm	namish		
Section, Township, Range:	S07, T24N, R06E				State:		WA			
Landform (hillslope, terrace, e	etc) hillslope		Slope (%) 100%		Local relief	(concave,	convex, none) co	onvex		
Subregion (LRR) A		Lat			Long		Datum	1		
Soil Map Unit Name Alderwoo	od gravelly sandy loam, 6 t	o 15 percent slo	opes		_	NWI cla	ssification NA			
Are climatic/hydrologic condit			·	□ No	(If no, expla					
Are "Normal Circumstances"		ilis tillie oi yeal	Yes ⊠	H No	(II IIO, expir	alli III I 61116	ins.)			
Are Vegetation □, Soil, □, o		u diaturbada Na								
Are Vegetation ☐, Soil, ☐, o					(If needed	avalain ar	ny answers in Rer	marke)		
Are vegetation [1], Joli, [1], C	n riyarology 🗖 nataraliy pi	oblematic: No			(II riccaca,	САРІСІІТ СІ	iy answers in reci	nano.)		
SUMMARY OF FINDING	S – Attach site map sh	nowing samp	ling point loca	tions, trans	ects, impo	rtant fea	tures, etc.			
Hydrophytic Vegetation Pre	esent?	Yes 🛛	No Is this Sa	mpling Point	within a We	tland?	Yes	⊠ No		
Hydric Soils Present?	 	Yes 🖾	No							
Wetland Hydrology Present	t2	Yes 🖾	No							
Wettaria Hydrology i Teserii	·· <u>L L</u>	103 🔼	140							
Remarks: Wetland 15E	is located immediately no	rth of SE 26th S	Street and west of t	he trail. This	paired uplan	d sample p	olot is approximat	ely 15 feet S	SW of	
wetland flag	W15E-7 on slope under Do	ouglas-firs.								
None of the	wetland criteria are satisfie	d indicating this	area is not wetlan	ıd.						
VEGETATION - Use scie	entific names of plants	S								
Tree Stratum (Plot size 30 fe	eet, outside wetland	Absolute %	Dominant	Indicator	Domina	nce Test	Worksheet			
boundary)		Cover	Species?	Status	N	(D		2		
Pseudotsuga menziesii		95	Yes	FACU		f Dominan		0		
2.						BL, FACW				(A)
3.						ber of Dor		6		
4.					Species A	cross All S	otrata:			(B)
		95	= Total Cover		Percent of	f Dominan	t Species (0	-	
	-				that are O	BL, FACW	/, or FAC:			(A/B)
Sapling/Shrub Stratum (Plo	ot size 5 feet)						_			(/
Corylus cornuta		20	Yes	FACU	Dreveler	aa lada	x Worksheet			
Arbutus menziesii		5	NA	NL	-	Total % Co		Mult	iply by	
Gaultheria shallon		5	Yes	FACU	OBL spec		JVEI OI	x 1 =	ipiy by	
4.		3	162	TACO	FACW spec			x 2 =		
5.					FAC spec			x 3 =		
5. 50% = 12.5; 20% = 5		25	= Total Cover		FACU spec			x 4 =		
5575 = 12.6, 2575 = 5	=	20	_ 10tai 0070i		UPL spec			x 5 =		
Herb Stratum (Plot size 5 fe	et)				Column to			(A)	- (B)
Polystichum munitum	, <u>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</u>	2	Yes	FACU	Coldilli	raio		(7.)		<i>D</i>)
2.					Preval	ence Ind	ex = B / A =			
3.					1 1000	crioc iria	CX - B / / (-			
4.					Hydroni	vtic Ved	etation Indica	tors		
5.					No		ce test is > 50%			
6.							ce test is ≤ 3.0 *			
7.						Morpholo	gical Adaptations	* (provide su	upportir	ng
8.							marks or on a se			
9.							Non-Vascular Pla			
10.					1	Problema	tic Hydrophytic V	egetation * (e	explain)
11.		2	Total Course		* * /	المام م	ا - الاحسالية ما	budgal	uot I- :	
	_	2	= Total Cover				soil and wetland urbed or problema		ust be	
Woody Vine Stratum (Plot	size 30 feet, outside wetlan	nd boundary)			prosent, u	moss tristl	and or problettic	4110		
1. Rubus ursinus	00 .00., outoido Wotlai	15	Yes	FACU	1					
2. Rubus armeniacus		5	Yes	FACU	Hydrophy	tic Veget	ation V		Nla	
3. Hedera helix		2	NA	NL	Present?	•	Yes		No	\boxtimes
50% = 10; 20% = 4	=	20	= Total Cover		1					
% Bare Ground in Herb Strat	um									
Remarks: None of the do	minant species are hydrop	hytic, and hydri	c soil and wetland	hydrology are	e not present	. The hydr	rophytic vegetatio	n criterion is	not	
satisfied.										

SOIL Sampling Point W15E-SP2											
Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)											
Depth Matrix Redox Features											
(inches) Color (moist) %		0/_	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks			
0-20	10YR 3/2	100	7.5YR 5/8	10	С	M	Gravelly	Remarks			
0-20	10110 3/2	100	7.511(3/6	10	O	IVI	sandy loam				
							carray rearri				
			1								
True C. Consentration D. Doplation DM. Reduced Matrix: CC. Counsed on Control Control 2 and C. P. Control Cont											
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.) Indicators for Problematic Hydric Soils ³											
Histosol (A1) Sandy Redox (S5) 2cm Muck (A10)											
☐ Histic Epipedon (A2) ☐ Stripped Matrix (S6) ☐ Red Parent Material (TF2)											
☐ Black His			_oamy Mucky Mineral (F1) (except MLI			n in remarks)				
☐ Hydroger	Sulfide (A4)	l l	oamy Gleyed Matrix (F2)	•							
□ Depleted	Below Dark Surface (A11	1) 🔲 [Depleted Matrix (F3)								
	rk Surface (A12)		Redox Dark Surface (F6)		³ Indicat	ors of hydro	ophytic vegetation	and wetland hydrology must			
	ucky Mineral (S1)		Depleted Dark Surface (F7)		be pres	ent, unless	disturbed or proble	ematic			
Sandy GI	eyed Matrix (S4)	F	Redox Depressions (F8)								
Restrictive Lay	er (if present):										
Type:	or (ii prosont).						Yes	□ No ⊠			
					Hydric soil	present?					
Depth (inches)	:										
Remarks:	Charcoal below 12 inche	s No hydric	soil indicators are present.		•						
, tomanto	011010001 201011 12 1110110	o	con maioatoro aro processi								
HYDROLOGY											
Wetland Hydr	ology Indicators:										
Primary Indic	ators (minimum of one re	qui <u>red: c</u> heci	k all that apply):			Secona	lary Indicators (2 o	r more required):			
	e water (A1)		parsely Vegetated Concave				ater-Stained Leav	res (B9) (MLRA 1, 2, 4A & 4B)			
	Vater Table (A2)		ater-Stained Leaves (excep	t MLRA 1,	2, 4A & 4B) (B9)		rainage Patterns (
	tion (A3)		alt Crust (B11)				ry-Season Water				
	Marks (B1)		quatic Invertebrates (B13)					n Aerial Imagery (C9)			
_	ent Deposits (B2)		ydrogen Sulfide Odor (C1)				eomorphic Positio				
	eposits (B3)		xidized Rhizospheres along		s (C3)		hallow Aquitard (D				
	Mat or Crust (B4)		resence of Reduced Iron (C4				AC-Neutral Test ([
	eposits (B5)		ecent Iron Reduction in Tille				aised Ant Mounds				
Surface Soil Cracks (B6) Stunted or Stressed Plants (D1) (LRR A) Frost-Heave Hummocks											
Inundation Visible on Aerial Other (explain in remarks) Imagery (B7) Other (explain in remarks)											
IIIIage	Iy (D <i>1</i>)										
Field Observa	ntions										
		. 🖂 .	Jo Donth (in)								
Surface Water Water Table P			No Depth (in): No Depth (in): none				V .				
Water rable F			,	=	Wetland Hydro	ology Pres	ent? Yes [□ No ⊠			
Saturation Pre		s 🛛 1	No Depth (in): none	9							
(includes capillary fringe)											
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:											
Remarks: No primary or secondary indicators of wetland hydrology are present.											
	,, 3. 0000duly										
l											
l											

Data Plot #:	18C-SP1				
Wetland:	18C				

WETLAND DETERMINATION (Modified from: 1987 ACOE Wetlands Delineation Manual)

Applicant/Owner: King County Investigator: Matt Maynard, Chip Maney 1987 Method V 1997 WA St. Method Community ID: P. Field Plot ID: 18C Is the site significantly disturbed (Atypical Situation)? Yes No X Is the area a potential Problem Area? Yes No X Remarks (Explain sample location, disturbances, problem areas): This sample plot is located approximately 15 feet east of flag 18C-1. VEGETATION (V Dominant species are checked) Plant Species % Cover Stratum Indicator 1. Carex obnupta 5 H OBL V 2. Cornus sericea 50 S FACW 3. Rubus armeniacus trace S FACU V 4. Fraxinus latifolia 35 T FACW Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.):	PSS C-SP1
Do Normal Circumstances exist on the site? Yes X No Field Plot ID: 18C Is the site significantly disturbed (Atypical Situation)? Yes No X Is the area a potential Problem Area? Yes No X Remarks (Explain sample location, disturbances, problem areas): This sample plot is located approximately 15 feet east of flag 18C-1. VEGETATION (✓Dominant species are checked) Plant Species	
Do Normal Circumstances exist on the site? Is the site significantly disturbed (Atypical Situation)? Is the area a potential Problem Area? Remarks (Explain sample location, disturbances, problem areas): This sample plot is located approximately 15 feet east of flag 18C-1. VEGETATION (Indicator of the sample plot is located approximately 15 feet east of flag 18C-1. VEGETATION (Indicator of the sample plot is located approximately 15 feet east of flag 18C-1. VEGETATION (Indicator of the sample plot is located approximately 15 feet east of flag 18C-1. VEGETATION (Indicator of the sample plot is located approximately 15 feet east of flag 18C-1.	
Is the site significantly disturbed (Atypical Situation)? Yes No X Is the area a potential Problem Area? Yes No X Remarks (Explain sample location, disturbances, problem areas): This sample plot is located approximately 15 feet east of flag 18C-1. VEGETATION (Dominant species are checked) Plant Species % Cover Stratum Indicator 1. Carex obnupta 5 H OBL 2. Cornus sericea 50 S FACW 3. Rubus armeniacus trace S FACU 4. Fraxinus latifolia 35 T FACW Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.	C-SP1
Remarks (Explain sample location, disturbances, problem areas): This sample plot is located approximately 15 feet east of flag 18C-1. VEGETATION (Dominant species are checked) Plant Species	
Remarks (Explain sample location, disturbances, problem areas): This sample plot is located approximately 15 feet east of flag 18C-1. VEGETATION (✓Dominant species are checked) Plant Species	
Remarks (Explain sample location, disturbances, problem areas): This sample plot is located approximately 15 feet east of flag 18C-1. VEGETATION (✓Dominant species are checked) Plant Species	
Plant Species 1. Carex obnupta 2. Cornus sericea 3. Rubus armeniacus 4. Fraxinus latifolia Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. **Cover Stratum** Indicator **OBL **OBL **FACW **	
✓ 2 . Cornus sericea 50 S FACW 3 . Rubus armeniacus trace S FACU ✓ 4 . Fraxinus latifolia 35 T FACW Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.	
3 . Rubus armeniacus trace S FACU ✓ 4 . Fraxinus latifolia 35 T FACW Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.	
✓ 4 . Fraxinus latifolia 35 T FACW Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. 100	
Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.	
The percent of dominant species that are hydrophytic is greater than 50 percent. Hydrophytic vegetation criteri HYDROLOGY Research of Research (Research Property Indicators of Consolidation Consolidation)	
Recorded Data (Describe in Remarks): Wetland Hydrology Indicators (Describe Stream, Lake, or Tide Gage Primary Indicators:	be in Remarks):
Aerial Photograph Other Inundated X Saturated in Upper 12 in	nches
X No Recorded Data Available Water Marks	
Field Observations:	
Sediment Deposits	
Drainage Patterns in We	etlands
Depth of Surface Water: none (in.) Secondary Indicators (2 or more requ	uired):
Depth to Free Water in Pit: 11 (in.) Oxidized Rhizospheres i	in Upper 12 inches
Depth to Saturated Soil: 6 (in.) Water-Stained Leaves	
Local Soil Survey Data	
Other (Explain in Remar	·ks)
Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.): Saturation in the upper 12 inches satisfies wetland hydrology criterion.	

Parametrix

Project/Sit	te: ELST Re-de	elineation				Date:	10/31/2007	F	Revisited 03-11-14		
SOIL											
	vey Data:										
Map Unit	Name: Mixed	Alluvial Land					Drainage Cla	ass: Well drai	ned to very poorly drained		
-							Field Observ	ations Confirm	n Mapped Type?		
Taxonom	ıy (Subgroup):	N/A					Yes	No X	NA		
Profile D	escription:								<u>—</u>		
Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)		Mottle ((Munse			Mottle Abundance/0	Contrast	Texture, Concretions, Rhizospheres, etc.		
0-6	Α	10YR 3/1		none			none		silt loam		
6-12	A2	10YR 3/1		2.5Y 6/6			few, fine, promit	nent	gravelly silt loam		
12-18	В	10YR 4/1		none			none		gravelly sandy loam		
Hydric S	oil Indicators:										
H	Histosol					Liste	d on Hydric So	oils List			
	Histic Epipedon					Fe/M	n Concretions				
Sulfidic Odor					Orga	Organic Streaking in Sandy Soils					
Aquic or Peraguic Moisture Regime X					X Mottl	Mottles (Redoximorphic Features)					
Reducing Conditions					Other (Explain in Remarks)						
X(Gleyed or Low-C	Chroma Colors									
	High Organic Co	ontent in Surface Laye	r								
	•	disturbances, local va			,						
Giiioiiia	T SUIT ATTU TEUUX	imorphic leatures mur	cale	riyuric s	UIIS.						
WETL	AND DETER	MINATION									
Hydroph	ytic Vegetation	Present?	Yes	Х	No		ls t	his Sampling	Point Within a Wetland?		
Hydric S	oils Present?		Yes	X	No			V V	Na		
Wetland	Hydrology Pres	sent?	Yes	Χ	No			Yes X	No		

Data Plot #:

Wetland:

18C-SP1

18C

Remarks

Wetland vegetation, hydrology, and soil criteria are met. Therefore, the sample plot is located in a wetland.

Data Plot #: 18C-SP2
Wetland: Upland near 18C

WETLAND DETERMINATION

(Modified from: 1987 ACOE Wetlands Delineation Manual)

Project/Site: ELST Re-delineation Applicant/Owner: King County Investigator: Matt Maynard, Erik Christensen ☐ 1987 Method ☐ 1997 WA Do Normal Circumstances exist on the site? Is the site significantly disturbed (Atypical Situation)? Is the area a potential Problem Area? Remarks (Explain sample location, disturbances, problet This sample plot is located approximately 10 feet south of the sample plot is located a	Yes X Yes Yes em areas):	County: State: No No		nunity ID: Upland shrub Plot ID: 18C-SP2
Plant Species 1. Polystichum munitum ✓ 2. Corylus cornuta 3. Gaultheria shallon ✓ 4. Rubus armeniacus 5. Rubus laciniatus ✓ 6. Alnus rubra Percent of Dominant Species that are OBL, FACW, (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace Remarks (Describe disturbances, relevant local variation. The percent of dominant species that are hydrophytic is serviced.	ce. ons, seasonal	H S S S S T T S effects, etc	FACU FACU FACU FACU FACU FACU+ FAC	03-11-14 Observations Polystichum munitum 2% Corylus cornuta 75% Gaultheria shallon 2% Rubus armeniacus 45% Rubus laciniatus 2% Acer macrophyllum 25%
HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.) Depth to Free Water in Pit: none (in.) Depth to Saturated Soil: none (in.) Remarks (As relevant, describe recent precipitation, hone)		Primary	Inundated Saturated Water Mar Drift Lines Sediment I Drainage F ry Indicators (2 Oxidized F Water-Stai Local Soil Other (Exp	Deposits Patterns in Wetlands 2 or more required): Rhizospheres in Upper 12 inches ined Leaves Survey Data blain in Remarks)

Parametrix

Remarks

Revisited 03-11-14 Project/Site: ELST Re-delineation Date: 10/31/2007 **SOIL** Soil Survey Data: Drainage Class: Well drained to very poorly drained Map Unit Name: Mixed Alluvial Land Field Observations Confirm Mapped Type? Taxonomy (Subgroup): N/A Yes No X NA **Profile Description:** Depth Horizon Matrix Color Mottle Color Mottle Texture, Concretions, Abundance/Contrast (Inches) Designation (Munsell Moist) (Munsell Moist) Rhizospheres, etc. 0-5 10YR 2/1 Α none none sandy loam 5-17 В 2.5Y 4/2 none none sandy loam **Hydric Soil Indicators:** Histosol Listed on Hydric Soils List Histic Epipedon Fe/Mn Concretions Sulfidic Odor Organic Streaking in Sandy Soils Mottles (Redoximorphic Features) Aquic or Peraguic Moisture Regime **Reducing Conditions** Other (Explain in Remarks) Gleyed or Low-Chroma Colors High Organic Content in Surface Layer Remarks (Describe soil disturbances, local variations, etc.): No hydric soil indicators are present. WETLAND DETERMINATION Is this Sampling Point Within a Wetland? **Hydrophytic Vegetation Present? Hydric Soils Present?** Yes No No X **Wetland Hydrology Present?** Yes No

Wetland vegetation, hydrology, and soil criteria are not met. Therefore, the sample plot is not located in a wetland.

Data Plot #:

Wetland:

18C-SP2

Upland near 18C

Data Plot #:	19A-SP1
Wetland:	19A

WETLAND DETERMINATION

(Modified from: 19	87 AC	DE Wet	lands l	Delii	neation Manual)
Project/Site: ELST Re-delineation		[Date: 1	11/1/2	2007 Revisited 09-12-13
Applicant/Owner: King County			County:	Kin	g
Investigator: Chip Maney, Chrissy Bailey			State:	WA	
☐ 1987 Method	/A St. Me	ethod			Community ID: PEM
Do Normal Circumstances exist on the site?	Yes	X	No _		Field Plot ID:19A-SP1
Is the site significantly disturbed (Atypical Situation)?	Yes		No	Χ	_
Is the area a potential Problem Area?	Yes		No	Χ	
Remarks (Explain sample location, disturbances, pro	blem are	as):			
This sample plot is located 1 foot north of the stairway gravel has recently been placed for fill for the stairs.	up to the	e lawn in a	a ditch e	ven v	vith the split fence post. It is thin and narrow.
VEGETATION (✓Dominant species are checked)				
Plant Species		% Cover	Stratur	m	Indicator
✓ 1. Juncus effusus		30	Н		FACW+
2 . Lotus corniculatus		trace	<u> H</u>		<u>FAC</u>
✓ 3. mowed lawn		30	- H		54.00
Phalaris arundinacea Polyatishum munitum		20 trace	- <u>H</u>		FACU FACU
5. Polystichum munitum ✓ 6. Gaultheria shallon		trace 30	- <u>H</u> S		FACU
7. Ilex aquifolium		trace	- S		NL NL
8. Rubus armeniacus		10	s		FACU
9 Fraxinus latifolia		10	Т		FACW
morphological adaptations to wetlands. "T" indicates t Remarks (Describe disturbances, relevant local varia The percent of dominant species that are hydrophytic to the percent of the p	tions, se		-	,	rophytic vegetation criterion is satisfied.
HYDROLOGY					
Recorded Data (Describe in Remarks):			tiand Hy Primary		ogy Indicators (Describe in Remarks):
Stream, Lake, or Tide Gage			,		
Aerial Photograph			X		Inundated
Other			^		Saturated in Upper 12 inches Water Marks
X No Recorded Data Available					Drift Lines
Field Observations:					Sediment Deposits
					Drainage Patterns in Wetlands
Depth of Surface Water: 4.5 (in.)			Seconda	arv li	ndicators (2 or more required):
Depth to Free Water in Pit: na (in.)			0000	ω. γ	Oxidized Rhizospheres in Upper 12 inches
Depth to Saturated Soil: surface (in.)					Water-Stained Leaves
			-		Local Soil Survey Data
					Other (Explain in Remarks)
Remarks (As relevant, describe recent precipitation	hydrolo	aic modifi	ications	local	
Inundation to a depth of 4.5 inches satisfies wetland h	-	-		iocai	variations, ctc./.
	, a. o.ogy				inches below surface.

Project/S	ite: ELST Re-de	elineation		Date:	11/1/2007		Revisited 09-12-13
SOIL Soil Su	rvey Data:						
Map Un	it Name: Alderv	wood gravelly sandy	loam 6 to 15 % slopes		Drainage C	lass: moder	ately well drained
					Field Obser	vations Con	firm Mapped Type?
Taxonor	my (Subgroup):	Dystic Durochrepts			Yes	No X	NA
Profile I	Description:						
Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)		Mottle Abundance	/Contrast	Texture, Concretions, Rhizospheres, etc.
0-19	A	6/5 BG	7.5YR 5/8		many, coarse,	prominent	silt loam
X	Reducing Condit Gleyed or Low-C High Organic Co s (Describe soil	10-18 2.5Y 4 ic Moisture Regime tions	x 3/1 (100%) none 4/1 (98%) 2.5Y 5/6 X er variations, etc.):	Fe/M Orga Mottl		s in Sandy Sc orphic Featur	
Hydrop Hydric \$	AND DETER hytic Vegetation Soils Present? d Hydrology Pres	n Present?	Yes <u>X</u> No	_	Is		ing Point Within a Wetland?

Data Plot #:

Wetland:

19A-SP1

19A

Remarks

Wetland vegetation, hydrology, and soil criteria are met. Therefore, the sample plot is located in a wetland.

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

Project Site:	ELST - South Sammamish Segn	<u>nent</u>			City/Coun	ty: <u>Sammamish/Ki</u>	ing	Sampling Da	ite:	03-11-	14	
Applicant/Owner:	King County					Stat	te: WA	Sampling Po	int:	W19B (rev)	<u>-SP1</u>	
Investigator(s):	C. Worsley; M. Maynard					Section, Tow	nship, Range	e: <u>S06, T24</u>	N, R06E			
Landform (hillslope, te	rrace, etc.): Slope			Loca	I relief (conc	ave, convex, none):	none		Slope	(%): <u>8</u>	<u>%</u>	
Subregion (LRR):	<u>A</u>	Lat:	_			Long:			atum: _			
Soil Map Unit Name:	Alderwood gravelly sandy loam	n, 15 to 30%	<u>slopes</u>				NWI class	ification:	PSS/PEN	1 edge		
Are climatic / hydrolog	ic conditions on the site typical for	this time of	year?	Υe	es 🛛	No ☐ (If r	no, explain in	Remarks.)				
Are Vegetation □,	Soil □, or Hydrology	☐, signific	cantly dist	turbed	? Are "	Normal Circumstance	es" present?		Yes	⊠ N	lo 🗆	
Are Vegetation ☐,	Soil □, or Hydrology	□, natura	lly proble	matic?	(If ne	eded, explain any an	swers in Ren	narks.)				
SUMMARY OF FIN	IDINGS – Attach site map sl	nowing sa	mpling բ	ooint	locations,	transects, impor	tant featur	es, etc.				_
Hydrophytic Vegetatio	n Present?	Yes 🗵	No									
Hydric Soil Present?		Yes ⊠	No		Is the Samp within a We				Yes	⊠ N	lo 🗆	
Wetland Hydrology Pro	esent?	Yes 🗵	No		within a we	tiana i						
Remarks: Sample p	lot is located at maintained lawn /	Himalavan b	olackberry	edae.	. approximat	elv 30 feet north of so	outh structure	e in wetland.				٦
	ample plot location has been filled	-	-	_		-			y collected	d from t	he old	
VEGETATION – Us	se scientific names of plants											
Tree Stratum (Plot siz	e: <u>NA</u>)	Absolute <u>% Cover</u>	Domina Species		Indicator Status	Dominance Test V	Vorksheet:			_		
1		70 OOVCI	Ореско	<u> </u>	<u>Otatus</u>	Number of Domina	nt Species					
2						That Are OBL, FAC			<u>1</u>		(A)	
3.						Total Number of Do	ominant					
4						Species Across All			<u>2</u>		(B)	
50% =, 20% =			= Total	Cover		Percent of Dominar	nt Species					
Sapling/Shrub Stratum	n (Plot size: NA)					That Are OBL, FAC			<u>50</u>		(A/B)	
1						Prevalence Index	worksheet:					٦
2						Total 9	% Cover of:		Multiply	by:		
3						OBL species			x1 =		_	
4						FACW species			x2 =		_	
5						FAC species			x3 =		_	
50% =, 20% =			= Total	Cover		FACU species			x4 =		_	
Herb Stratum (Plot siz	e: 3 feet)					UPL species			x5 =			
1. maintained lawn		<u>50</u>	<u>yes</u>		Ξ.		(Δ)			(B)	
Calystegia sepium	1	30			FAC	Column Totals:	Prevalence I				_ (2)	
3.	!	<u>50</u>	<u>yes</u>		170	Hydrophytic Vege						┥
<u>, —</u>						☐ 1 – Rapid Tes			tion			
4 5.						2 - Dominanc			11011			
6						☐ 3 - Prevalenc	_					
7					—	4 - Morpholog	gical Adaptati marks or on			ng		
8								•	noot)			
9						5 - Wetland N						
10						Problematic F	Hydrophytic V	egetation1 (F	Explain)			
11					—	¹ Indicators of hydric	soil and we	tland hydrolo	av must			
50% = <u>40</u> , 20% = <u>16</u>		<u>80</u>	= Total	Cover		be present, unless			9,			
Woody Vine Stratum (· · · · · · · · · · · · · · · · · · ·											4
1. Rubus armeniacus	<u>S</u>	<u>50</u>	<u>yes</u>		<u>FACU</u>	Hydrophytic						
2						Vegetation	Ye	s 🛛		No		
$50\% = \underline{25}, 20\% = \underline{10}$		<u>50</u>	= Total	Cover		Present?				-	_	
% Bare Ground in Her												_
	egetation has been altered as pa		nce and la	andsca	ping from re	sidence. The wetlan	d vegetation	criterion is sa	atisfied ba	sed on	the	
present	ce of wetland hyodrology and hyd	IL SUIIS.										

Project Site: <u>ELST - South Sammamish</u>

14-12	OIL							r or conf	firm the absence		tors.)						
		-	to the dep	th neede	d to d	ocument			iiiii tiic absciio	of indica	,						
14-19	Depth	Matrix								_							
1998 1998				Cold	or (mo	ist)	%	Type ¹	Loc²	Textur	<u> </u>			Remark	(S		
yper. C= Concentration, D=Depletion, RM-Reduced Matrix, CS=Covered or Coated Sand Grains. **Location: FL=Pore Lining, M=Matrix yold indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1)		<u> </u>	·		_	_	<u>-</u>										
Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils*:	<u>14-19</u>	<u>10YR 4/1</u>	<u>90</u>	<u>10</u>	YR 5/8	<u>8</u>	<u>10</u>	<u>C</u>	<u>M</u>	gr clay l	<u>oam</u>						
Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils*:				-													
Histos (A1)				-													
Histoc Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils*: Histoc Spiced (A1)				-		•											
Histos Goll Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils*: Histos (A1)				_													
Histoc Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils*: Histoc Spiced (A1)				_													
Histos Goll Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils*: Histos (A1)				_ - Daalusaa	-1.04-4-4	OO O-					_		Madel				
Histosol (A1) Sandy Redox (S5) 2 cm Muck (A10) Histoscil Epipedon (A2) Stripped Matrix (S6) Red Parent Material (TF2) Red Parent Material (TF2) Red Parent Material (TF2) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Other (Explain in Remarks) Depleted Below Dark Surface (A11) Depleted Matrix (F3) Thick Dark Surface (A12) Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Indicators of hydrophytic vegetation and welland hydrology must be present, unless disturbed or problematic. Sandy Gleyed Matrix (S4) Redox Depressions (F8) Redox Depth (Inches) (F7) Redox Depth (F8) Red								ated Sand	d GrainsL					Lludaia (Caila3		
Histic Epipedon (A2)			able to all	LKKS, un	_		-			_				Hyaric :	50llS:		
Black Histic (A3)						-								TEO)			
Hydrogen Sulfide (A4)					_			ol (E1) (o x	voont MLDA 1\	_				-	T(10)		
Depleted Below Dark Surface (A11)						-	-		kcept WLHA 1)		-				F12)		
Thick Dark Surface (A12)			200 (111)			-	-	(12)		Ц	Othe	i (Expiai	II III NEII	iaiks)			
Sandy Mucky Mineral (S1)			40 0 (A11)			-		(F6)									
Sandy Gleyed Matrix (S4)										³ Inc	licators o	of hydrop	hvtic ved	getation	and		
Syprology ### Hydric Solis Present? ### Hydric Solis Present? ### Hydric Solis Present? ### Hydric Solis Present? #### Hydric Solis Present? #### No #### Presence of Reduced Iron (C4) #### Algal Mat or Crust (B4) #### Algal Mat or Crust (B6) #### Algal Mat or Crust								. ,		,	wetland h	nydrolog	y must b	e prese			
PYPROLOGY **etland Hydrology Indicators:** **imary Indicators (minimum of one required; check all that apply) Surface Water (A1)						TICOOX E	ocpressions ((10)			uniess ai	sturbea (or proble	ematic.			
PYDROLOGY ettand Hydrology Indicators: imary Indicators (minimum of one required; check all that apply) Secondary Indicators (2 or more required) Secondary Indicators (2 or more required) Surface Water (A1) Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Saturation (A3) Salt Crust (B11) Water Marks (B1) Water Marks (B1) Aquatic Invertebrates (B13) Pry-Season Water Table (C2) Sediment Deposits (B2) Hydrogen Sulfide Odor (C1) Saturation Visible on Aerial Imagery (C9) Drift Deposits (B3) Oxidized Rhizospheres along Living Roots (C3) Geomorphic Position (D2) I lorn Deposits (B4) Presence of Reduced Iron (C4) Shallow Aquitard (D3) I lorn Deposits (B6) Surface Soil Cracks (B6) Stunted or Stresses Plants (D1) (LRR A) Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) Prost-Heave Hummocks (D7) Sparsely Vegetated Concave Surface (B8) etd Observations: urface Water Present? Yes No Depth (inches): 2 Surface No Retained Hydrology Present? Yes No Depth (inches): 3 Surface Wetland Hydrology Present? Yes No Depth (inches): Surface Wetland Hydrology Present? Yes No Depth (inches): Surface Wetland Hydrology Present? Yes No Depth (inches): Surface Wetland Hydrology Present?		ayer (ii present).															
PYDROLOGY ettand Hydrology Indicators: imary Indicators (minimum of one required; check all that apply) Secondary Indicators (2 or more required) Surface Water (A1)	-									Procent?			Vec	\square	No		_
Secondary Indicators (minimum of one required; check all that apply) Secondary Indicators (2 or more required) Surface Water (A1)		s):							Hydric Soils F	resent?							
Surface Water (A1)	emarks:	GY							Hydric Soils F	Tesent?							
High Water Table (A2)	emarks: IYDROLO Vetland Hyd	GY Irology Indicators:							Hydric Soils R								
Saturation (A3)	emarks: YDROLO /etland Hyd rimary Indic	GY Irology Indicators: ators (minimum of c		ed; check a					Hydric Soils F	Seco			(2 or mo		red)		
Water Marks (B1)	YDROLO etland Hyd rimary Indic Surfac	GY Irology Indicators: ators (minimum of de e Water (A1)		rd; check a		Water-S		. ,		Seco	Water-S	Stained L	(2 or mo eaves (E	39)	red)		
Sediment Deposits (B2)	YDROLOGE STATE OF THE PROPERTY	GY Irology Indicators: ators (minimum of o e Water (A1) /ater Table (A2)		d; check a		Water-S (except	MLRA 1, 2,	. ,		Seco	Water-S	Stained L 1, 2, 4A,	(2 or mo eaves (E , and 4B	39)	red)		
Drift Deposits (B3)	YDROLO Yetland Hyd rimary Indic Surfac High W Satura	GY Irology Indicators: ators (minimum of of e Water (A1) /ater Table (A2) tion (A3)		d; check a		Water-S (except Salt Crus	MLRA 1, 2, st (B11)	4A, and 4		Seco	Water-S (MLRA Drainag	Stained L 1, 2, 4A, e Patterr	(2 or mo .eaves (E , and 4B ns (B10)	39) •)	red)		
Algal Mat or Crust (B4)	YDROLOG (etland Hydrimary Indic] Surface] High W] Satura] Water	GY Irology Indicators: ators (minimum of de Water (A1) /ater Table (A2) tion (A3) Marks (B1)		rd; check a		Water-S (except Salt Crue Aquatic	MLRA 1, 2, st (B11) Invertebrates	4A, and 4		Seco	Water-S (MLRA Drainag Dry-Sea	Stained L 1, 2, 4A, e Patterr ason Wat	(2 or mo eaves (E , and 4B ns (B10) ter Table	39) ()	,		
Iron Deposits (B5)	YDROLO etland Hyd rimary Indic Surfac High W Satura Water Sedime	GY Irology Indicators: ators (minimum of of the Water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2)		rd; check a		Water-S (except Salt Crus Aquatic Hydroge	MLRA 1, 2, st (B11) Invertebrates en Sulfide Od	4A , and 4 s (B13) lor (C1)	4B)	Seco	Water-S (MLRA Drainag Dry-Sea Saturati	Stained L 1, 2, 4A, e Patterr ason Wat on Visibl	(2 or mo eaves (E , and 4B ns (B10) ter Table le on Aer	39) (C2) (C3)	,	9)	
Surface Soil Cracks (B6) Stunted or Stresses Plants (D1) (LRR A) Raised Ant Mounds (D6) (LRR A) Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) Frost-Heave Hummocks (D7) Sparsely Vegetated Concave Surface (B8) eld Observations: urface Water Present? Yes No Depth (inches): fater Table Present? Yes No Depth (inches): atturation Present? Yes No Depth (inches): Depth (inches): Surface Wetland Hydrology Present? Yes No No Depth (inches):	YDROLO Tetland Hyd Timary Indic Surfac High W Satura Water Sedime	GY Irology Indicators: ators (minimum of de Water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3)		rd; check a		Water-S (except Salt Crus Aquatic Hydroge Oxidized	MLRA 1, 2, st (B11) Invertebrates en Sulfide Odd Rhizospher	4A, and 4 s (B13) lor (C1) es along	4B) Living Roots (C3	Seco	Water-S (MLRA Drainag Dry-Sea Saturati Geomor	Stained L 1, 2, 4A, e Patterr ason Wat on Visibl rphic Pos	(2 or mo .eaves (E , and 4B ns (B10) ter Table le on Aer sition (D2	39) (C2) (C3)	,	9)	
Inundation Visible on Aerial Imagery (B7)	YDROLO Vetland Hyd rimary Indic Surfac High W Satura Water Sedime Drift De	GY Irology Indicators: ators (minimum of of the Water (A1) Jater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) July Actor Crust (B4)		d; check a		Water-S (except Salt Crus Aquatic Hydroge Oxidized Presence	MLRA 1, 2, st (B11) Invertebrates en Sulfide Odd Rhizospher er of Reducer	4A, and 4 s (B13) for (C1) es along d Iron (C4	4B) Living Roots (C3	Seco	Water-S (MLRA Drainag Dry-Sea Saturati Geomor Shallow	Stained L 1, 2, 4A, e Patterrason Wat on Visible rphic Pose Aquitaro	(2 or mo .eaves (E , and 4B ns (B10) ter Table le on Ael sition (D2 d (D3)	39) (C2) (C3)	,	9)	
Sparsely Vegetated Concave Surface (B8) ield Observations: urface Water Present? Yes No Depth (inches): //ater Table Present? Yes No Depth (inches): 3 aturation Present? Yes No Depth (inches): surface Wetland Hydrology Present? Yes No	YDROLOG Yetland Hydrimary Indic Surface High W Satura Water Sedime Drift De	GY Irology Indicators: ators (minimum of of the Water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5)		d; check a		Water-S (except Salt Cru: Aquatic Hydroge Oxidized Presenc Recent I	MLRA 1, 2, st (B11) Invertebrates en Sulfide Od d Rhizospher e of Reduced Iron Reduction	4A, and 4 s (B13) lor (C1) es along d Iron (C4	4B) Living Roots (C3 4) d Soils (C6)	Seco	Water-S (MLRA Drainag Dry-Sea Saturati Geomor Shallow FAC-Ne	Stained L 1, 2, 4A, e Patterr ason Wat on Visibl rphic Pose Aquitarc eutral Tes	(2 or mo eaves (E , and 4B ns (B10) ter Table le on Aer sition (D2 d (D3) st (D5)		gery (C	9)	
eld Observations: urface Water Present? Yes No Depth (inches): /ater Table Present? Yes No Depth (inches): 3 aturation Present? Yes No Depth (inches): surface Wetland Hydrology Present? Yes No	YDROLOGI Yetland Hydrimary Indic Surfaci High W Satura Water Sedimi Drift Do Algal M Iron Do	GY Irology Indicators: ators (minimum of de Water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Vat or Crust (B4) eposits (B5) e Soil Cracks (B6)	one require			Water-S (except Salt Crue Aquatic Hydroge Oxidized Presenc Recent I Stunted	MLRA 1, 2, st (B11) Invertebrates en Sulfide Od d Rhizospher e of Reduced Iron Reduction or Stresses	4A, and 4 s (B13) for (C1) es along d Iron (C4 on in Tilled Plants (D	4B) Living Roots (C3 4) d Soils (C6)	Seco	Water-S (MLRA Drainag Dry-Sea Saturati Geomon Shallow FAC-Nea Raised	Stained L 1, 2, 4A, e Patterr ason Wat on Visibl rphic Pos Aquitaro eutral Tes Ant Moun	(2 or mo eaves (E , and 4B ns (B10) ter Table le on Aei sition (D2 d (D3) st (D5) nds (D6)	(C2) rial Imag	gery (C	9)	
urface Water Present? Yes No Depth (inches): Vater Table Present? Yes No Depth (inches): 3 aturation Present? Yes No Depth (inches): surface Wetland Hydrology Present? Yes No	YDROLO Tetland Hydrimary Indic Surfac High W Satura Water Sedime Drift De Algal N Iron De Surface Inunda	GY Irology Indicators: ators (minimum of of the Water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Aeric	one require	(B7)		Water-S (except Salt Crue Aquatic Hydroge Oxidized Presenc Recent I Stunted	MLRA 1, 2, st (B11) Invertebrates en Sulfide Od d Rhizospher e of Reduced Iron Reduction or Stresses	4A, and 4 s (B13) for (C1) es along d Iron (C4 on in Tilled Plants (D	4B) Living Roots (C3 4) d Soils (C6)	Seco	Water-S (MLRA Drainag Dry-Sea Saturati Geomon Shallow FAC-Nea Raised	Stained L 1, 2, 4A, e Patterr ason Wat on Visibl rphic Pos Aquitaro eutral Tes Ant Moun	(2 or mo eaves (E , and 4B ns (B10) ter Table le on Aei sition (D2 d (D3) st (D5) nds (D6)	(C2) rial Imag	gery (C	9)	
/ater Table Present? Yes ⊠ No ☐ Depth (inches): 3 aturation Present? Yes ⊠ No ☐ Depth (inches): surface Wetland Hydrology Present? Yes ⊠ No	YDROLO Vetland Hyd rimary Indic Surfac High W Satura Water Drift De Algal N Iron De Surfac Inunda Sparse	GY Irology Indicators: ators (minimum of de Water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Aerially	one require	(B7)		Water-S (except Salt Crue Aquatic Hydroge Oxidized Presenc Recent I Stunted	MLRA 1, 2, st (B11) Invertebrates en Sulfide Od d Rhizospher e of Reduced Iron Reduction or Stresses	4A, and 4 s (B13) for (C1) es along d Iron (C4 on in Tilled Plants (D	4B) Living Roots (C3 4) d Soils (C6)	Seco	Water-S (MLRA Drainag Dry-Sea Saturati Geomon Shallow FAC-Nea Raised	Stained L 1, 2, 4A, e Patterr ason Wat on Visibl rphic Pos Aquitaro eutral Tes Ant Moun	(2 or mo eaves (E , and 4B ns (B10) ter Table le on Aei sition (D2 d (D3) st (D5) nds (D6)	(C2) rial Imag	gery (C	9)	
aturation Present? Ves M No D Depth (inches): surface Wetland Hydrology Present? Yes M No	YDROLO Vetland Hyd rimary Indic Surfac High W Satura Water Sedime Signal N Iron De Surfac Inunda Sparse	GY Irology Indicators: ators (minimum of of ew Water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Vat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Aerically Vegetated Concrations:	one require al Imagery ave Surfac	(B7) e (B8)		Water-S (except Salt Cru Aquatic Hydroge Oxidizec Presenc Recent I Stunted Other (E	MLRA 1, 2, st (B11) Invertebrates en Sulfide Od d Rhizospher e of Reduced fron Reduction or Stresses in explain in Rer	4A, and 4 s (B13) for (C1) es along d Iron (C4 on in Tilled Plants (D	4B) Living Roots (C3 4) d Soils (C6)	Seco	Water-S (MLRA Drainag Dry-Sea Saturati Geomon Shallow FAC-Nea Raised	Stained L 1, 2, 4A, e Patterr ason Wat on Visibl rphic Pos Aquitaro eutral Tes Ant Moun	(2 or mo eaves (E , and 4B ns (B10) ter Table le on Aei sition (D2 d (D3) st (D5) nds (D6)	(C2) rial Imag	gery (C	9)	
	YDROLOGICE INTERPOLOGICE INTER	GY Irology Indicators: ators (minimum of of the Water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Aerically Vegetated Concertations: enter Present?	al Imagery ave Surfac	(B7) e (B8) No		Water-S (except Salt Cru Aquatic Hydroge Oxidized Presenc Recent I Stunted Other (E	MLRA 1, 2, st (B11) Invertebrates en Sulfide Od d Rhizospher e of Reduced fron Reduction or Stresses in explain in Ren	4A, and 4 s (B13) lor (C1) es along d Iron (C4 on in Tiller Plants (D marks)	4B) Living Roots (C3 4) d Soils (C6)	Seco	Water-S (MLRA Drainag Dry-Sea Saturati Geomon Shallow FAC-Nea Raised	Stained L 1, 2, 4A, e Patterr ason Wat on Visibl rphic Pos Aquitaro eutral Tes Ant Moun	(2 or mo eaves (E , and 4B ns (B10) ter Table le on Aei sition (D2 d (D3) st (D5) nds (D6)	(C2) rial Imag	gery (C	9)	
	HYDROLOGIVETIAND HIGH WATER Sedimum Prift Do Gurface Surface Inunda Sparse Water Table I saturation Princludes cap	GY Irology Indicators: ators (minimum of of the Water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Aericely Vegetated Concretions: er Present? Present? Yesent? esent? Villary fringe)	al Imagery ave Surface 'es 🏻 'es 🔀	(B7) e (B8) No No		Water-S (except Salt Cru Aquatic Hydroge Oxidized Presenc Recent I Stunted Other (E	MLRA 1, 2, st (B11) Invertebrates en Sulfide Odd Rhizospher e of Reduced Iron Reduction or Stresses explain in Research (inches): oth (inches): oth (inches):	4A, and 4 s (B13) lor (C1) es along d Iron (C4 on in Tiller Plants (D marks) 3 surface	Living Roots (C3 4) d Soils (C6) 1) (LRR A)	Seco	Water-S (MLRA Drainag Dry-Sea Saturati Geomon Shallow FAC-Ne Raised Frost-Ho	Stained L 1, 2, 4A, e Pattern ason Wat on Visibl rphic Pos Aquitaro eutral Tes Ant Moul eave Hui	(2 or mo .eaves (E , and 4B ns (B10) ter Table le on Aer sition (D2 d (D3) st (D5) nds (D6) mmocks	(D7)	COMPANY		
escribe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	IYDROLOGIVETION OF THE PROPERTY OF THE PROPERT	GY Irology Indicators: ators (minimum of of the Water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Aericely Vegetated Concretions: er Present? Present? Yesent? esent? Villary fringe)	al Imagery ave Surface 'es 🏻 'es 🔀	(B7) e (B8) No No		Water-S (except Salt Cru Aquatic Hydroge Oxidized Presenc Recent I Stunted Other (E	MLRA 1, 2, st (B11) Invertebrates en Sulfide Odd Rhizospher e of Reduced Iron Reduction or Stresses explain in Research (inches): oth (inches): oth (inches):	4A, and 4 s (B13) lor (C1) es along d Iron (C4 on in Tiller Plants (D marks) 3 surface	Living Roots (C3 4) d Soils (C6) 1) (LRR A)	Seco	Water-S (MLRA Drainag Dry-Sea Saturati Geomon Shallow FAC-Ne Raised Frost-Ho	Stained L 1, 2, 4A, e Pattern ason Wat on Visibl rphic Pos Aquitaro eutral Tes Ant Moul eave Hui	(2 or mo .eaves (E , and 4B ns (B10) ter Table le on Aer sition (D2 d (D3) st (D5) nds (D6) mmocks	(D7)	COMPANY		

Data Plot #: 19B-SP2
Wetland: Upland near 19B

WETLAND DETERMINATION

(Modified from: 1987 ACOE Wetlands Delineation Manual)

Project/Site: ELST Re-delineation Applicant/Owner: King County Investigator: Michael Muscari/Laura Brock ☐ 1987 Method	thod X	Date: 10/31, County: Kin State: WA No X No X	g County Commu	Revisited 03-11-14 unity ID: Upland Shrub ot ID: 19B-SP2
1. Equisetum telmateia 2. Hedera helix 3. Polystichum munitum 4. Rubus armeniacus 5. Symphoricarpos albus Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, sea Rubus armeniacus and English Ivy are dominant. The percent of			Indicator FACW NL FACU FACU FACU FACU FACU	03-11-14 Observations Calystegia sepium 50% Corylus cornuta 20% Gaultheria shallon 35% Oemleria cerasiformis 5% Rubus armeniacus 80% Sambucus racemosa 2%
HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.) Depth to Free Water in Pit: none (in.) Depth to Saturated Soil: none (in.) Remarks (As relevant, describe recent precipitation, hydrolog Soils dry to 14". No primary or secondary indicators of hydrolog	jic modific	Secondary Indic	ators: Inundated Saturated in Water Marks Drift Lines Sediment De Drainage Pa Indicators (2 of Oxidized Rh Water-Staine Local Soil Si Other (Explain Variations, e	eposits Interns in Wetlands or more required): Izospheres in Upper 12 inches Idea Leaves Interns in Remarks) Interns in Remarks) Interns in Remarks

roject/Site: ELST Re-delineation				Date:	10/31/2007	F	Revisited 03-11-14		
SOIL Soil Surv	ey Data:								
Map Unit	Name: Alderv	wood gravelly sandy lo	oam, 15 to 30 % slop	pes	Drainage Class: Mo	oderate	ely well drained		
					Field Observations	n Mapped Type?			
Taxonom	y (Subgroup):	Dystic Durochrepts			Yes No	Х	NA		
Profile De	escription:								
Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist))	Mottle Abundance/Contras	st	Texture, Concretions, Rhizospheres, etc.		
0-14+	A	10YR 2/2	none		none		loam		
•	oil Indicators:			Listed	d on Hydric Soils List				
H S A R G H	listosol listic Epipedon ulfidic Odor quic or Peragui leducing Condit leyed or Low-C ligh Organic Co			Fe/M Orga Mottle	d on Hydric Soils List In Concretions nic Streaking in Sand es (Redoximorphic Fe r (Explain in Remarks	eatures			
H H S S A A B G H H Remarks	listosol listic Epipedon ulfidic Odor quic or Peragui leducing Condit aleyed or Low-Cligh Organic Co (Describe soil le soil indicators	chroma Colors Chroma Colors Intent in Surface Laye disturbances, local value present. Hydric sc	riations, etc.):	Fe/M Orga Mottli Other	In Concretions nic Streaking in Sand es (Redoximorphic Fe	eatures			
H H S S A A R G H Remarks No hydric	listosol listic Epipedon ulfidic Odor quic or Peragui deducing Condit aleyed or Low-Cligh Organic Co (Describe soil a soil indicators	chroma Colors Chroma Colors Intent in Surface Laye disturbances, local va are present. Hydric so	uriations, etc.): nil criterion is not sa	Fe/M Orga Mottl Other	In Concretions inic Streaking in Sand es (Redoximorphic Fe r (Explain in Remarks	eatures	5)		
H S S A R R G H Remarks No hydric	listosol listic Epipedon ulfidic Odor quic or Peragui leducing Condit aleyed or Low-Cligh Organic Co (Describe soil le soil indicators	chroma Colors Ch	riations, etc.):	Fe/M Orga Mottli Other	In Concretions inic Streaking in Sand es (Redoximorphic Fe r (Explain in Remarks	mpling			

Data Plot #:

Wetland:

19B-SP2

Upland near 19B

Hydrophytic vegetation, hydric soil, and wetland hydrology criteria are not satisfied. Therefore, the sample plot is not located in a wetland.

Data Plot #:	20A-SP1
Wetland:	20A

WETLAND DETERMINATION (Modified from: 1987 ACOF Wetlands Delineation Manual)

(Modified Hoffi. 1967	ACO	E WEL	iaiius	Delilii	eation manua	11)
Project/Site: ELST Re-delineation			Date:	11/1/20	07	Revisited 09-12-13
Applicant/Owner: King County			County:	King		
Investigator: Chrissy Bailey		;	State:	WA		
☐ 1987 Method ☑ 1997 WA	St. Met	thod			Community II	D: PEM
Do Normal Circumstances exist on the site?	Yes	X	No		Field Plot ID:	20A-SP1
Is the site significantly disturbed (Atypical Situation)?	Yes		No	Χ	_	
Is the area a potential Problem Area?	Yes		No	Χ		
Remarks (Explain sample location, disturbances, proble This sample plot is located approximately 2 feet east of to south of the driveway crossing, across from the 3rd garage	he edge	of the t				itch, approximately 150 feet
VEGETATION (✔Dominant species are checked)						
Plant Species	,	% Cover	Stratu	ım İr	ndicator	
1 . Epilobium ciliatum		trace	<u>H</u>		ACW-	
2 Equisetum arvense		10	- II		AC	
 3. Phalaris arundinacea 4. Rubus armeniacus 		90 5	_ <u>H</u>		ACU	
morphological adaptations to wetlands. "T" indicates trac Remarks (Describe disturbances, relevant local variation The percent of dominant species that are hydrophytic is	ons, sea			,	phytic vegetation	criterion is satisfied.
HYDROLOGY						
Recorded Data (Describe in Remarks):		We	tland H	ydrolog	gy Indicators ([Describe in Remarks):
Stream, Lake, or Tide Gage			Primary	/ Indicat	tors:	
Aerial Photograph				Ir	nundated	
Other			>		Saturated in Uppe	r 12 inches
X No Recorded Data Available					Vater Marks	
Field Observations:					Orift Lines Sediment Deposits	•
					Prainage Patterns	
Depth of Surface Water: none (in.)			Second	dary Inc	dicators (2 or mor	e required):
Depth to Free Water in Pit: none (in.) Depth to Saturated Soil: 5 (in.)					·	neres in Upper 12 inches
Depth to Saturated Soil: 5 (in.)					Vater-Stained Lea	
					ocal Soil Survey	
					Other (Explain in F	Remarks)
Remarks (As relevant, describe recent precipitation, h Saturation in the upper 12 inches satisfies wetland hydro	-		ications	, local v	rariations, etc.):	
09-12-13 Observations - Saturated at 3 inches below s	urrace.					

					Wetlan	d: <u>20A</u>
Project/Site	: ELST Re-de	elineation		Date:	11/1/2007	Revisited 09-12-13
SOIL Soil Surve	ey Data:					
Map Unit N	Name: Alderv	vood gravelly sandy lo	am 6 to 15% slopes		Drainage Class: Modera	ately well drained
					Field Observations Conf	firm Mapped Type?
Taxonomy	(Subgroup):	Entic Durochrepts			Yes NoX	NA
Profile De	scription:					
Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)		Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-6	А	10YR 3/1	none		none	silt loam
6-18	A2	10YR 3/1	none		none	gravelly sandy loam
Hi	il Indicators:				d on Hydric Soils List	
	stic Epipedon			_	n Concretions nic Streaking in Sandy So	silo
		c Moisture Regime		_	es (Redoximorphic Featur	
	educing Condit	ŭ			r (Explain in Remarks)	/
X GI	eyed or Low-C	hroma Colors				
Hi	gh Organic Co	ntent in Surface Laye	r			
	(Describe soil soil indicate hy	disturbances, local va vdric soils.	riations, etc.):			
WETLA	ND DETERI	MINATION				
Hydrophy	tic Vegetation	Present?	Yes X No		Is this Sampli	ng Point Within a Wetland?
Hydric So	ils Present?	,	Yes X No		Yes	X No
Wetland H	lydrology Pres	sent?	Yes X No	_		

Data Plot #:

20A-SP1

Remarks

Wetland vegetation, hydrology, and soil criteria are met. Therefore, the sample plot is located in a wetland.

Data Plot #: 20A-SP2

Wetland: Upland near 20A

WETLAND DETERMINATION (Modified from: 1987 ACOE Wetlands Delineation Manual)

Project/Site: ELST Re-delineation			Date: 11/	1/2007	Revisited 09-12-13
Applicant/Owner: King County			County: K	ing	
Investigator: Matt Maynard, Chrissy Bailey			State: <u>W</u>	/A	
☐ 1987 Method ☑ 1997 WA	St. Me	thod		Comm	nunity ID: Upland Shrub
Do Normal Circumstances exist on the site?	Yes	Χ	No	Plot ID: 20A-SP2	
Is the site significantly disturbed (Atypical Situation)?	Yes		No X		
Is the area a potential Problem Area?	Yes		No X	_	
Remarks (Explain sample location, disturbances, proble This sample plot is located approximately 20 feet northea		,	13.		
VEGETATION (✓Dominant species are checked) Plant Species 1. Phalaris arundinacea		% Cover	Stratum	Indicator FACW	09-11-13 Observations Phalaris arundinacea 10% Rubus armeniacus 70% Robinia pseudoacacia 90%
✓ 2 Rubus armeniacus		70	S	FACU	Rubus ursinus 15%
✓ 3. Gleditsia triacanthos		45	Т	NO	
Remarks (Describe disturbances, relevant local variation. The percent of dominant species that are hydrophytic is HYDROLOGY			. ,		vegetation criterion is not satisfied.
Recorded Data (Describe in Remarks):		We	etland Hydro	ology Indicat	ors (Describe in Remarks):
Stream, Lake, or Tide Gage			Primary Inc	licators:	
Aerial Photograph				Inundated	
Other				0 - 1 1 !	
		-	_	n Upper 12 inches	
X No Recorded Data Available				Water Marl	• •
X No Recorded Data Available Field Observations:				Water Marl Drift Lines	ks
				Water Marl Drift Lines Sediment [ks
Field Observations: Depth of Surface Water: none (in.)			Secondary	Water Marl Drift Lines Sediment I Drainage F	Rs Deposits
Depth of Surface Water: none (in.) Depth to Free Water in Pit: none (in.)			Secondary	Water Mark Drift Lines Sediment I Drainage P	Deposits Patterns in Wetlands
Field Observations: Depth of Surface Water: none (in.)			Secondary	Water Marl Drift Lines Sediment I Drainage F Indicators (2 Oxidized R Water-Stai	Deposits Patterns in Wetlands or more required): hizospheres in Upper 12 inches ned Leaves
Depth of Surface Water: none (in.) Depth to Free Water in Pit: none (in.)			Secondary	Water Marl Drift Lines Sediment I Drainage F Indicators (2 Oxidized R Water-Stai	Deposits Patterns in Wetlands or more required): hizospheres in Upper 12 inches ned Leaves Survey Data
Depth of Surface Water: none (in.) Depth to Free Water in Pit: none (in.)			Secondary	Water Marl Drift Lines Sediment I Drainage F Indicators (2 Oxidized R Water-Stai	Deposits Patterns in Wetlands or more required): hizospheres in Upper 12 inches ned Leaves
Depth of Surface Water: none (in.) Depth to Free Water in Pit: none (in.)		-	fications, loo	Water Marl Drift Lines Sediment I Drainage F Indicators (2 Oxidized R Water-Stai Local Soil S Other (Exp	Deposits Patterns in Wetlands or more required): hizospheres in Upper 12 inches ned Leaves Survey Data lain in Remarks) etc.):

Project/Site	e: ELST Re-de	elineation			Date:	11/1/2007	F	Revisited 09-12-13
SOIL Soil Surve	ey Data:							
Map Unit I	Name: Alderv	vood gravelly sandy	loam 6 to	15% slopes		Drainage Cla	ss: Moderate	ely well drained
						Field Observa	ations Confirm	n Mapped Type?
Taxonomy	(Subgroup):	Entic Durochrepts				Yes	No X	NA
Profile De	scription:							
Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)		tle Color insell Moist)		Mottle Abundance/C	Contrast	Texture, Concretions, Rhizospheres, etc.
0-7	А	10YR 3/3	none	Э		none		sandy loam
7-18	В	10YR 4/2	none	Э		none		sandy loam
Hi Hi Si Ai Ai Ri Remarks	educing Condit leyed or Low-C igh Organic Co (Describe soil		ariations,	,	Fe/M Orga Mottle	d on Hydric Soi n Concretions nic Streaking ir es (Redoximor r (Explain in Re	n Sandy Soils ohic Features	
WETLA	ND DETER	MINATION						
Hydrophy	tic Vegetation	Present?	Yes	No	Χ	Is th	nis Sampling	Point Within a Wetland?
Hydric So	ils Present?		Yes _	No	Χ		Yes	No X
Wetland H	Hydrology Pres	sent?	Yes _	No	Χ			

Data Plot #:

Wetland:

20A-SP2

Upland near 20A

Remarks

Hydrophytic vegetation, hydric soil, and wetland hydrology criteria are not satisfied. Therefore, the sample plot is not located in a wetland.

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

Project Site:	ELST - South S	Sammamish Segn	<u>ient</u>				City/Co	unty	y: <u>Sammamish/Ki</u>	ng	Sampling	Date:	03-1		
Applicant/Owner:	King County								Stat	e: <u>WA</u>	Sampling	Point:	W20 (rev)	B-SP	<u>'1</u>
Investigator(s):	C. Worsley; K.	Seckel							Section, Tow	nship, Rang	je: <u>S06, T</u>	24N, R06E		•	
Landform (hillslope, te	rrace, etc.):	<u>flat</u>				Loca	al relief (co	nca	ve, convex, none):	none		Slope	(%):	<u>0%</u>	
Subregion (LRR):	<u>A</u>		Lat:		_				Long:			Datum: _			
Soil Map Unit Name:	Alderwood gr	avelly sandy loam								NWI class	sification:	Upland			
Are climatic / hydrolog	ic conditions on	the site typical for	this time	e of ye	ear?	Υ	es	\boxtimes	No ☐ (If n	o, explain ir	n Remarks.)			
Are Vegetation	Soil □,	or Hydrology	□, sig	nifica	intly dis	sturbec	l? Ar	e "N	Iormal Circumstance	es" present?		Yes	\boxtimes	No	
Are Vegetation	, Soil □,	or Hydrology	□, na	turally	y proble	ematic ^e	? (If	nee	eded, explain any an	swers in Re	marks.)				
SUMMARY OF FIN	IDINGS – Atta	ach site man sh	owing	sam	nlina	noint	location	ie f	transacts import	tant featur	ras atc				
Hydrophytic Vegetation		ion site map si	Yes		No		location	13, 1	iransects, import	tant reatur	03, 010.				
Hydric Soil Present?			Yes		No		Is the Sa					Yes		No	\boxtimes
Wetland Hydrology Pr	esent?		Yes		No		within a \	Vet	land?						
		lified and decrees					no longor		agent with area reare	ded leades	anad and	hudrologio a		/nin n	from
under trai upgradier	I that conveys w at side of the pipe	ater from Wetland e (inlet on east sid	20A and e of trail	d ditcl) has	hes on a small	east si ler 4-ir	ide of trail) nch white F	alte VC	esent with area regra ered. The outlet to the pipe slipped inside. deg) of large Doug	is pipe is no It appears t	longer visi his water is	ible or appa s now piped	arent. T I to the	Γhe : lake.	
VEGETATION – U	se scientific n	names of plants	;												
Tree Stratum (Plot siz		•	Absolut % Cove		Domina Specie		Indicator Status		Dominance Test V	orksheet:					
1									Number of Dominar						(A)
2									That Are OBL, FAC	W, or FAC:					(,,)
3							—		Total Number of Do						(B)
4									Species Across All	Strata:					,
50% =, 20% =					= Total	I Cove	r		Percent of Dominar That Are OBL, FAC						(A/B)
Sapling/Shrub Stratur	<u>n</u> (Plot size: <u>15 f</u>	<u>eet</u>)						L	•	-					
1. <u>arbor vitae</u>			<u>15</u>						Prevalence Index						
2. <u>boxwood</u>			<u>10</u>							6 Cover of:		Multiply	y by:		
3									OBL species			x1 =		_	
4									FACW species			x2 =	[TEVT
5			05						FAC species			x3 =	<u> </u>	JKIVI	TEXT
50% =, 20% =			<u>25</u>		= Total	Cove	r		FACU species			x4 =		_	
Herb Stratum (Plot siz	te: <u>3 feet</u>)								UPL species			x5 =		_	
1. <u>maintained lawn</u>			<u>60</u>						Column Totals:		(A)	_		(E	
2								_		Prevalence		 			
3									Hydrophytic Vege						
4									☐ 1 – Rapid Tes			etation			
5									2 - Dominano						
6									☐ 3 - Prevalence	e Index is <	3.0 ¹				
7									4 - Morpholog	jical Adaptat marks or on			ting		
8									_		·	311001)			
9									5 - Wetland N						
10										lydrophytic '	Vegetation	¹ (Explain)			
11						l Cava			¹ Indicators of hydric	soil and we	etland hydro	ology must			
50% =, 20% =			<u>60</u>		= Total	Cove	ſ		be present, unless	disturbed or	problemati	ic.			
Woody Vine Stratum	(FIOL SIZE. <u>INA</u>)							-							
1									Hydrophytic						
2 50% =, 20% =					= Total	l Covo			Vegetation	Υe	es		No		\boxtimes
· · · · · · · · · · · · · · · · · · ·		1-)			- i Uldi	Cove	Į.		Present?						
% Bare Ground in He						-4!-									
Remarks:	area is a landsca	aped yard, not nati	ıralıy oco	uring	y vegeta	ation.									

Project Site: <u>ELST - South Sammamish</u>

nches)	Color (moist)		%	Color	(moist) %	Type ¹	Loc ²	Texture		Re	emarks		
0-10	10YR 3/2	1	100						gr. sa. loam					
<u>10-18</u>	10G 6/1	9	99	<u>10YF</u>	₹ 4/4	<u>1</u>	<u>C</u>	<u>M</u>	lo. sand	some grave	<u>el</u>			
		_		_	—									
		_	—											
				-	—									
		_			—									
		_		-	_									
ne: C= C	oncentration D=D	epletion	—— ì RM=F	Reduced N	— Matrix	CS=Covered or Coa	ated Sand	Grains ² I o	ocation: PL=Po	re Lining M=M	latrix			
•	Indicators: (Appl									ors for Probler		dric S	oils³:	
	ol (A1)			, _		Sandy Redox (S5)			_	cm Muck (A10	•			
Histic	Epipedon (A2)] 8	Stripped Matrix (S6)			□ F	Red Parent Mat	terial (TF	2)		
Black	Histic (A3)] L	oamy Mucky Minera	al (F1) (ex	cept MLRA 1)		ery Shallow D	ark Surfa	ace (TF	12)	
Hydro	gen Sulfide (A4)] L	oamy Gleyed Matrix	x (F2)			Other (Explain i	in Remar	rks)		
Deplet	ted Below Dark Su	ırface (A	111)] [Depleted Matrix (F3)								
Thick I	Dark Surface (A12	<u>'</u>)] F	Redox Dark Surface	(F6)							
Sandy	Mucky Mineral (S	1)				Depleted Dark Surface	ce (F7)			ors of hydrophy and hydrology n				
	Gleyed Matrix (S4] F	Redox Depressions ((F8)			ss disturbed or			,	
	Layer (if present)	:												
e:												_		_
oth (inche	:5).							Hydric Soils P	resentr		Yes	\boxtimes	No	
emarks:														
YDROLO	OGY													
/DROLO	DGY drology Indicator	s:												
DROLO			quired;	check all	that ap	pply)			Secondar	y Indicators (2	or more	require	ed)	
DROLO otland Hymary India	drology Indicator		quired;	check all		pply) Water-Stained Leave	es (B9)			y Indicators (2 er-Stained Lea			rd)	
'DROLO etland Hy mary India	drology Indicator cators (minimum o		·quired;				, ,	В)	☐ Wat	-	aves (B9)		d)	
ZDROLO etland Hy mary India Surfac High N	drology Indicator cators (minimum o ce Water (A1)		:quired;		V	Vater-Stained Leave	, ,	В)	☐ Wat	er-Stained Lea	aves (B9) nd 4B)		d)	
DROLO tland Hy mary India Surfac High V Satura	drology Indicator cators (minimum o ce Water (A1) Water Table (A2) ation (A3) r Marks (B1)	of one re	:quired;		V (0	Water-Stained Leave except MLRA 1, 2, Salt Crust (B11) Aquatic Invertebrates	4A , and 4	 B)	☐ Wate (ML☐ Drain ☐ Dry-	er-Stained Lea RA 1, 2, 4A, and inage Patterns Season Water	aves (B9) nd 4B) (B10) Table (0	02)		
TDROLO tland Hy mary India Surfac High V Satura Water Sedim	drology Indicator cators (minimum o ce Water (A1) Water Table (A2) ation (A3) r Marks (B1) ment Deposits (B2)	of one re	:quired;		V (e	Water-Stained Leave except MLRA 1, 2, Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Od	4A , and 4 s (B13) dor (C1)		☐ Wat (ML ☐ Drai ☐ Dry- ☐ Satu	er-Stained Lea RA 1, 2, 4A, and inage Patterns Season Water uration Visible of	nd 4B) (B10) Table (Con Aerial	02)		
Mary India Surfar High V Satura Water Sedim Drift E	drology Indicator cators (minimum of ce Water (A1) Water Table (A2) ation (A3) of Marks (B1) ment Deposits (B2) Deposits (B3)	of one re	·quired;	C C	V	Water-Stained Leave except MLRA 1, 2, Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Od Oxidized Rhizospher	4A , and 4 s (B13) dor (C1) res along I	Living Roots (C3	Wat (ML Drai Dry- Satu Geo	rer-Stained Lea RA 1, 2, 4A, and inage Patterns -Season Water uration Visible of proorphic Positi	nd 4B) (B10) Table (Con Aerial on (D2)	02)		
rDROLO etland Hymary India Surfac High \ Satura Water Sedim Drift E	drology Indicator cators (minimum of ce Water (A1) Water Table (A2) ation (A3) or Marks (B1) ment Deposits (B2) Deposits (B3) Mat or Crust (B4)	of one re	equired;		(i) S A H	Water-Stained Leave except MLRA 1, 2, Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Od Oxidized Rhizospher Presence of Reduced	4A, and 4 s (B13) dor (C1) res along I d Iron (C4	Living Roots (C3	Wate (ML) Drai Dry- Satu Geo	er-Stained Lea RA 1, 2, 4A, an inage Patterns Season Water uration Visible of pmorphic Positi Illow Aquitard (I	nd 4B) (B10) Table (Con Aerial on (D2) D3)	02)		
Mary India Surface High V Satura Water Sedim Drift D Algal Iron D	drology Indicator cators (minimum of ce Water (A1) Water Table (A2) ation (A3) r Marks (B1) ment Deposits (B2) Deposits (B3) Mat or Crust (B4)	of one re	equired;		(i) V (ii) S S S S S S S S S S S S S S S S S S	Water-Stained Leave except MLRA 1, 2, Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Od Dxidized Rhizospher Presence of Reduced Recent Iron Reduction	4A, and 4 s (B13) dor (C1) res along I d Iron (C4 on in Tilled	Living Roots (C3) I Soils (C6)	Wat (ML Drai Dry- Satu Satu Sha FAC	er-Stained Lea RA 1, 2, 4A, and inage Patterns Season Water uration Visible of comorphic Positi Illow Aquitard (II)	nd 4B) (B10) Table (Con Aerial on (D2) D3) (D5)	C2)	ry (C9)	
Mary India Surface High V Satura Water Sedim Drift E Algal Iron E Surface	drology Indicator cators (minimum of ce Water (A1) Water Table (A2) ation (A3) r Marks (B1) nent Deposits (B2) Deposits (B3) Mat or Crust (B4) Deposits (B5) ce Soil Cracks (B6	of one re			(((((((((((((((((((Water-Stained Leave except MLRA 1, 2, Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Od Oxidized Rhizospher Presence of Reduced Recent Iron Reduction	4A, and 4 s (B13) dor (C1) res along I d Iron (C4 on in Tillec Plants (D1	Living Roots (C3) I Soils (C6)	Wat (ML Drai Dry- Satu Sha FAC	rer-Stained Lea RA 1, 2, 4A, and inage Patterns Season Water uration Visible of promorphic Positi Illow Aquitard (I C-Neutral Test (I sed Ant Mound	nd 4B) (B10) Table (Con Aerial on (D2) D3) (D5)	C2) I Image	ry (C9)	
Mary India Surface High V Satura Water Sedir Drift D Algal Iron D Surface Inund	drology Indicator cators (minimum of ce Water (A1) Water Table (A2) ation (A3) or Marks (B1) ment Deposits (B2) Deposits (B3) Mat or Crust (B4) Deposits (B5) ce Soil Cracks (B6) ation Visible on A6	of one re	agery (B		(((((((((((((((((((Water-Stained Leave except MLRA 1, 2, Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Od Dxidized Rhizospher Presence of Reduced Recent Iron Reduction	4A, and 4 s (B13) dor (C1) res along I d Iron (C4 on in Tillec Plants (D1	Living Roots (C3) I Soils (C6)	Wat (ML Drai Dry- Satu Sha FAC	er-Stained Lea RA 1, 2, 4A, and inage Patterns Season Water uration Visible of comorphic Positi Illow Aquitard (II)	nd 4B) (B10) Table (Con Aerial on (D2) D3) (D5)	C2) I Image	ry (C9)	
Mary India Surfar High N Satura Water Sedim Drift D Algal Iron D Surfar Inund Spars	drology Indicator cators (minimum o ce Water (A1) Water Table (A2) ation (A3) r Marks (B1) nent Deposits (B2) Deposits (B3) Mat or Crust (B4) Deposits (B5) ce Soil Cracks (B6 ation Visible on Ae sely Vegetated Cor	of one re	agery (B		(((((((((((((((((((Water-Stained Leave except MLRA 1, 2, Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Od Oxidized Rhizospher Presence of Reduced Recent Iron Reduction	4A, and 4 s (B13) dor (C1) res along I d Iron (C4 on in Tillec Plants (D1	Living Roots (C3) I Soils (C6)	Wat (ML Drai Dry- Satu Sha FAC	rer-Stained Lea RA 1, 2, 4A, and inage Patterns Season Water uration Visible of promorphic Positi Illow Aquitard (I C-Neutral Test (I sed Ant Mound	nd 4B) (B10) Table (Con Aerial on (D2) D3) (D5)	C2) I Image	ry (C9)	
PROLO Etland Hymary India Surfac High \(\) Satura Water Sedim Drift \(\) Algal Iron \(\) Surfac Inund Spars	drology Indicator cators (minimum o ce Water (A1) Water Table (A2) ation (A3) r Marks (B1) nent Deposits (B2) Deposits (B3) Mat or Crust (B4) Deposits (B5) ce Soil Cracks (B6 ation Visible on Ae sely Vegetated Cor	of one re	agery (B urface (C C C C C C C C C C C C C C C C C C C	V	Water-Stained Leave except MLRA 1, 2, Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Od Oxidized Rhizospher Presence of Reduced Recent Iron Reductio Stunted or Stresses I Other (Explain in Rer	4A, and 4 s (B13) dor (C1) res along I d Iron (C4 on in Tillec Plants (D1	Living Roots (C3) I Soils (C6)	Wat (ML Drai Dry- Satu Sha FAC	rer-Stained Lea RA 1, 2, 4A, and inage Patterns Season Water uration Visible of promorphic Positi Illow Aquitard (I C-Neutral Test (I sed Ant Mound	nd 4B) (B10) Table (Con Aerial on (D2) D3) (D5)	C2) I Image	ry (C9)	
Mary India Surface High V Satura Water Sedim Drift D Surface Inund Spars	drology Indicator cators (minimum of ce Water (A1) Water Table (A2) ation (A3) If Marks (B1) Inent Deposits (B2) Deposits (B3) Mat or Crust (B4) Deposits (B5) Ince Soil Cracks (B6) ation Visible on Aesely Vegetated Corvations:	of one re	agery (B uurface (C C C C C C C C C C C C C C C C C C C	(((((((((((((((((((Water-Stained Leave except MLRA 1, 2, 3 alt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Od Dixidized Rhizospher Presence of Reduced Recent Iron Reduction Stunted or Stresses In Other (Explain in Reduction Depth (inches):	4A, and 4 s (B13) dor (C1) res along I d Iron (C4 on in Tillec Plants (D1	Living Roots (C3) I Soils (C6)	Wat (ML Drai Dry- Satu Sha FAC	rer-Stained Lea RA 1, 2, 4A, and inage Patterns Season Water uration Visible of promorphic Positi Illow Aquitard (I C-Neutral Test (I sed Ant Mound	nd 4B) (B10) Table (Con Aerial on (D2) D3) (D5)	C2) I Image	ry (C9)	
PROLO Etland Hy mary India Surfac High \ Satura Water Sedim Drift D Algal Iron D Surfac Inund Spars eld Obser rface Wat ater Table turation P	drology Indicator cators (minimum of ce Water (A1) Water Table (A2) ation (A3) In Marks (B1) Inent Deposits (B2) Deposits (B3) Mat or Crust (B4) Deposits (B5) Ince Soil Cracks (B6) ation Visible on Ae isely Vegetated Cor	of one re	agery (B urface (C C C C C C C C C C C C C C C C C C C	V	Water-Stained Leave except MLRA 1, 2, Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Od Oxidized Rhizospher Presence of Reduced Recent Iron Reductio Stunted or Stresses I Other (Explain in Rer	4A, and 4 s (B13) dor (C1) res along I d Iron (C4 on in Tillec Plants (D1	Living Roots (C3) d Soils (C6)	Wat (ML Drai Dry- Satu Sha FAC	er-Stained Lea RA 1, 2, 4A, and inage Patterns Season Water uration Visible of proorphic Positi Illow Aquitard (I C-Neutral Test (I sed Ant Mound st-Heave Humn	nd 4B) (B10) Table (Con Aerial on (D2) D3) (D5) Is (D6) (L	C2) I Image	ry (C9)	0
Manual Ma	drology Indicator cators (minimum o ce Water (A1) Water Table (A2) ation (A3) r Marks (B1) nent Deposits (B2) Deposits (B3) Mat or Crust (B4) Deposits (B5) ce Soil Cracks (B6 ation Visible on Ae sely Vegetated Cor vations: ter Present? Present? pillary fringe)	of one re of one of one re of one of one re of one of one of one re of one of one of one of one of one of one of one of one of one of one of one	agery (B uurface (C	V V V V V V V V V V	Water-Stained Leave except MLRA 1, 2, Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Od Dxidized Rhizospher Presence of Reducer Recent Iron Reductic Stunted or Stresses I Other (Explain in Rer Depth (inches): Depth (inches):	4A, and 4 s (B13) dor (C1) res along l d Iron (C4 on in Tillec Plants (D1 marks)	Living Roots (C3) I Soils (C6) I) (LRR A)	□ Wat (ML □ Drai □ Dry- □ Satu □ Sha □ FAC □ Rais □ Fros	er-Stained Lea RA 1, 2, 4A, and inage Patterns Season Water uration Visible of proorphic Positi Illow Aquitard (I C-Neutral Test (I sed Ant Mound st-Heave Humn	nd 4B) (B10) Table (Con Aerial on (D2) D3) (D5) Is (D6) (L	C2) I Image	ry (C9)	0
POROLO etland Hy mary India Surface High V Satura Water Sedim Drift D Surface Inund Spars eld Obser rface Wat ater Table turation P cludes cap	drology Indicator cators (minimum o ce Water (A1) Water Table (A2) ation (A3) r Marks (B1) nent Deposits (B2) Deposits (B3) Mat or Crust (B4) Deposits (B5) ce Soil Cracks (B6 ation Visible on Ae sely Vegetated Cor vations: ter Present? Present? pillary fringe)	of one re of one of one re of one of one re of one of one of one re of one of one of one of one of one of one of one of one of one of one of one	agery (B uurface (C	V V V V V V V V V V	Water-Stained Leave except MLRA 1, 2, Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Od Dixidized Rhizospher Presence of Reduced Recent Iron Reductic Stunted or Stresses I Dther (Explain in Rer Depth (inches): Depth (inches):	4A, and 4 s (B13) dor (C1) res along l d Iron (C4 on in Tillec Plants (D1 marks)	Living Roots (C3) I Soils (C6) I) (LRR A)	□ Wat (ML □ Drai □ Dry- □ Satu □ Sha □ FAC □ Rais □ Fros	er-Stained Lea RA 1, 2, 4A, and inage Patterns Season Water uration Visible of proorphic Positi Illow Aquitard (I C-Neutral Test (I sed Ant Mound st-Heave Humn	nd 4B) (B10) Table (Con Aerial on (D2) D3) (D5) Is (D6) (L	C2) I Image	ry (C9)	0

Data Plot #:	21A-SP1
Wetland:	21A

WETLAND DETERMINATION

(Modified from: 198	87 AC	OE We	tlands D	elineation I	Manual)
Project/Site: ELST Re-delineation			Date: 10	0/31/2007	Revisited 03-19-14
Applicant/Owner: King County			County:	King County	
Investigator: Michael Muscari/Laura Brock			State:	WA	_
☐ 1987 Method	A St. M	ethod		Comr	munity ID: PEM
Do Normal Circumstances exist on the site?	Yes		No		· —
Is the site significantly disturbed (Atypical Situation)?	Yes		No	— Field	Plot ID: 21A-SP1
					
Is the area a potential Problem Area? Yes			No	<u>X</u>	
Remarks (Explain sample location, disturbances, prob Combined wetlands 21A with 21C. This sample plot is Innorth of flag 4. Flags W21A 1-15.			toe of slop	e between shru	Lubs and mowed lawn, approximatley 5' Concave, approximately 8% slope
VEGETATION (✓Dominant species are checked) Plant Species 1. Cornus sericea	1	% Cover	r Stratum Herb	Indicator FACW	03-19-14 Observations Cornus sericea 5% Oemleria cerasiformis 10% Rubus spectabilis 10%
2. Holcus lanatus		2	Herb	FAC	Holcus lanatus 2%
✓ 3. lawn grass (mowed)		40	Herb	UNK	lawn grass (mowed) 40%
4 . Myosotis scorpioides		10	Herb	FACW	Myosotis scorpioides 10% Ranunculus repens 30%
✓ 5. Ranunculus repens		30	Herb	FACW	Hedera helix 2%
6. Rubus spectabilis Percent of Dominant Species that are OBL, FACW.		10	Herb	FAC+	Athyrium filix-femina 15% Equisetum telmeteia 2%
(except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates tr. Remarks (Describe disturbances, relevant local variat Scirpus microcarpus is interspersed and mowed in laws are hydrophytic is greater than 50 percent. Hydrophytic	ions, se n. A sm	all aquati	effects, etc	resent in the lal	moss 30% ke.The percent of dominant species that
HYDROLOGY					
Recorded Data (Describe in Remarks):		We	etland Hyd	drology Indica	tors (Describe in Remarks):
Stream, Lake, or Tide Gage			Primary I	ndicators:	
Aerial Photograph				Inundated	
Other			X		in Upper 12 inches
X No Recorded Data Available				Water Mar Drift Lines	
Field Observations:				Sediment	
			-		Patterns in Wetlands
Depth of Surface Water: none (in.)			Seconda		2 or more required):
Depth to Free Water in Pit: none (in.)				•	Rhizospheres in Upper 12 inches
Depth to Saturated Soil: 4 (in.)					ined Leaves
				Local Soil	Survey Data
				Other (Exp	plain in Remarks)
Remarks (As relevant, describe recent precipitation, Soil saturation in the upper 12 inches satisfies wetland	-	-		ocal variations,	etc.):
03-19-14 Observations - Saturated at surface. Free wa	ater in n	it at 19 in	nches helo	w surface	
Saturated at surface. Free We	μ	12 11	.51.00 0010	5011050.	

Project/S	Site: ELST Re-de	elineation		Date:	10/31/2	2007	F	Revisited	03-19-1	4
SOIL Soil Su	rvey Data:									
Map Un	it Name: Alder	wood gravelly sandy loar	m, 15 to 30 % slope	es	Drainag	ge Class: N	1oderate	erly well c	Irained	
					Field O	bservations	Confirm	n Mappe	d Type?	
Taxono	my (Subgroup):	Entic Durochrepts			Yes _	No	X	NA _		
Profile	Description:									
Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)		Mottle Abunda	ance/Contra	ıst		, Concre oheres, e	
0-4	A	10YR 3/1	none		none			sandy lo	am	
4-10	B1	10YR 5/1	7.5YR 4/6		many, pro	ominent		loamy sa	and	
10-16	B2	gley	none		none			sand		
Hydric	Soil Indicators: Histosol Histic Epipedon Sulfidic Odor Aquic or Peragu Reducing Condit			Fe/M Orga Mottl Othe	In Concre nic Strea es (Redo r (Explain	king in San ximorphic F in Remark	dy Soils Features s))		
X	Gleyed or Low-C High Organic Co	Chroma Colors Intent in Surface Layer	03-19-14 Observa	4-	9	10YR 3/1 10YR 5/1 10Y 4/1	none 7.5YF none	R 4/6	one one	sa. loam lo. sand gr. sand
		disturbances, local varia vith redoximorphic featu		v the A-h	orizon. Hy	ydric soils c	riterion i	is satisifi	ed.	
	AND DETER		s <u>X</u> No			Is this Sa	ampling	Point W	/ithin a '	Wetland?

Data Plot #:

Wetland:

21A-SP1

21A

Remarks

Wetland vegetation, hydrology, and soil criteria are satisfied. Therefore, the sample plot is located in a wetland.

Data Plot #: 21A-SP2
Wetland: Upland near 21A

WETLAND DETERMINATION

(Modified from: 1987 ACOE Wetlands Delineation Manual)

		_		Deviaited 02 10 14
Project/Site: ELST Re-delineation		_	/31/2007	Revisited 03-19-14
Applicant/Owner: King County			King County	
Investigator: Michael Muscari, Laura Brock		State: \	NA	
☐ 1987 Method	lethod		Comn	nunity ID: Upland Shrub
Do Normal Circumstances exist on the site? Yes	<u> X</u>	No	Field	Plot ID: 21A-SP2
Is the site significantly disturbed (Atypical Situation)? Yes	<u> </u>	No X		
Is the area a potential Problem Area? Yes		No X		
Remarks (Explain sample location, disturbances, problem are	eas):			
This sample plot is approximatley 5' south of flag 4 and 3 feet if	higher in e	elevation th	an 21A-SP-1	
VEGETATION (✓Dominant species are checked)				03-19-14 Observations
Plant Species	% Cover	r Stratum	Indicator	Corylus cornuta 75%
1. Equisetum telmateia	5	Herb	FACW	Oemleria cerasiformis 5% Rubus spectabilis 40%
2 Geranium robertianum	2	Herb	NL	Rubus ursinus 10%
✓ 3. Polystichum munitum	20	Herb	FACU	Equisetum telmeteia 5%
4 . Pteridium aquilinum	5	Herb	FACU	Geranium robertianum 2%
5. Urtica dioica	2	Herb	FAC+	Polystichum munitum 20% Pteridium aguilinum 5%
✓ 6. Corylus cornuta	75	Shrub	FACU	- Urtica dioica 2%
— Duleus as a stabilia		Church	FAC+	
√ 7. Rubus spectabilis	40	Shrub		_
8 . Rubus ursinus	10	Shrub	FACU	- -
8. Rubus ursinus Percent of Dominant Species that are OBL, FACW, or FAC	10 C			-
Rubus ursinus Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing	10			- -
Rubus ursinus Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.	10 C 33	Shrub	FACU	- -
Remarks (Describe disturbances, relevant local variations, see	10 C 33 easonal e	Shrub	FACU :	are mowed, maintained lawn The
Rubus ursinus Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.	10 C 33 easonal e	Shrub effects, etc.) areas. Adji	FACU : acent uplands	
Remarks (Describe disturbances, relevant local variations, se Corylus cornuta, Rubus species that are dominant in undisturbe percent of dominant species that are hydrophytic is not greater.	10 C 33 easonal e	Shrub effects, etc.) areas. Adji	FACU : acent uplands	
Remarks (Describe disturbances, relevant local variations, se Corylus cornuta, Rubus species that are hydrophytic is not greater HYDROLOGY	easonal e	Shrub effects, etc.) areas. Adj percent. Hy	FACU : acent uplands vdrophytic veg	etation criterion is not satisfied.
Remarks (Describe disturbances, relevant local variations, se Corylus cornuta, Rubus species that are hydrophytic is not greater HYDROLOGY Remarks (Describe in Remarks):	easonal e	Shrub effects, etc.) areas. Adj percent. Hy	FACU : acent uplands vdrophytic veg	
Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, secondus cornuta, Rubus spectabilis are dominant in undisturbe percent of dominant species that are hydrophytic is not greated. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage	easonal e	Shrub effects, etc.) areas. Adj percent. Hy	FACU : acent uplands vdrophytic veg rology Indicat dicators:	etation criterion is not satisfied.
Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, see Corylus cornuta, Rubus spectabilis are dominant in undisturbe percent of dominant species that are hydrophytic is not greated. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph	easonal e	Shrub effects, etc.) areas. Adj percent. Hy	FACU : acent uplands vdrophytic veg rology Indicat dicators: Inundated	etation criterion is not satisfied. tors (Describe in Remarks):
Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, secondus cornuta, Rubus spectabilis are dominant in undisturbe percent of dominant species that are hydrophytic is not greated. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage	easonal e	Shrub effects, etc.) areas. Adj percent. Hy	FACU : accent uplands vdrophytic veg rology Indicat dicators: Inundated Saturated	etation criterion is not satisfied. tors (Describe in Remarks): in Upper 12 inches
Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, see Corylus cornuta, Rubus spectabilis are dominant in undisturbe percent of dominant species that are hydrophytic is not greated. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph	easonal e	Shrub effects, etc.) areas. Adj percent. Hy	FACU : acent uplands vdrophytic veg rology Indicat dicators: Inundated Saturated Water Mar	etation criterion is not satisfied. tors (Describe in Remarks): in Upper 12 inches
Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, see Corylus cornuta, Rubus spectabilis are dominant in undisturbe percent of dominant species that are hydrophytic is not greated. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other	easonal e	Shrub effects, etc.) areas. Adj percent. Hy	FACU : acent uplands vdrophytic veg rology Indicat dicators: Inundated Saturated Water Mar Drift Lines	etation criterion is not satisfied. tors (Describe in Remarks): in Upper 12 inches ks
Remarks (Describe disturbances, relevant local variations, se Corylus cornuta, Rubus species that are hydrophytic is not greated. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available	easonal e	Shrub effects, etc.) areas. Adj percent. Hy	rology Indicat dicators: Inundated Saturated Water Mar Drift Lines Sediment I	etation criterion is not satisfied. cors (Describe in Remarks): in Upper 12 inches ks Deposits
Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, see Corylus cornuta, Rubus spectabilis are dominant in undisturbe percent of dominant species that are hydrophytic is not greated. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations:	easonal e	Shrub effects, etc.) areas. Adj percent. Hy	rology Indicat dicators: Inundated Saturated Water Mar Drift Lines Sediment I	etation criterion is not satisfied. tors (Describe in Remarks): in Upper 12 inches ks
Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, see Corylus cornuta, Rubus spectabilis are dominant in undisturbe percent of dominant species that are hydrophytic is not greated. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.)	easonal e	Shrub effects, etc.) areas. Adj percent. Hy etland Hydi Primary In	rology Indicated Saturated Water Mar Drift Lines Sediment I Drainage F	etation criterion is not satisfied. cors (Describe in Remarks): in Upper 12 inches ks Deposits
Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, secondus, Rubus spectabilis are dominant in undisturbe percent of dominant species that are hydrophytic is not greated. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: Depth to Free Water in Pit: none (in.)	easonal e	Shrub effects, etc.) areas. Adj percent. Hy etland Hydi Primary In	rology Indicated Saturated Water Mar Drift Lines Sediment I Drainage F	in Upper 12 inches ks Deposits Patterns in Wetlands
Remarks (Describe disturbances, relevant local variations, se Corylus cornuta, Rubus species that are hydrophytic is not greated HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Percent of Dominant Species that are hydrophytic is not greated and the second	easonal e	Shrub effects, etc.) areas. Adj percent. Hy etland Hydi Primary In	rology Indicated Saturated Water Mar Drift Lines Sediment I Drainage Fy Indicators (2 Oxidized F	in Upper 12 inches ks Deposits Patterns in Wetlands
Remarks (Describe disturbances, relevant local variations, se Corylus cornuta, Rubus species that are hydrophytic is not greated. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: Depth to Free Water in Pit: No Recordes showing morphological adaptations to wetlands. "T" indicates trace. "T	easonal e	Shrub effects, etc.) areas. Adj percent. Hy etland Hydi Primary In	rology Indicated Saturated Water Mar Drainage F Valer Stail	cors (Describe in Remarks): in Upper 12 inches ks Deposits Patterns in Wetlands 2 or more required): thizospheres in Upper 12 inches
Rubus ursinus Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, secondus cornuta, Rubus spectabilis are dominant in undisturbe percent of dominant species that are hydrophytic is not greated. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: Depth to Free Water in Pit: none (in.)	easonal e	Shrub effects, etc.) areas. Adj percent. Hy etland Hydi Primary In	rology Indicated Saturated Water Mar Drift Lines Sediment Drainage F V Indicators (2 Oxidized F Water-Stai Local Soil	in Upper 12 inches ks Deposits Patterns in Wetlands or more required): thizospheres in Upper 12 inches and Leaves
Rubus ursinus Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, set Corylus cornuta, Rubus spectabilis are dominant in undisturbe percent of dominant species that are hydrophytic is not greated. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: Depth to Free Water in Pit: Depth to Saturated Soil: none (in.) Depth to Saturated Soil:	easonal e ed upland or than 50 We	Shrub effects, etc.) areas. Adji percent. Hy etland Hydi Primary In Secondary	rology Indicated Saturated Water Mar Drift Lines Sediment I Drainage F Water-Stai Local Soil Other (Exp	in Upper 12 inches ks Deposits Patterns in Wetlands e or more required): thizospheres in Upper 12 inches and Leaves Survey Data blain in Remarks)
Rubus ursinus Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, secondus cornuta, Rubus spectabilis are dominant in undisturbe percent of dominant species that are hydrophytic is not greated. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: Depth to Free Water in Pit: none (in.)	easonal e ed upland or than 50 we	Shrub effects, etc.) areas. Adj. percent. Hy etland Hydi Primary In Secondary	rology Indicated Saturated Water Mar Drift Lines Sediment I Drainage F Water-Stai Local Soil Other (Expectal variations,	cors (Describe in Remarks): in Upper 12 inches ks Deposits Patterns in Wetlands e or more required): thizospheres in Upper 12 inches ned Leaves Survey Data plain in Remarks) etc.):

Revisited 03-19-14 Project/Site: ELST Re-delineation Date: 10/31/2007 SOIL Soil Survey Data: Drainage Class: Moderately well drained Map Unit Name: Alderwood gravelly sandy loam, 15 to 30 % slopes Field Observations Confirm Mapped Type? Taxonomy (Subgroup): Entic Durochrepts No X NA **Profile Description:** Depth Horizon Mottle Color Matrix Color Mottle Texture, Concretions, (Inches) Designation (Munsell Moist) (Munsell Moist) Abundance/Contrast Rhizospheres, etc. 0-15 10YR 2/1 Α none none gravelly sandy loam 15-16 В 10YR 4/3 none loamy sand none 03-19-14 Observations - 0-18 10YR 3/2 none none gr. sa. loam **Hydric Soil Indicators:** Histosol Listed on Hydric Soils List Histic Epipedon Fe/Mn Concretions Organic Streaking in Sandy Soils Sulfidic Odor Aquic or Peraguic Moisture Regime Mottles (Redoximorphic Features) **Reducing Conditions** Other (Explain in Remarks) X Gleyed or Low-Chroma Colors High Organic Content in Surface Layer Remarks (Describe soil disturbances, local variations, etc.): Low chroma soil matrix indicates hydric soil. Hydric soil criterion is satisfied. WETLAND DETERMINATION **Hydrophytic Vegetation Present?** No Is this Sampling Point Within a Wetland? **Hydric Soils Present?** Yes No Yes ____ No _X__

Data Plot #:

Wetland:

21A-SP2

Upland near 21A

Remarks

Wetland Hydrology Present?

Hydrophytic vegetation and wetland hydrology criteria are not satisfied. The sample plot is not located in a wetland.

No

Yes

Data Plot #:	21B-SP1
Wetland:	21B

WETLAND DETERMINATION

(Modified from: 1987 ACOE Wetlands Delineation Manual)

(Modified from: 1987	ACOE	= wet	ianas	Deli	ineation Mar	iuai)	
Project/Site: ELST Re-delineation			Date:	11/1/	/2007	Revisited 09-12-13	
Applicant/Owner: King County		_ ,	County:	Kir	ng		
Investigator: Matt Maynard, Chrissy Bailey		_ (State:	W	A		
☐ 1987 Method	St. Meth	nod			Communi	ty ID: PFO	
Do Normal Circumstances exist on the site?	Yes	Χ	No			ID: 21B-SP1	
Is the site significantly disturbed (Atypical Situation)? Yes			No	Χ		ID. 210-31 1	
Is the area a potential Problem Area?				Х	_		
Remarks (Explain sample location, disturbances, proble	s):	No _		_			
This sample plot is located in the center of the wetland ap		,) feet so	uthea	ast of flag 21B-9		
, ,	,				J		
VEGETATION (✓Dominant species are checked)							
VEGETATION (✓Dominant species are checked) Plant Species	9/	6 Cover	Stratu	m	Indicator		
F 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		race	Н		FACW		
Equisetum teimateia Phalaris arundinacea			- ''		FACW		
3 . Solanum dulcamara	1	0	Н		FAC+		
4 . Urtica dioica	1	0	Н		FAC+		
✓ 5. Corylus cornuta		20	S		FACU		
6 . Ribes divaricatum			_ <u>S</u>		NI		
7 . Rubus armeniacus 8 . Rubus spectabilis		0	_ <u>s</u> _ s		FACU FAC+		
8. Hubus spectabilis 9. Alnus rubra		10	T FAC				
morphological adaptations to wetlands. "T" indicates trace Remarks (Describe disturbances, relevant local variation The percent of dominant species that are hydrophytic is getting.	ns, seas			,	drophytic vegeta	tion criterion is satisfied.	
			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	, .			
HYDROLOGY		147				(5 1 5 1	
Recorded Data (Describe in Remarks):		we		-		(Describe in Remarks):	
Stream, Lake, or Tide Gage			Primary	mui			
Aerial Photograph			X	,—	Inundated Saturated in U	oner 12 inches	
Other			^		Water Marks	oper 12 mones	
X No Recorded Data Available					Drift Lines		
Field Observations:					Sediment Dep	osits	
					Drainage Patte	erns in Wetlands	
Depth of Surface Water: none (in.)			Second	lary	Indicators (2 or i	nore required):	
Depth to Free Water in Pit: none (in.)			Oxidized Rhizospheres in Upper 12 inches				
Depth to Saturated Soil: <u>surface</u> (in.)					Water-Stained	Leaves	
					Local Soil Surv	ey Data	
					Other (Explain	in Remarks)	
Remarks (As relevant, describe recent precipitation, hy	ydrologi	c modif	ications	, loca	al variations, etc.):	
Saturation in the upper 12 inches satisfies wetland hydro	ology crit	terion.					
09-12-13 Observations - Inundation observed in ditch with	thin wetl	and.			<u> </u>		

					Wetland	d: 21B
Project/Site	e: ELST Re-de	elineation		Date:	11/1/2007	Revisited 09-12-13
SOIL Soil Survey Data:						
Map Unit Name: Alderwood gravelly sandy loam 6 to 15% slopes					Drainage Class: Modera	ately well drained
					Field Observations Confi	irm Mapped Type?
Taxonomy	(Subgroup):	Entic Durochrepts			Yes No _X	NA
Profile De	escription:					
Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)		Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-18	Α	10YR 2/1	none		none	silt loam
Hi Hi Si Ai Ai Ri X G Hi Remarks	educing Condit leyed or Low-C igh Organic Co	throma Colors ntent in Surface Laye disturbances, local va		Fe/M Orga Mottl	d on Hydric Soils List n Concretions nic Streaking in Sandy Soi es (Redoximorphic Feature r (Explain in Remarks)	
Hydrophy Hydric So	ND DETER	Present?	Yes X No	<u> </u>		ng Point Within a Wetland?

Data Plot #:

21B-SP1

Remarks

Wetland vegetation, hydrology, and soil criteria are met. Therefore, the sample plot is located in a wetland.

Data Plot #: 21B-SP2
Wetland: Upland near 21B

WETLAND DETERMINATION

(Modified from: 1987 ACOE Wetlands Delineation Manual)

Project/Site: ELST Re-delineation Applicant/Owner: King County Investigator: Matt Maynard, Chrissy Bailey ☐ 1987 Method	X No Field Plot ID: 21B-SP2 No _X No _X s):
1. Equisetum telmateia 2. Geranium robertianum 3. Polystichum munitum 4. Rubus ursinus 5. Urtica dioica 6. Corylus cornuta 7. Rubus spectabilis 8. Fraxinus latifolia Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, sea	Marace H FACW Marace H FACU Marace H FACU Marace H FACU Marace H FACU Marace H FACH Marace
HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: Depth to Free Water in Pit: Depth to Saturated Soil: Remarks (As relevant, describe recent precipitation, hydrologon)	Wetland Hydrology Indicators (Describe in Remarks): Primary Indicators: Inundated X Saturated in Upper 12 inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands Secondary Indicators (2 or more required): Oxidized Rhizospheres in Upper 12 inches Water-Stained Leaves Local Soil Survey Data Other (Explain in Remarks)

Remarks

Revisited 09-12-13 Project/Site: ELST Re-delineation Date: 11/1/2007 SOIL Soil Survey Data: Drainage Class: Moderately well drained Map Unit Name: Alderwood gravelly sandy loam 6 to 15% slopes Field Observations Confirm Mapped Type? Taxonomy (Subgroup): Entic Durochrepts Yes No X NA **Profile Description:** Depth Horizon Mottle Color Matrix Color Mottle Texture, Concretions, (Inches) Designation (Munsell Moist) (Munsell Moist) Abundance/Contrast Rhizospheres, etc. 0-16 10YR 2/1 silt loam none none **Hydric Soil Indicators:** Histosol Listed on Hydric Soils List Histic Epipedon Fe/Mn Concretions Sulfidic Odor Organic Streaking in Sandy Soils Mottles (Redoximorphic Features) Aquic or Peraguic Moisture Regime **Reducing Conditions** Other (Explain in Remarks) X Gleyed or Low-Chroma Colors High Organic Content in Surface Layer Remarks (Describe soil disturbances, local variations, etc.): Chroma 1 soil indicate hydric soils. WETLAND DETERMINATION Is this Sampling Point Within a Wetland? **Hydrophytic Vegetation Present?** No **Hydric Soils Present?** Yes No Yes ____ No _X__ **Wetland Hydrology Present?** Yes No

Hydrophytic vegetation criterion is not satisfied. Therefore, the sample plot is not located in a wetland.

Data Plot #:

Wetland:

21B-SP2

Upland near 21B

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

Project Site:	ELST - South Sammamish Seg	ment		City/Cou	nty: Sammamish/King	Sampling Date:	03-19-14
Applicant/Owner:	King County				State: WA	Sampling Point:	W21D-SP1 (rev)
Investigator(s):	C. Worsley; K. Seckel				Section, Township, Ra	ange: <u>S06, T24N, R06</u>	
Landform (hillslope, to			L	cal relief (con	cave, convex, none): convex		e (%): <u>5%</u>
Subregion (LRR):	<u>A</u>	Lat:			Long:	Datum:	
Soil Map Unit Name:	Alderwood gravelly sandy loa	<u>m</u>				assification: PEM	
Are climatic / hydrolog	gic conditions on the site typical for	or this time o	of year?	Yes 🗵	No ☐ (If no, explain	n in Remarks.)	
Are Vegetation			ficantly disturb	ed? Are	"Normal Circumstances" preser	nt? Yes	⊠ No □
Are Vegetation	l, Soil □, or Hydrology	□, natu	rally problema	tic? (If n	eeded, explain any answers in	Remarks.)	
SUMMARY OF FI	NDINGS – Attach site map s	howing s	ampling po	nt locations	, transects, important fea	tures, etc.	
Hydrophytic Vegetation	on Present?	Yes	⊠ No □				
Hydric Soil Present?		Yes	⊠ No □	Is the Sam within a W		Yes	⊠ No □
Wetland Hydrology P	resent?	Yes	⊠ No □	Within a W	etiana :		
Remarks: New sam	nple plot was documented because	e the old loo	cation for SP1	has been land	scaped. This sample plot is loc	ated in maintained lawn	approximately 8
	n (10 deg) from north end of row of						
VEGETATION – U	se scientific names of plan	ts					
Tree Stratum (Plot siz	ze: 30 feet)	Absolute	Dominant	Indicator	Dominance Test Workshee	et:	
1		% Cover	Species?	<u>Status</u>	Number of Deminerat Conscien	_	
2		-			Number of Dominant Specie That Are OBL, FACW, or FA		_ (A)
3.					Total Number of Deminent		
4.					Total Number of Dominant Species Across All Strata:		_ (B)
50% =, 20% =			= Total Co	ver	Percent of Dominant Species	2	
Sapling/Shrub Stratu					That Are OBL, FACW, or FA		_ (A/B)
1	<u></u> ,				Prevalence Index workshe	et:	
2.					Total % Cover of		olv bv:
3					OBL species	x1 =	<u>-,,, -,</u>
4.					FACW species	x2 =	
5.					FAC species	- x3 =	
50% =, 20% =		·	= Total Co	ver	FACU species	x4 =	
Herb Stratum (Plot si					UPL species	x5 =	
maintained lawn	20. <u>0.100t</u>)	<u>95</u>	<u>yes</u>	_		_ (A)	(B)
Scirpus microcar	nue			<u>-</u> <u>OBL</u>		(A) ce Index = B/A =	
Scripus microcary Phalaris arundina		<u>15</u> 10	no no	FACW	Hydrophytic Vegetation Inc		
Ranunculus repe			no no	FAC	1 _ , , ,		
5	<u>115</u>	<u>5</u>	<u>no</u>	<u>I AC</u>	☐ 1 – Rapid Test for Hyd☐ 2 - Dominance Test is		
6.					1_		
					☐ 3 - Prevalence Index is	-	
7 8.						otations1 (Provide suppo on a separate sheet)	rting
9.		-			_	. ,	
10		-			☑ Problematic Hydrophyt	tic Vegetation ¹ (Explain)	
11	-	405	——————————————————————————————————————		¹ Indicators of hydric soil and	wetland hydrology must	t
50% = <u>62.5</u> , 20% = <u>2</u>		<u>125</u>	= Total Co	ver	be present, unless disturbed	or problematic.	
Woody Vine Stratum	(PIOL SIZE: <u>INA)</u>						
1					Hydrophytic		
2		-			Vegetation	Yes 🛛	No 🗆
50% =, 20% =	·		= Total Co	ver	Present?		
% Bare Ground in He							
	Although not dominant, naturally						
Observ	ved grass species in the lawn incl	uue Agrostis	s sμ., r∪a sp.,	anu restuca f	ubra. Dun nyunc sons and weti	and hydrology chleria af	e met.

Project Site: ELST - South Sammamish

SOIL Sampling Point: W21D-SP1 (rev) Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Redox Features (inches) Color (moist) % Color (moist) % Type¹ Loc2 Remarks 2.5YR 4/6 10YR 3/2 <u>75</u> <u>25</u> <u>C</u> 0-6 M loam 6-12 2.5Y 4/2 <u>70</u> 2.5 YR 4/3 <u>30</u> C Μ sa. loam 12-16 2.5Y 4/1 75 2.5YR 2.5/4 C lo. sand ²Location: PL=Pore Lining, M=Matrix ¹Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils3: Histosol (A1) Sandy Redox (S5) 2 cm Muck (A10) Histic Epipedon (A2) П Stripped Matrix (S6) Red Parent Material (TF2) Black Histic (A3) Loamy Mucky Mineral (F1) (except MLRA 1) Very Shallow Dark Surface (TF12) Loamy Gleyed Matrix (F2) Hydrogen Sulfide (A4) Other (Explain in Remarks) Depleted Below Dark Surface (A11) Depleted Matrix (F3) Thick Dark Surface (A12) \boxtimes Redox Dark Surface (F6) ³Indicators of hydrophytic vegetation and Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) wetland hydrology must be present, Sandy Gleyed Matrix (S4) Redox Depressions (F8) unless disturbed or problematic Restrictive Layer (if present): Type: **Hydric Soils Present?** Yes \boxtimes Depth (inches): No Remarks: **HYDROLOGY** Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) Secondary Indicators (2 or more required) П Surface Water (A1) Water-Stained Leaves (B9) Water-Stained Leaves (B9) High Water Table (A2) (except MLRA 1, 2, 4A, and 4B) (MLRA 1, 2, 4A, and 4B) \boxtimes Saturation (A3) Salt Crust (B11) Drainage Patterns (B10) П Water Marks (B1) Aquatic Invertebrates (B13) Dry-Season Water Table (C2) Sediment Deposits (B2) Hydrogen Sulfide Odor (C1) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Drift Deposits (B3) Oxidized Rhizospheres along Living Roots (C3) Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Shallow Aguitard (D3) Iron Deposits (B5) Recent Iron Reduction in Tilled Soils (C6) FAC-Neutral Test (D5) Stunted or Stresses Plants (D1) (LRR A) Surface Soil Cracks (B6) Raised Ant Mounds (D6) (LRR A) Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) Frost-Heave Hummocks (D7) Sparsely Vegetated Concave Surface (B8) Field Observations: Surface Water Present? Yes No \boxtimes Depth (inches): Water Table Present? Yes \boxtimes No Depth (inches): 13 Saturation Present? Wetland Hydrology Present? \boxtimes No Yes \boxtimes No Depth (inches): 10 (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: Flowing water observed in adjacent ditch.

Data Plot #:	22AB-SP1				
Wetland:	22AB				

WETLAND DETERMINATION

(Modified from: 1987 ACOE Wetlands Delineation Manual)

(Modified from: 1987 AC	OE WE	tiaiius	Dell	ileation i	nanuai)			
Project/Site: ELST Re-delineation		Date:	4/4/2	800	Revisited 09-20-13			
Applicant/Owner: King County		County	Kin	ng				
Investigator: Erik Christensen, Colin Worsley		State:	WA	١				
☐ 1987 Method	Method			Comm	nunity ID: PFO			
Do Normal Circumstances exist on the site?	s X	No	No Field Plot ID: 22AB-SP1					
Is the site significantly disturbed (Atypical Situation)? Ye		No	Х	- Fleid F	Plot ID: 22AB-SP1			
				•				
,		No	Χ					
Remarks (Explain sample location, disturbances, problem a This sample plot is located approximately 25 feet east of flag area.	,	3 and the	trail. 7	Γhe sample μ	plot is located in the willow forested			
VEGETATION (✓Dominant species are checked)					09-20-13 Observations			
Plant Species	% Cove	er Strati	ım	Indicator	Athyrium filix-femina 35%			
✓ 1. Athyrium filix-femina	35	Herb		FAC	Cardamine oligosperma 5% Epilobium ciliatum trace			
2 Cardamine oligosperma	5	Herb		FAC	Geranium robertianum 15%			
3 . Epilobium ciliatum	trace	Herb		FACW-	Lysichiton americanus trace			
4 . Geranium robertianum	15	Herb		NL	Polystichum munitum 15%			
5 . Lysichiton americanus	trace	Herb		OBL	Cornus sericea 80% Rubus armeniacus 5%			
6 . Polystichum munitum	15	Herb		FACU	Alnus rubra 10%			
✓ 7. Cornus sericea	80	Shrub		FACW	Salix lucida 30%			
8 . Rubus armeniacus	5	Shrub)	FACU	Rubus parviflorus 10%			
9 . Alnus rubra ✓ 10 . Salix lucida	10 30	Tree Tree		FACW+				
Percent of Dominant Species that are OBL, FACW, or FA (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, so The percent of dominant vegetation that is hydrophytic is great.	10 seasonal	effects, e	,	vtic vegetatio	on criterion is satisfied.			
HYDROLOGY								
Recorded Data (Describe in Remarks):	w	etland H	lvdrol	ogy Indicat	ors (Describe in Remarks):			
· · · · · · · · · · · · · · · · · · ·		Primar	•	0,	(Describe in Remarks).			
Stream, Lake, or Tide Gage			,	Inundated				
Aerial Photograph			X		n Upper 12 inches			
Other				Water Mark	'''			
X No Recorded Data Available				Drift Lines				
Field Observations:				Sediment D	Deposits			
				Drainage P	atterns in Wetlands			
Depth of Surface Water: none (in.)		Secon	dary I	ndicators (2	or more required):			
Depth to Free Water in Pit: 2 (in.)				Oxidized R	hizospheres in Upper 12 inches			
Depth to Saturated Soil: <u>surface</u> (in.)					ned Leaves			
				Local Soil S	Survey Data			
					lain in Remarks)			
Remarks (As relevant, describe recent precipitation, hydro	logic mod	difications	s, loca					
Soil saturation in the upper 12 inches satisfies wetland hydro	-		,	,	,			
10-20-13 Observations - Soil saturated at 12 inches below the			are es	turated to the	oo gurfaga in viginity			

09-20-13 Observations - Soil saturated at 12 inches below the surface. Areas are saturated to the surface in vicinity.

					Wetlan	d:	22AB	
Project/Site	e: ELST Re-de	elineation		Date:	4/4/2008	Revisite	ed 09-20-13	
SOIL Soil Surv	ey Data:							
Map Unit I	Name: Alderv	vood gravelly sandy loa	am, 6 to 15 % slopes		Drainage Class: Moder	ately well	drained	
					Field Observations Con	firm Mapp	ed Type?	
Taxonomy	(Subgroup):	Entic Durochrepts			Yes No _X	NA		
Profile De	scription:							
Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)		Mottle Abundance/Contrast		re, Concretion spheres, etc.	IS,
0-18	А	10YR 2/1	none		none	sandy	muck	
					09-20-13 Obse	ervations	- Gravel prese	ent in layer.
Hydric So	il Indicators:							
-	stosol			Liste	d on Hydric Soils List			
	stic Epipedon				n Concretions			
Sı	ulfidic Odor			Orga	nic Streaking in Sandy Sc	oils		
Ad	quic or Peragui	c Moisture Regime		Mottle	es (Redoximorphic Featu	res)		
R	educing Condit	ions		Othe	r (Explain in Remarks)			
XG	leyed or Low-C	chroma Colors						
XHi	gh Organic Co	ntent in Surface Layer						
	•	disturbances, local vari th organic content in the		e hydric	soils. Hydric soil criterion	is satisfie	ed.	
WETLA	ND DETER	MINATION						
Hydrophy	tic Vegetation	Present? Ye	es X No		Is this Sampli	ing Point	Within a Wet	land?
	ils Present?		es X No			. N		
•	lydrology Pres				Yes _	X No		

Data Plot #:

22AB-SP1

Remarks

Wetland vegetation, hydrology, and soil criteria are met. Therefore, the sample plot is located in a wetland.

Data Plot #:	22AB-SP2
Wetland:	22AB

WETLAND DETERMINATION

(Modified from: 1987 ACOE Wetlands Delineation Manual)

Project/Site: ELST De delinection					Davisited 00 20 12	
Project/Site: ELST Re-delineation			-	1/4/20		Revisited 09-20-13
Applicant/Owner: King County			County:	Kin		
Investigator: Erik Christensen, Colin Worsley			State:	WA	\	
☐ 1987 Method ☑ 1997 WA	A St. Me	ethod			Comr	nunity ID: PSS
Do Normal Circumstances exist on the site?	Yes	X	No _		Field	Plot ID: 22AB-SP2
Is the site significantly disturbed (Atypical Situation)?	Yes		No _	Χ		
Is the area a potential Problem Area?	Yes		No	Χ		
Remarks (Explain sample location, disturbances, prob	lem are	as):	_			
This sample plot is located approximately 13.5 feet at 30	00 degre	ees north	hwest of f	lag V	V22B-29.	
VEGETATION (✓Dominant species are checked)						09-20-13 Observations
Plant Species		% Cover	r Stratun	n	Indicator	Athyrium filix-femina 20%
✓ 1. Athyrium filix-femina		20	Herb		FAC	Phalaris arundinacea 20% Cornus sericea 40%
Phalaris arundinacea		20	Herb		FACW	Rubus armeniacus 30%
✓ 3. Scirpus microcarpus		30	Herb		OBL	Rubus spectabilis 5%
4. Typha latifolia		15	Herb		OBL	Rubus parviflorus 5%
✓ 5. Cornus sericea		40	Shrub		FACW	
6. Physocarpus capitatus		5	Shrub		FACW-	_
√ 7. Rubus armeniacus		30	Shrub		FACU	_
8 Rubus spectabilis						
Percent of Dominant Species that are OBL, FACW,	or FAC	5	Shrub		FAC+	-
· · · · · · · · · · · · · · · · · · ·	ace. ions, se	80 asonal e	effects, etc	,		- d.
Percent of Dominant Species that are OBL, FACW, (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates transport (Page 1997) and the species of the s	ace. ions, se	80 asonal e	effects, etc	,		d.
Percent of Dominant Species that are OBL, FACW, (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates transport that the control of t	ace. ions, se	80 asonal e	effects, etc	iterio	n is satisfie	
Percent of Dominant Species that are OBL, FACW, (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates transport than 50% of dominant vegetation is hydrophytic. HYDROLOGY Recorded Data (Describe in Remarks):	ace. ions, se	80 asonal e	effects, etc etation cri	iterio drole	n is satisfie	d. tors (Describe in Remarks):
Percent of Dominant Species that are OBL, FACW, (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates transport than 50% of dominant vegetation is hydrophytic. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage	ace. ions, se	80 asonal e	effects, etc	iterio drole	n is satisfie ogy Indica ators:	
Percent of Dominant Species that are OBL, FACW, (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates transport that the species noted (but indicates transported in the species of	ace. ions, se	80 asonal e	effects, etc etation cri etland Hy Primary	rdrole Indic	n is satisfie ogy Indica ators: Inundated	tors (Describe in Remarks):
Percent of Dominant Species that are OBL, FACW, (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates transport in the species noted (but in the species of the specie	ace. ions, se	80 asonal e	effects, etc etation cri	rdrole Indic	ogy Indica ators: Inundated Saturated	tors (Describe in Remarks):
Percent of Dominant Species that are OBL, FACW, (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates transport than 50% of dominant vegetation is hydrophytic. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available	ace. ions, se	80 asonal e	effects, etc etation cri etland Hy Primary	rdrole Indic	n is satisfie ogy Indica ators: Inundated	tors (Describe in Remarks):
Percent of Dominant Species that are OBL, FACW, (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates transport in the species noted (but in the species of the	ace. ions, se	80 asonal e	effects, etc etation cri etland Hy Primary	rdrole Indic	ogy Indica ators: Inundated Saturated Water Mai	tors (Describe in Remarks): in Upper 12 inches
Percent of Dominant Species that are OBL, FACW, (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates transport than 50% of dominant vegetation is hydrophytic. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available	ace. ions, se	80 asonal e	effects, etc etation cri etland Hy Primary	rdrole Indic	ogy Indica ators: Inundated Saturated Water Mai Drift Lines Sediment	tors (Describe in Remarks): in Upper 12 inches
Percent of Dominant Species that are OBL, FACW, (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates transport ind	ace. ions, se	80 asonal e	effects, etc etation cri etland Hy Primary	rdrole Indic	ogy Indica ators: Inundated Saturated Water Mar Drift Lines Sediment Drainage I	in Upper 12 inches rks Deposits Patterns in Wetlands
Percent of Dominant Species that are OBL, FACW, (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates track Remarks (Describe disturbances, relevant local variating More than 50% of dominant vegetation is hydrophytic. Feld Phytology Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.)	ace. ions, se	80 asonal e	effects, etc etation cri etland Hy Primary	rdrole Indic	ogy Indicarators: Inundated Saturated Water Man Drift Lines Sediment Drainage I	in Upper 12 inches ks Deposits Patterns in Wetlands 2 or more required):
Percent of Dominant Species that are OBL, FACW, (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates track Remarks (Describe disturbances, relevant local variating More than 50% of dominant vegetation is hydrophytic. For the Hydrophytic of the stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.) Depth to Free Water in Pit: 11 (in.)	ace. ions, se	80 asonal e	effects, etc etation cri etland Hy Primary	rdrole Indic	n is satisfie ogy Indica ators: Inundated Saturated Water Mai Drift Lines Sediment Drainage I	in Upper 12 inches tks Deposits Patterns in Wetlands 2 or more required): Rhizospheres in Upper 12 inches
Percent of Dominant Species that are OBL, FACW, (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates transport ind	ace. ions, se	80 asonal e	effects, etc etation cri etland Hy Primary	rdrole Indic	n is satisfie ogy Indica ators: Inundated Saturated Water Mai Drift Lines Sediment Drainage I ndicators (2 Oxidized F Water-Sta	in Upper 12 inches ks Deposits Patterns in Wetlands or more required): Rhizospheres in Upper 12 inches ined Leaves
Percent of Dominant Species that are OBL, FACW, (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace Remarks (Describe disturbances, relevant local variating More than 50% of dominant vegetation is hydrophytic. For the Hydrophytic of the stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.) Depth to Free Water in Pit: 11 (in.)	ace. ions, se	80 asonal e	effects, etc etation cri etland Hy Primary	rdrole Indic	ogy Indica ators: Inundated Saturated Water Mai Drift Lines Sediment Drainage I ndicators (2 Oxidized F Water-Sta Local Soil	in Upper 12 inches rks Deposits Patterns in Wetlands 2 or more required): Rhizospheres in Upper 12 inches ined Leaves Survey Data
Percent of Dominant Species that are OBL, FACW, (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace Remarks (Describe disturbances, relevant local variating More than 50% of dominant vegetation is hydrophytic. For the Hydrophytic of the stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.) Depth to Free Water in Pit: 11 (in.)	ace. ions, se	80 asonal e	effects, etc etation cri etland Hy Primary	rdrole Indic	ogy Indica ators: Inundated Saturated Water Mai Drift Lines Sediment Drainage I ndicators (2 Oxidized F Water-Sta Local Soil	in Upper 12 inches ks Deposits Patterns in Wetlands or more required): Rhizospheres in Upper 12 inches ined Leaves
Percent of Dominant Species that are OBL, FACW, (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace Remarks (Describe disturbances, relevant local variating More than 50% of dominant vegetation is hydrophytic. For the Hydrophytic of the stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.) Depth to Free Water in Pit: 11 (in.)	ace. ions, se <i>Hydroph</i>	asonal e	effects, etcetation cri	iterion	n is satisfie ogy Indicators: Inundated Saturated Water Man Drift Lines Sediment Drainage Indicators (2 Oxidized F Water-Sta Local Soil Other (Exp	in Upper 12 inches ks Deposits Patterns in Wetlands 2 or more required): Rhizospheres in Upper 12 inches ined Leaves Survey Data blain in Remarks)

Remarks

Project/Site	e: ELST Re-de	elineation			Date:	4/4/2008	Revisited 09-20-13
SOIL Soil Surv	ey Data:						
Map Unit I	Name: Alderv	wood gravelly sandy lo	am, 6 to 15	5 % slopes		Drainage Class: Mod	derately well drained
						Field Observations Co	onfirm Mapped Type?
Taxonomy	(Subgroup):	Entic Durochrepts				Yes No	X NA
Profile De	escription:						
Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle ((Munse	Color ell Moist)		Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-6	А	10YR 2/1	none			none	mucky loam
6-8	A2	10YR 2/1	none			none	mucky sandy loam
8-18	A3	2.5Y 2.5/1	none			none	mucky loam
Hydric Sc	il Indicators:						
Н	istosol				Liste	d on Hydric Soils List	
Н	istic Epipedon				Fe/M	In Concretions	
S	ulfidic Odor				Orga	nic Streaking in Sandy	Soils
A	quic or Peragui	ic Moisture Regime			Mottl	es (Redoximorphic Fea	atures)
R	educing Condit	tions			Othe	r (Explain in Remarks)	
XG	leyed or Low-C	Chroma Colors					
XH	igh Organic Co	ntent in Surface Layer					
	•	disturbances, local va	-	,	e hvdric	soils. Hydric soil criteri	ion is satisfied
_0 ** 30ii 0	and my	o.gamo oomeni in in	o ourrace la	., or maioat	o riyuno	- cono. Fry and son onlen	on to battoriou.
WETLA	ND DETER	MINATION					
Hydrophy	tic Vegetation	Present?	'es X	No		Is this Sam	pling Point Within a Wetland?
Hydric So	ils Present?	\	'es X	No		V	V N-
-	Hydrology Pres		'es X	No		Yes	_X No

Wetland vegetation, hydrology, and soil criteria are met. Therefore, the sample plot is located in a wetland.

Data Plot #:

Wetland:

22AB-SP2

22AB

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

Project Site:	ELST - South Sammamish Segn	<u>nent</u>		City/Cour	nty: <u>Sammamish/King</u>	Sampling Date:	<u>10-25-13</u>
Applicant/Owner:	King County				State: WA	Sampling Point:	W22CD-SP1 (rev)
Investigator(s):	C. Worsley; M. Maynard				Section, Township, Ran	ge: S06, T24N, R06E	
Landform (hillslope, te	rrace, etc.): <u>Ditch</u>		Lo	cal relief (conc	cave, convex, none): concave	Slope	(%): <u>0</u>
Subregion (LRR):	<u>A</u>	Lat:	_		Long:	Datum: _	
Soil Map Unit Name:	Alderwood gravelly sandy loam	n, 6 to 15 % s	slopes		NWI clas	ssification: PEM	
Are climatic / hydrolog	ic conditions on the site typical for	r this time of	year?	Yes 🛛	No ☐ (If no, explain i	n Remarks.)	
Are Vegetation ☐,	Soil □, or Hydrology	☐, signific	cantly disturb	ed? Are "	'Normal Circumstances" present	? Yes	⊠ No □
Are Vegetation □,	Soil □, or Hydrology	☐, natura	lly problemat	c? (If ne	eeded, explain any answers in Re	emarks.)	
SUMMARY OF FIN	IDINGS – Attach site map sl	nowing sa	mpling poi	nt locations	, transects, important featu	res, etc.	
Hydrophytic Vegetatio	n Present?	Yes 🗵	No 🗆	la tha Cama	ulad Ausa		
Hydric Soil Present?		Yes 🗵	No 🗆	Is the Samp within a We		Yes	⊠ No □
Wetland Hydrology Pr	esent?	Yes 🗵	No 🗆				
	lot is located at south end of Wetla					ost with two signs ("Ple	ase Stay On
Improved	Surfaces" and "Leash Pets Obey	Scoop Laws	s"). At edge of	f ditch bottom.			
VEGETATION - Us	se scientific names of plants	s					
Tree Stratum (Plot siz	e: <u>NA</u>)	Absolute <u>% Cover</u>	Dominant Species?	Indicator Status	Dominance Test Worksheet:		
1		78 COVEL	<u>opedies:</u>	<u>Status</u>	Number of Dominant Species		
2					That Are OBL, FACW, or FAC	: <u>2</u>	(A)
3.					Total Number of Dominant		
4					Species Across All Strata:	<u>3</u>	(B)
50% =, 20% =			= Total Cov	er	Percent of Dominant Species	.=	(4.75)
Sapling/Shrub Stratun	n (Plot size: NA)				That Are OBL, FACW, or FAC	: <u>67</u>	(A/B)
1					Prevalence Index worksheet	:	
2					Total % Cover of:	Multiply	y by:
3					OBL species	x1 =	
4					FACW species	x2 =	
5					FAC species	x3 =	
50% =, 20% =			= Total Cov	er	FACU species	x4 =	
Herb Stratum (Plot siz	e: 3 feet)				UPL species	x5 =	
Scirpus microcarp	us	<u>40</u>	<u>yes</u>	OBL	Column Totals:	(A)	(B)
2. Holcus lanatus	_	20	yes	FAC		Index = B/A =	、
Ranunculus repen	ns	10	no	FAC	Hydrophytic Vegetation Indi		
4. Lotus corniculatus	- :	<u></u>	no	FAC	☐ 1 – Rapid Test for Hydro		
5. Veronica americai		<u>5</u>	no	OBL	□ 2 - Dominance Test is >5		
6. Glyceria elata		<u>2</u>	no	FACW	☐ 3 - Prevalence Index is <	-3 0 ¹	
7. Convolvulus arver	ารis	2	no no	NL (UPL)	4 Morphological Adapts	_	ting
8.		_			data in Remarks or or		iiig
9.					5 - Wetland Non-Vascula	ar Plants ¹	
10.			- <u></u>		☐ Problematic Hydrophytic	Vegetation ¹ (Evoluin)	
11.					— Troblematic Trydrophytic	vegetation (Explain)	
50% = <u>42</u> , 20% = <u>17</u>		84	= Total Cov	er	¹ Indicators of hydric soil and w		
Woody Vine Stratum ((Plot size: 10 feet)	<u> </u>		0.	be present, unless disturbed o	r problematic.	
Rubus armeniacus	·	<u>10</u>	<u>yes</u>	FACU			
2.	-				Hydrophytic		
50% =, 20% =		10	= Total Cov	er		′es ⊠	No 🗆
% Bare Ground in Hei		_			Present?		
	Species with less than 5% cover a	re not concid	lered domina	nt Greator the	an 50% of the dominant encoice	are hydrophytic. This s	atisfies the
	hytic vegetation criterion.	I & HOL CONSIC	iereu uomina	ii. Greater tha	an 50% of the dominant species	are riyuropriyuc. Triis s	ausiies uie
- '							

Project Site: <u>ELST - South Sammamish</u>

OIL							Sampling Point: W22CD-SP1 (rev)
rofile Description: (Des	cribe to th	e depth	needed to	document the indicator	or confirm the abse	ence of indicate	ors.)
Depth	/latrix		_	Redox Featur	res		
nches) Color (mo	ist)	%	Color (m	oist) %	Type ¹ Loc ²	Texture	Remarks
<u>0-16</u> <u>10YR 2</u>	<u>/1</u>	<u>100</u>	=	Ξ.	Ξ Ξ	gr. sa. lo	<u>am</u>
<u>16-20</u> <u>N 3/-</u>		<u>100</u>	=	Ξ.	Ξ Ξ	sa. loar	<u> </u>
	· –						<u> </u>
							
	-			-			
	-						
				-			
				-			
	-			trix, CS=Covered or Coat	ted Sand Grains.		Pore Lining, M=Matrix
ydric Soil Indicators: (A	pplicable	to all Li	_	· ·			cators for Problematic Hydric Soils ³ :
Histosol (A1)				Sandy Redox (S5)			2 cm Muck (A10)
Histic Epipedon (A2)				Stripped Matrix (S6)		=	Red Parent Material (TF2)
Black Histic (A3)	.,			Loamy Mucky Mineral	. ,	, –	Very Shallow Dark Surface (TF12)
Hydrogen Sulfide (A				Loamy Gleyed Matrix	(F2)		Other (Explain in Remarks)
Depleted Below Dar		A11)		Depleted Matrix (F3)			
Thick Dark Surface				Redox Dark Surface (I		3India	cators of hydrophytic vegetation and
Sandy Mucky Miner				Depleted Dark Surface		W	etland hydrology must be present,
Sandy Gleyed Matri	. ,			Redox Depressions (F	-8)	ur	nless disturbed or problematic.
estrictive Layer (if pres	ent):						
/pe:							Yes ⊠ No
emarks: The upper la				anic debris in various stag cate the hydric soil criteri			of hydrophytic vegetation and wetland hydro
					ges of decomposition.		-
emarks: The upper la and a dark r	natrix with o				ges of decomposition.		-
emarks: The upper la and a dark n YDROLOGY Vetland Hydrology Indic	ators:	organic r	naterial, ind	cate the hydric soil criteri	ges of decomposition.	The presence	-
emarks: The upper la and a dark n YDROLOGY etland Hydrology Indic	ators:	organic r	naterial, ind	cate the hydric soil criteri	ges of decomposition. on is satisfied.	The presence	of hydrophytic vegetation and wetland hydro
YDROLOGY etland Hydrology Indicinary Indicators (minimu) Surface Water (A1)	ators:	organic r	naterial, ind	cate the hydric soil criteri	ges of decomposition on is satisfied.	Secon	of hydrophytic vegetation and wetland hydro
YDROLOGY Setland Hydrology Indictionary Indicators (minimum) Surface Water (A1) High Water Table (A)	ators:	organic r	check all th	at apply) Water-Stained Leaves	ges of decomposition on is satisfied.	Secon.	of hydrophytic vegetation and wetland hydro dary Indicators (2 or more required) Water-Stained Leaves (B9)
YDROLOGY etland Hydrology Indictionary Indicators (minimus) Surface Water (A1) High Water Table (A3) Saturation (A3) Water Marks (B1)	ators: um of one re	organic r	check all th	at apply) Water-Stained Leaves (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates	ges of decomposition on is satisfied. s (B9) A, and 4B)	Secon	dary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
YDROLOGY etland Hydrology Indic imary Indicators (minimul) Surface Water (A1) High Water Table (A1) Saturation (A3) Water Marks (B1) Sediment Deposits	ators: um of one re	organic r	check all th	at apply) Water-Stained Leaves (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Odo	ges of decomposition on is satisfied. s (B9) A, and 4B) (B13) or (C1)	Second Control	dary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9)
YDROLOGY etland Hydrology Indictimary Indicators (minimular Surface Water (A1) High Water Table (A1) Saturation (A3) Water Marks (B1) Sediment Deposits Drift Deposits (B3)	ators: um of one ro	organic r	check all th	at apply) Water-Stained Leaves (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Odo Oxidized Rhizosphere	ges of decomposition on is satisfied. s (B9) A, and 4B) (B13) or (C1) s along Living Roots	Secon-	dary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2)
YDROLOGY etland Hydrology Indictionary Indicators (minimum) Surface Water (A1) High Water Table (A1) Saturation (A3) Water Marks (B1) Sediment Deposits Drift Deposits (B3) Algal Mat or Crust (ators: um of one ro	organic r	check all th	at apply) Water-Stained Leaves (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Odo Oxidized Rhizosphere Presence of Reduced	ges of decomposition on is satisfied. (B9) A, and 4B) (B13) or (C1) is along Living Roots Iron (C4)	Secon	dary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3)
YDROLOGY Vetland Hydrology Indicators (minimum) Surface Water (A1) High Water Table (A) Saturation (A3) Water Marks (B1) Sediment Deposits Drift Deposits (B3) Algal Mat or Crust (Iron Deposits (B5)	ators: Im of one ro (B2)	organic r	check all th	at apply) Water-Stained Leaves (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Odo Oxidized Rhizosphere Presence of Reduced Recent Iron Reduction	ges of decomposition on is satisfied. (B9) A, and 4B) (B13) or (C1) is along Living Roots Iron (C4) in in Tilled Soils (C6)	Secon (of hydrophytic vegetation and wetland hydro dary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5)
YDROLOGY Yetland Hydrology Indiction of the control	ators: Im of one re (B2) (B2) (B4) (B6)	equired;	check all th	at apply) Water-Stained Leaves (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Odo Oxidized Rhizosphere Presence of Reduced Recent Iron Reduction Stunted or Stresses P	ges of decomposition on is satisfied. (B9) A, and 4B) (B13) or (C1) es along Living Roots Iron (C4) in Tilled Soils (C6) lants (D1) (LRR A)	Secon	dary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
YDROLOGY etland Hydrology Indictionary Indicators (minimum) Surface Water (A1) High Water Table (A1) Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (In Incomplete (Incomplete (Incomp	ators: Im of one ro (B2) (B2) (B4) (B6) In Aerial Im-	equired;	check all th	at apply) Water-Stained Leaves (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Odo Oxidized Rhizosphere Presence of Reduced Recent Iron Reduction	ges of decomposition on is satisfied. (B9) A, and 4B) (B13) or (C1) es along Living Roots Iron (C4) in Tilled Soils (C6) lants (D1) (LRR A)	Secon	of hydrophytic vegetation and wetland hydro dary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5)
YDROLOGY etland Hydrology Indictionary Indicators (minimum) Surface Water (A1) High Water Table (A1) Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (Inon Deposits (B5)) Surface Soil Cracks Inundation Visible of Sparsely Vegetated	ators: Im of one ro (B2) (B2) (B4) (B6) In Aerial Im-	equired;	check all th	at apply) Water-Stained Leaves (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Odo Oxidized Rhizosphere Presence of Reduced Recent Iron Reduction Stunted or Stresses P	ges of decomposition on is satisfied. (B9) A, and 4B) (B13) or (C1) es along Living Roots Iron (C4) in Tilled Soils (C6) lants (D1) (LRR A)	Secon	dary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
YDROLOGY Tetland Hydrology Indicators (minimum Indicators (minimu	ators: Im of one ro (B2) (B2) (B6) n Aerial Im. Concave S	equired; agery (E	check all th	at apply) Water-Stained Leaves (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Odo Oxidized Rhizosphere Presence of Reduced Recent Iron Reduction Stunted or Stresses P Other (Explain in Rem	ges of decomposition on is satisfied. (B9) A, and 4B) (B13) or (C1) es along Living Roots Iron (C4) in Tilled Soils (C6) lants (D1) (LRR A)	Secon	dary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
MYDROLOGY Vetland Hydrology Indications (minimum) Surface Water (A1) High Water Table (A) Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (Inon Deposits (B5) Surface Soil Cracks Inundation Visible of Sparsely Vegetated (ield Observations: urface Water Present?	ators: Im of one ro (B2) (B2) (B6) (Acrial Image Concave S	equired;	check all th	at apply) Water-Stained Leaves (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Odo Oxidized Rhizosphere Presence of Reduced Recent Iron Reduction Stunted or Stresses P Other (Explain in Rem	ges of decomposition on is satisfied. (B9) A, and 4B) (B13) or (C1) es along Living Roots Iron (C4) in Tilled Soils (C6) lants (D1) (LRR A) earks)	Secon	dary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
MYDROLOGY Metland Hydrology Indication (A3) High Water Table (A3) Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (1) Iron Deposits (B5) Surface Soil Cracks Inundation Visible of Sparsely Vegetated (ield Observations: 1) Water Table Present?	ators: Im of one ro (B2) (B2) (B6) n Aerial Im. Concave S	equired; agery (E	check all th	at apply) Water-Stained Leaves (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Odo Oxidized Rhizosphere Presence of Reduced Recent Iron Reduction Stunted or Stresses P Other (Explain in Rem	ges of decomposition on is satisfied. (B9) A, and 4B) (B13) or (C1) es along Living Roots Iron (C4) in Tilled Soils (C6) lants (D1) (LRR A)	Secon	dary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
MYDROLOGY //etland Hydrology Indicators (minimum of the control o	ators: Im of one ro (B2) (B2) (B6) (Acrial Image Concave S	equired;	check all th	at apply) Water-Stained Leaves (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Odo Oxidized Rhizosphere Presence of Reduced Recent Iron Reduction Stunted or Stresses P Other (Explain in Rem	ges of decomposition on is satisfied. (B9) A, and 4B) (B13) or (C1) es along Living Roots Iron (C4) in Tilled Soils (C6) lants (D1) (LRR A) earks)	Secon-	dary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
IYDROLOGY /etland Hydrology Indic rimary Indicators (minimumary Indicators (Mas) Surface Water Table (Masses (Mas	ators: Im of one re (B2) (B2) (B4) (B6) In Aerial Im Concave S Yes Yes Yes	equired;	check all th	at apply) Water-Stained Leaves (except MLRA 1, 2, 4) Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Odo Oxidized Rhizosphere Presence of Reduced Recent Iron Reduction Stunted or Stresses P Other (Explain in Rem	ges of decomposition on is satisfied. (B9) A, and 4B) (B13) or (C1) is along Living Roots Iron (C4) in Tilled Soils (C6) lants (D1) (LRR A) iarks) 7 surface	Secon George Ge	dary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
IYDROLOGY /etland Hydrology Indic rimary Indicators (minimumary Indicators (Mas) Surface Water Table (Masses (Mas	ators: Im of one re (B2) (B2) (B4) (B6) In Aerial Im Concave S Yes Yes Yes	equired;	check all th	at apply) Water-Stained Leaves (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Odo Oxidized Rhizosphere Presence of Reduced Recent Iron Reduction Stunted or Stresses P Other (Explain in Rem	ges of decomposition on is satisfied. (B9) A, and 4B) (B13) or (C1) is along Living Roots Iron (C4) in Tilled Soils (C6) lants (D1) (LRR A) iarks) 7 surface	Secon George Ge	dary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)

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

Project Site:	ELST - South Sammamish Segn	<u>nent</u>		City/Cour	ty: <u>Sammamish/King</u>	Sampling Date:	10-25-13	
Applicant/Owner:	King County				State: WA	Sampling Point:	W22CD-S (rev)	<u> P2</u>
Investigator(s):	C. Worsley; M. Maynard				Section, Township, Ran	ge: S06, T24N, R06E		
Landform (hillslope, te	rrace, etc.): <u>hillslope</u>		Loca	al relief (conc	ave, convex, none): convex	Slope	e (%): <u>2</u>	
Subregion (LRR):	<u>A</u>	Lat:	_		Long:	Datum: _		
Soil Map Unit Name:	Alderwood gravelly sandy loam	ı, 6 to 15 % s	lopes		NWI clas	ssification: NA		
Are climatic / hydrolog	ic conditions on the site typical for	this time of	year? Y	es 🛚	No	n Remarks.)		
Are Vegetation □,	Soil □, or Hydrology	☐, signific	antly disturbed	l? Are "	Normal Circumstances" present	? Yes	⊠ No	
Are Vegetation □,	Soil □, or Hydrology	□, natural	ly problematic	? (If ne	eded, explain any answers in Re	emarks.)		
SUMMARY OF FIN	IDINGS – Attach site map sl	nowing san	npling point	locations,	transects, important featu	res, etc.		
Hydrophytic Vegetatio	n Present?	Yes 🛚	No 🗆					
Hydric Soil Present?		Yes 🗌	No 🛛	Is the Samp within a We		Yes	☐ No	\boxtimes
Wetland Hydrology Pr	esent?	Yes 🗌	No 🛛	within a vve	cualiu :			
Remarks: Sample p	lot is located approximately 15 fee	et east of wet	and boundary	flag W22CD	-4 in Rubus armeniacus iust we	est of Thuia plicata. Nea	ar south end	of
W22CD.	iot io ioodiod approximatory 10 ioc	or odor or wor	and boundary	nag WZZOD	i, iii readad airiidiiladad, jade we	or or rridge product. Not	ii oodiii ond	
VEGETATION – Us	se scientific names of plants	s						
Tree Stratum (Plot siz	e: <u>30 feet</u>)	Absolute <u>% Cover</u>	Dominant Species?	Indicator Status	Dominance Test Worksheet:			
1. Thuja plicata		<u>15</u>	<u>yes</u>	FAC	Number of Dominant Species			
2			1		That Are OBL, FACW, or FAC	: <u>4</u>		(A)
3					Total Number of Dominant			
4					Species Across All Strata:	<u>5</u>		(B)
50% =, 20% =		15	= Total Cove		Percent of Dominant Species			
Sapling/Shrub Stratun					That Are OBL, FACW, or FAC	: <u>80</u>		(A/B)
Cornus alba (Corr		<u>10</u>	<u>ves</u>	FACW	Prevalence Index worksheet	:		
2	<u>ио оонооц,</u>	10	<u>700</u>	171011	Total % Cover of:		v bv.	
3					OBL species	x1 =	, 2 , .	
4					FACW species	x2 =		
5					FAC species	x3 =		
50% =, 20% =		10	= Total Cove	, —	FACU species	x4 =		
· · · · · · · · · · · · · · · · · · ·		10	= Total Cove					
Herb Stratum (Plot siz				0.01	UPL species	x5 =		
Scirpus microcarp		<u>2</u>	<u>no</u>	<u>OBL</u>	Column Totals:		(B	3)
2. Equisetum telmate	<u>eia</u>	<u>15</u>	<u>yes</u>	<u>FACW</u>		Index = B/A =		
3. Ranunculus reper	_	<u>2</u>	<u>no</u>	<u>FAC</u>	Hydrophytic Vegetation Indi			
4. Phalaris arundinad	<u>cea</u>	<u>10</u>	<u>yes</u>	<u>FACW</u>	1 – Rapid Test for Hydro			
5					□ 2 - Dominance Test is >5	50%		
6					☐ 3 - Prevalence Index is <	<u>:</u> 3.0 ¹		
7					4 - Morphological Adapta		ting	
8					data in Remarks or or	a separate sheet)		
9					5 - Wetland Non-Vascula	ar Plants ¹		
10					☐ Problematic Hydrophytic	Vegetation ¹ (Explain)		
11								
50% = <u>15,</u> 20% = <u>6</u>		<u>29</u>	= Total Cove	r	¹ Indicators of hydric soil and w be present, unless disturbed o			
Woody Vine Stratum ((Plot size: 10 feet)				bo prodont, amode distarbed e	problematic.		
1. Rubus armeniacus	<u>8</u>	<u>60</u>	<u>yes</u>	FACU				
2					Hydrophytic	_		_
50% =, 20% =		60	= Total Cove	r	•	′es ⊠	No	
% Bare Ground in Hei		_			Present?			
	Species with less than 5% cover a	re not consid	ered dominant	Greater tha	n 50% of the dominant species	are hydrophytic. This s	atisfies the	
	hytic vegetation criterion.	io not consid	orou uomindill	. Oroater the	an 5070 of the dominant species	are riyuropriyuo. Tille s	ationes trie	

Project Site: <u>ELST - South Sammamish</u>

SOIL				the indicator of	r confirm the ahs		Sampling F				
Profile Description: (Describ	e to the dep	oth needed t	o document	the indicator of	i commin the abs	ence of indica	tors.)				
Depth Matri	X			Redox Features	S						
inches) Color (moist)	%	Color	(moist)		ype ¹ Loc ²	Texture	<u> </u>	F	Remarks	3	
<u>0-20</u> <u>10YR 2/1</u>	<u>100</u>	=		Ξ	<u> </u>	gr. sa. l	<u></u>				
			_								
			_								
			_								
			_			- —					
			_								
			_								
			_								
Гуре: C= Concentration, D=D	epletion, RN	1=Reduced N	fatrix, CS=C	overed or Coated	d Sand Grains.	² Location: PL	=Pore Lining, M=	=Matrix			
lydric Soil Indicators: (Appl	icable to all	LRRs, unle	ss otherwis	e noted.)		Indi	icators for Prob	lematic H	lydric S	oils³:	
Histosol (A1)			Sandy I	Redox (S5)			2 cm Muck (A	410)			
Histic Epipedon (A2)			Strippe	d Matrix (S6)			Red Parent N	Material (T	F2)		
☐ Black Histic (A3)			Loamy	Mucky Mineral (F	F1) (except MLRA	.1)	Very Shallow	Dark Sur	face (TF	- 12)	
☐ Hydrogen Sulfide (A4)			Loamy	Gleyed Matrix (F	⁷ 2)		Other (Explai	in in Rema	arks)		
☐ Depleted Below Dark Su	rface (A11)		Deplete	ed Matrix (F3)							
☐ Thick Dark Surface (A12)		Redox	Dark Surface (F6	5)						
☐ Sandy Mucky Mineral (S	1)		Deplete	ed Dark Surface ((F7)		licators of hydrop wetland hydrolog				
Sandy Gleyed Matrix (S4	1)		Redox	Depressions (F8))		unless disturbed			•,	
estrictive Layer (if present)	:										
ype:											
						ils Present?		Yes		No	\boxtimes
					Hydric Sc						
Depth (inches): Remarks: HYDROLOGY					Hydric Sc						
Remarks: .	s:				Hydric Sc						
Remarks: HYDROLOGY Vetland Hydrology Indicator		ed; check all	that apply)		Hydric So	Seco	ndary Indicators	(2 or more	e require	ed)	
HYDROLOGY Vetland Hydrology Indicator		ed; check all		Stained Leaves (I		Seco	ndary Indicators Water-Stained L	-		ed)	
HYDROLOGY Wetland Hydrology Indicator rimary Indicators (minimum o] Water-S	Stained Leaves (I	B9)		-	eaves (B	9)	ed)	
HYDROLOGY Wetland Hydrology Indicator rimary Indicators (minimum o Surface Water (A1) High Water Table (A2)] Water-S	,	B9)		Water-Stained L	eaves (B	9)	ed)	
HYDROLOGY Vetland Hydrology Indicator Primary Indicators (minimum o Surface Water (A1) High Water Table (A2) Saturation (A3)			Water-S (except	t MLRA 1, 2, 4A,	B9) , and 4B)		Water-Stained L	eaves (Bs , and 4B) ns (B10)	9)	ed)	
IYDROLOGY Vetland Hydrology Indicator trimary Indicators (minimum o Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1)			Water-S (except Salt Cru Aquation	t MLRA 1, 2, 4A, ust (B11)	B9) , and 4B)		Water-Stained L (MLRA 1, 2, 4A, Drainage Pattern	eaves (Bi , and 4B) ns (B10) ter Table	9) (C2)		
AYDROLOGY Wetland Hydrology Indicator rimary Indicators (minimum o Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2)			Water-S (except Salt Cru Aquatic Hydrog	t MLRA 1, 2, 4A, ust (B11) Invertebrates (B en Sulfide Odor (B9) , and 4B)		Water-Stained L (MLRA 1, 2, 4A, Drainage Pattern Dry-Season Wat	eaves (Book and 4B) ns (B10) ter Table le on Aeric	(C2)		
HYDROLOGY Wetland Hydrology Indicator wirmary Indicators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3)		C C	Water-S (except Salt Cru Aquatic Hydrog Oxidize	t MLRA 1, 2, 4A, ust (B11) Invertebrates (B en Sulfide Odor (B9) , and 4B) 313) (C1) along Living Roots		Water-Stained L (MLRA 1, 2, 4A, Drainage Pattern Dry-Season Wat Saturation Visible	Leaves (Bs., and 4B) ns (B10) ter Table le on Aeric sition (D2)	(C2)		
HYDROLOGY Vetland Hydrology Indicator Primary Indicators (minimum of the content		C C C	Water-S (excepi] Salt Cri] Aquatic] Hydrog] Oxidize] Present	t MLRA 1, 2, 4A, ust (B11) Invertebrates (B en Sulfide Odor (bd Rhizospheres ce of Reduced Irre	B9) , and 4B) 313) (C1) along Living Roots		Water-Stained L (MLRA 1, 2, 4A, Drainage Pattern Dry-Season Wat Saturation Visibl Geomorphic Pos	Leaves (Bs., and 4B) ns (B10) ter Table le on Aeris sition (D2)	(C2)		
HYDROLOGY Vetland Hydrology Indicator Primary Indicators (minimum o 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)	f one require		Water-S (excep) Salt Cru Aquatic Hydrog Oxidize Presenu	t MLRA 1, 2, 4A, ust (B11) Invertebrates (B en Sulfide Odor (ad Rhizospheres ce of Reduced In Iron Reduction in	B9) , and 4B) 313) (C1) along Living Roots on (C4)	(C3)	Water-Stained L (MLRA 1, 2, 4A, Drainage Pattern Dry-Season Wat Saturation Visibl Geomorphic Pos Shallow Aquitare	Leaves (Bs., and 4B) ns (B10) ter Table le on Aeric sition (D2) d (D3) st (D5)	(C2) al Image	ery (C9)	
AYDROLOGY Vetland Hydrology Indicator rimary Indicators (minimum o 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)	f one require		Water-S (excep) Salt Cru Aquatic Hydrog Oxidize Present Recent Stunted	t MLRA 1, 2, 4A, ust (B11) Invertebrates (B en Sulfide Odor (ad Rhizospheres ce of Reduced In Iron Reduction in	B9) , and 4B) 313) (C1) along Living Roots on (C4) n Tilled Soils (C6) nts (D1) (LRR A)	(C3)	Water-Stained L (MLRA 1, 2, 4A, Drainage Pattern Dry-Season Wat Saturation Visibl Geomorphic Pos Shallow Aquitard FAC-Neutral Tes	Leaves (Bs., and 4B) ns (B10) ter Table le on Aeris sition (D2) d (D3) st (D5)	(C2) al Image	ery (C9)	
HYDROLOGY Wetland Hydrology Indicator Primary Indicators (minimum o 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	f one require or one require rial Imagery		Water-S (excep) Salt Cru Aquatic Hydrog Oxidize Present Recent Stunted	t MLRA 1, 2, 4A, ust (B11) Invertebrates (Been Sulfide Odor (ad Rhizospheres ce of Reduced Internal Reduction in digrams of Stresses Plant	B9) , and 4B) 313) (C1) along Living Roots on (C4) n Tilled Soils (C6) nts (D1) (LRR A)	(C3)	Water-Stained L (MLRA 1, 2, 4A, Drainage Pattern Dry-Season Wat Saturation Visibl Geomorphic Pos Shallow Aquitard FAC-Neutral Tes Raised Ant Mou	Leaves (Bs., and 4B) ns (B10) ter Table le on Aeris sition (D2) d (D3) st (D5)	(C2) al Image	ery (C9)	
AYDROLOGY Vetland Hydrology Indicator Virimary Indicators (minimum of primary Indicators (Max) 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 Ae Sparsely Vegetated Cor	f one require or one require rial Imagery		Water-S (excep) Salt Cru Aquatic Hydrog Oxidize Present Recent Stunted	t MLRA 1, 2, 4A, ust (B11) Invertebrates (Been Sulfide Odor (ad Rhizospheres ce of Reduced Internal Reduction in digrams of Stresses Plant	B9) , and 4B) 313) (C1) along Living Roots on (C4) n Tilled Soils (C6) nts (D1) (LRR A)	(C3)	Water-Stained L (MLRA 1, 2, 4A, Drainage Pattern Dry-Season Wat Saturation Visibl Geomorphic Pos Shallow Aquitard FAC-Neutral Tes Raised Ant Mou	Leaves (Bs., and 4B) ns (B10) ter Table le on Aeris sition (D2) d (D3) st (D5)	(C2) al Image	ery (C9)	
HYDROLOGY Vetland Hydrology Indicator Primary Indicators (minimum of 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 Aest Sparsely Vegetated Corfield Observations:	f one require or one require rial Imagery	C C C C C C C C C C C C C C C C C C C	Water-S (excep) Salt Cru Aquatic Hydrog Oxidize Presen: Recent Stunted Other (I	t MLRA 1, 2, 4A, ust (B11) Invertebrates (Been Sulfide Odor (ad Rhizospheres ce of Reduced Internal Reduction in digrams of Stresses Plant	B9) , and 4B) 313) (C1) along Living Roots on (C4) n Tilled Soils (C6) nts (D1) (LRR A)	(C3)	Water-Stained L (MLRA 1, 2, 4A, Drainage Pattern Dry-Season Wat Saturation Visibl Geomorphic Pos Shallow Aquitard FAC-Neutral Tes Raised Ant Mou	Leaves (Bs., and 4B) ns (B10) ter Table le on Aeris sition (D2) d (D3) st (D5)	(C2) al Image	ery (C9)	
HYDROLOGY Vetland Hydrology Indicator Primary Indicators (minimum of primary Indicators (Material Material Materi	f one require) erial Imagery	E E E E E E E E E E E E E E E E E E E	Water-S (excep) Salt Cru Aquatic Hydrog Oxidize Present Recent Stunted Other (I	t MLRA 1, 2, 4A, ust (B11) Invertebrates (Been Sulfide Odor (and Rhizospheres) are of Reduced Information (Brown Reduction in dear Stresses Plane Explain in Remark	B9) , and 4B) 313) (C1) along Living Roots on (C4) n Tilled Soils (C6) nts (D1) (LRR A)	(C3)	Water-Stained L (MLRA 1, 2, 4A, Drainage Pattern Dry-Season Wat Saturation Visibl Geomorphic Pos Shallow Aquitard FAC-Neutral Tes Raised Ant Mou	Leaves (Bs., and 4B) ns (B10) ter Table le on Aeris sition (D2) d (D3) st (D5)	(C2) al Image	ery (C9)	
HYDROLOGY Wetland Hydrology Indicator Primary Indicators (minimum o 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 Ae	f one require) brial Imagery cave Surface Yes	E E E E E E E E E E E E E E E E E E E	Water-S (excep) Salt Cru Aquatic Hydrog Oxidize Presen: Recent Stuntec Other (I	t MLRA 1, 2, 4A, ust (B11) Invertebrates (Been Sulfide Odor (ad Rhizospheres) ace of Reduced Information Reduction in dor Stresses Plane Explain in Remark	B9) , and 4B) 313) (C1) along Living Roots on (C4) n Tilled Soils (C6) nts (D1) (LRR A)	(C3)	Water-Stained L (MLRA 1, 2, 4A, Drainage Pattern Dry-Season Wat Saturation Visibl Geomorphic Pos Shallow Aquitard FAC-Neutral Tes Raised Ant Mou	Leaves (Bi , and 4B) ns (B10) ter Table le on Aerii sition (D2) d (D3) st (D5) ands (D6) mmocks ((C2) al Image	ery (C9)	
HYDROLOGY Wetland Hydrology Indicator Primary Indicators (minimum or Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Ae Sparsely Vegetated Cor Field Observations: Surface Water Present? Water Table Present?	f one require rial Imagery acave Surface Yes Yes Yes Yes Yes Yes	E E E E E E E E E E E E E E E E E E E	Water-S (excep) Salt Cri Aquatic Hydrog Oxidize Present Recent Stunted Other (I) De	t MLRA 1, 2, 4A, ust (B11) Invertebrates (Been Sulfide Odor (ad Rhizospheres cee of Reduced Information Reduction in dor Stresses Plane Explain in Remanant (Inches): pth (inches): pth (inches):	B9) , and 4B) 813) (C1) along Living Roots on (C4) n Tilled Soils (C6) nts (D1) (LRR A) rks)	(C3)	Water-Stained L (MLRA 1, 2, 4A, Drainage Pattern Dry-Season War Saturation Visibl Geomorphic Pos Shallow Aquitare FAC-Neutral Tes Raised Ant Mou Frost-Heave Hun	Leaves (Bi , and 4B) ns (B10) ter Table le on Aerii sition (D2) d (D3) st (D5) ands (D6) mmocks ((C2) al Image (LRR A)	ery (C9)	
HYDROLOGY Vetland Hydrology Indicator Primary Indicators (minimum of particular of p	f one require rial Imagery acave Surface Yes Yes Yes Yes Yes Yes	E E E E E E E E E E E E E E E E E E E	Water-S (excep) Salt Cri Aquatic Hydrog Oxidize Present Recent Stunted Other (I) De	t MLRA 1, 2, 4A, ust (B11) Invertebrates (Been Sulfide Odor (ad Rhizospheres cee of Reduced Information Reduction in dor Stresses Plane Explain in Remanant (Inches): pth (inches): pth (inches):	B9) , and 4B) 813) (C1) along Living Roots on (C4) n Tilled Soils (C6) nts (D1) (LRR A) rks)	(C3)	Water-Stained L (MLRA 1, 2, 4A, Drainage Pattern Dry-Season War Saturation Visibl Geomorphic Pos Shallow Aquitare FAC-Neutral Tes Raised Ant Mou Frost-Heave Hun	Leaves (Bi , and 4B) ns (B10) ter Table le on Aerii sition (D2) d (D3) st (D5) ands (D6) mmocks ((C2) al Image (LRR A)	ery (C9)	
HYDROLOGY Vetland Hydrology Indicator Primary Indicators (minimum of particular of p	f one require rial Imagery acave Surface Yes Yes Yes Yes Yes Yes	E E E E E E E E E E E E E E E E E E E	Water-S (excep) Salt Cri Aquatic Hydrog Oxidize Present Recent Stunted Other (I) De	t MLRA 1, 2, 4A, ust (B11) Invertebrates (Been Sulfide Odor (ad Rhizospheres cee of Reduced Information Reduction in dor Stresses Plane Explain in Remanant (Inches): pth (inches): pth (inches):	B9) , and 4B) 813) (C1) along Living Roots on (C4) n Tilled Soils (C6) nts (D1) (LRR A) rks)	(C3)	Water-Stained L (MLRA 1, 2, 4A, Drainage Pattern Dry-Season War Saturation Visibl Geomorphic Pos Shallow Aquitare FAC-Neutral Tes Raised Ant Mou Frost-Heave Hun	Leaves (Bi , and 4B) ns (B10) ter Table le on Aerii sition (D2) d (D3) st (D5) ands (D6) mmocks ((C2) al Image (LRR A)	ery (C9)	

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

Project Site: ELST	Γ - South Sammamish Segn	<u>nent</u>		City/Cour	nty: Sammamish/King	Sampling [Date:	<u>10-2</u>	<u>25-13</u>	
Applicant/Owner: King	County				State: WA	Sampling F	Point:	W22	2E-SP	<u>'1</u>
Investigator(s): C. W	orsley; M. Maynard				Section, Township, F	Range: <u>S06, T2</u>	24N, R06E			
Landform (hillslope, terrace,	etc.): <u>Ditch/Swale</u>		Loc	al relief (cond	ave, convex, none): conca	ave	Slope	: (%):	<u>0</u>	
Subregion (LRR): A		Lat:	_		Long:		Datum: _			
Soil Map Unit Name: Alde	erwood gravelly sandy loam	ı, 6 to 15 % s	slopes		NWI	classification:	<u>PEM</u>			
Are climatic / hydrologic con-	ditions on the site typical for	this time of	year? Y	′es ⊠	No 🗌 (If no, expla	in in Remarks.)				
Are Vegetation ☐, So	il □, or Hydrology	☐, signific	cantly disturbed	d? Are '	Normal Circumstances" prese	ent?	Yes	\boxtimes	No	
Are Vegetation □, So	il □, or Hydrology	□, natura	Illy problemation	? (If ne	eeded, explain any answers ir	Remarks.)				
SUMMARY OF FINDING	S - Attach site map sh	nowing sar	mpling poin	t locations	transects, important fe	atures, etc.				
Hydrophytic Vegetation Pres	ent?	Yes 🛚	No □	l- 4b - C	alad Assa					
Hydric Soil Present?		Yes 🗵	No □	Is the Samp within a We	etland?		Yes	\boxtimes	No	
Wetland Hydrology Present?	,	Yes 🛚	No 🗆							
Remarks: Sample plot is lo	ocated approximately 3 feet	west of trail	in ditch/swale.	Toward sout	h end of Wetland 22E.					
VEGETATION – Use sci	ientific names of plants	s								
Tree Stratum (Plot size: NA)	1	Absolute <u>% Cover</u>	Dominant Species?	Indicator Status	Dominance Test Worksho	et:				
1		76 COVEL	<u>Species:</u>	Status	Number of Dominant Speci	A S				
2.					That Are OBL, FACW, or F.		<u>3</u>			(A)
3					Total Number of Dominant					
4.					Species Across All Strata:		<u>3</u>			(B)
50% =, 20% =			= Total Cove	er	Percent of Dominant Speci-	20				
Sapling/Shrub Stratum (Plot	size: NA)				That Are OBL, FACW, or F.		<u>100</u>			(A/B)
1	_				Prevalence Index worksh	eet:				
2					Total % Cover		Multiply	v bv:		
3					OBL species		x1 =			
4.					FACW species		x2 =		_	
5					FAC species		x3 =		_	
50% =, 20% =			= Total Cove	er	FACU species		x4 =			
Herb Stratum (Plot size: 3 fe					UPL species	_			_	
boundary)					OPL species	_	x5 =		_	
1. <u>Equistem telmateia</u>		<u>80</u>	<u>yes</u>	<u>FACW</u>	Column Totals:	(A)			(E	3)
2. <u>Scirpus microcarpus</u>		<u>30</u>	<u>yes</u>	<u>OBL</u>	Prevaler	nce Index = B/A	=			
3. Phalaris arundinacea		<u>30</u>	<u>yes</u>	FACW	Hydrophytic Vegetation II	ndicators:				
4. <u>Holcus lanatus</u>		<u>10</u>	<u>no</u>	FAC	☐ 1 – Rapid Test for Hy		ation			
5. Ranunculus repens		<u>5</u>	<u>no</u>	FAC	2 - Dominance Test is	s >50%				
6. <u>Lysichiton americanus</u>		<u>5</u>	<u>no</u>	<u>OBL</u>	☐ 3 - Prevalence Index	is <u><</u> 3.0¹				
7. Stachys chamissonis		2	<u>no</u>	<u>FACW</u>	4 - Morphological Ada			ting		
8					data in Remarks o	r on a separate	sheet)			
9					5 - Wetland Non-Vas	cular Plants1				
10					☐ Problematic Hydroph	ytic Vegetation ¹	(Explain)			
11										
$50\% = \underline{66}, 20\% = \underline{26}$		<u>132</u>	= Total Cove	er	¹Indicators of hydric soil an be present, unless disturbe					
Woody Vine Stratum (Plot si	ze: <u>10 feet</u>)				20 process, amose distance	a or probleman				
1. Rubus armeniacus		<u>5</u>	<u>n/a*</u>	<u>FACU</u>						
2. Solanum dulcamara		<u>2</u>	<u>no</u>	FAC	Hydrophytic	., ,	_			
50% = <u>4</u> , 20% = <u>1</u>		<u>7</u>	= Total Cove	er	Vegetation Present?	Yes	\boxtimes	No		
% Bare Ground in Herb Stra	itum 0				riesenti					
*avaludad fr		nter 2 guid	ance Species	with less that	l n 5% cover are not considere	d dominant 10	0% of the o	lomin	ant sr	ecies
	tic. This satisfies the hydror					a aoa	0,0000		arre op	

Project Site: <u>ELST - South Sammamish</u>

9-13 10/YR 2Z 100 : : : : Salt loam with some organics 12-20 10/Y-41 80 10/YR 4/B 10 C M gr. sa. loam with small cobbles 12-20 10/Y-41 80 10/YR 4/B 10 C M gr. sa. loam with small cobbles 12-20 10/Y-41 80 10/YR 4/B 10 C M gr. sa. loam with small cobbles 12-20 10/Y-41 80 10/YR 4/B 10 C M gr. sa. loam with small cobbles 12-20 10/Y-41 80 10/YR 4/B 10 C M gr. sa. loam with small cobbles 12-20 10/Y-41 80 10/YR 4/B 10 C M gr. sa. loam with small cobbles 12-20 10/Y-41 80 10/Y-	-						r or cont						
Color (molist)		•	he depth	needed to	docume			irm the absence	of indicators	S.)			
9-13-20 107-R-22 100 : : : : sit town with some organics of the state	· —							. 2					
ype. C= Concentration, D=Depletion, RM-Reduced Matrix, CS=Covered or Coated Sand Grains. ype. C= Concentration, D=Depletion, RM-Reduced Matrix, CS=Covered or Coated Sand Grains. ype. C= Concentration, D=Depletion, RM-Reduced Matrix, CS=Covered or Coated Sand Grains. ype. C= Concentration, D=Depletion, RM-Reduced Matrix, CS=Covered or Coated Sand Grains. ype. C= Concentration, D=Depletion, RM-Reduced Matrix, CS=Covered or Coated Sand Grains. ype. C= Concentration, D=Depletion, RM-Reduced Matrix, CS=Covered or Coated Sand Grains. *Location: PL=Porce Lining, M=Matrix Indicators (Pproblematic Hydric Soils): Histosel (Appleado (A2)				Color (moist)	<u> </u>		Loc ²					
yper. Ce Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. **Location: PL=Pore Lining, M=Matrix yellows for indicators: (Applicable to all LRRs, unless otherwise noted.) Histoscol (A1)				10VP	4/6	<u>-</u>		<u>-</u>					
Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1)	13-20 10	<u>) Y 4/1</u>	90	<u>101R</u>	4/6	10	<u>C</u>	<u>IVI</u>	gr. sa. ioan	n with small cobb	<u>es</u>		
Indicators (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils*! Histoscol (Af)					_								
Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1)					_								
Indicators (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils*:					_								
Histos Capilicable to all LRRs, unless otherwise noted.) Histos Capilicable to all LRRs, unless otherwise noted.) Histos Capilicable to all LRRs, unless otherwise noted.) Histos Capilicable (A1) Black Histic (A3) Black Histic (A3) Black Histic (A3) Belack Histic (A4) Belack Histic (A3) Belack Histic (A4) Belack Histic (A3) Belack Histic (A4) Belack Hi													
Histos Capilicable to all LRRs, unless otherwise noted.) Histos Capilicable to all LRRs, unless otherwise noted.) Histos Capilicable to all LRRs, unless otherwise noted.) Histos Capilicable (A1) Black Histic (A3) Black Histic (A3) Black Histic (A3) Belack Histic (A4) Belack Histic (A3) Belack Histic (A4) Belack Histic (A3) Belack Histic (A4) Belack Hi													
Histos pictor Capilicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils*:	vpe: C= Concentrati	tion. D=Deplet	ion. RM=l	Reduced M	— latrix. CS=	Covered or Coa	ated Sand	d Grains. ² L	ocation: PL=Po	ore Lining, M=Matrix			
Histosci (A1)		· · · · · · · · · · · · · · · · · · ·										oils³:	
Black Histic (A3)		` ' ' '		_		-			_		•		
Hydrogen Sulfide (A4)	Histic Epipedon	(A2)			Stripp	ped Matrix (S6)				Red Parent Material	(TF2)		
Depleted Below Dark Surface (A11)	Black Histic (A3	3)			Loam	ny Mucky Minera	al (F1) (e x	ccept MLRA 1)		Very Shallow Dark S	Surface (TF	12)	
Thick Dark Surface (A12)	Hydrogen Sulfic	de (A4)			Loam	y Gleyed Matrix	(F2)			Other (Explain in Re	marks)		
Sandy Mucky Mineral (S1)	Depleted Below	/ Dark Surface	(A11)		Deple	eted Matrix (F3)							
Sandy Gleyed Matrix (S4)	Thick Dark Surf	ace (A12)			Redo	x Dark Surface	(F6)						
Sandy Gleyed Matrix (S4)	Sandy Mucky N	lineral (S1)			Deple	eted Dark Surfac	ce (F7)						
ppe:	Sandy Gleyed I	Matrix (S4)			Redo	x Depressions (F8)						
Pythology entry (inches):	estrictive Layer (if	present):											
### Organics in upper layer are likely from mowed vegetation and arbor vitae detritus. Soils are commonly disturbed along trail corridor. The presence of hydrophytic vegetation and wetland hydrology, and a gleyed matrix just below 12 inches in an area prone to disturbance, indicate the hydric soil criterion satisfied. ###################################	/pe:												
hydrophylic vegetation and wetland hydrology, and a gleyed matrix just below 12 inches in an area prone to disturbance, indicate the hydric soil criterion satisfied. YDROLOGY	epth (inches):							Hydric Soils F	resent?	Yes	\boxtimes	No	
Surface Water (A1)	hydroph	nytic vegetation									e the hydric	soil crite	
Surface Water (A1)	hydroph satisfied	nytic vegetation									e the hydric	soil crite	
High Water Table (A2)	hydroph satisfied IYDROLOGY Vetland Hydrology	nytic vegetation	n and wet	tland hydro	logy, and	a gleyed matrix			area prone to	disturbance, indicat			
Saturation (A3)	hydroph satisfied YDROLOGY (etland Hydrology I rimary Indicators (m	nytic vegetation d. Indicators: inimum of one	n and wet	tland hydro	hat apply)	a gleyed matrix	just belov		Seconda	disturbance, indicat	ore require		
Water Marks (B1)	YDROLOGY //etland Hydrology rimary Indicators (m Surface Water	Indicators: inimum of one (A1)	n and wet	tland hydro	hat apply)	a gleyed matrix	just belov	v 12 inches in ar	Seconda	ary Indicators (2 or mater-Stained Leaves	ore required		
Sediment Deposits (B2)	YDROLOGY Vetland Hydrology Inimary Indicators (m.) Surface Water High Water Tal	Indicators: inimum of one (A1) ble (A2)	n and wet	tland hydro	hat apply) Wate (exce	a gleyed matrix	just belov	v 12 inches in ar	Seconda Wa	ary Indicators (2 or mater-Stained Leaves	ore require (B9)		
Drift Deposits (B3)	YDROLOGY etland Hydrology I imary Indicators (m Surface Water High Water Tal Saturation (A3)	Indicators: inimum of one (A1) ble (A2)	n and wet	; check all t	hat apply) Wate (exce	r-Stained Leave	es (B9)	v 12 inches in ar	Seconda Wa (M)	ary Indicators (2 or mater-Stained Leaves LRA 1, 2, 4A, and 4 ainage Patterns (B10	ore required (B9) B)		
Algal Mat or Crust (B4)	YDROLOGY etland Hydrology rimary Indicators (m Surface Water High Water Tal Saturation (A3) Water Marks (E	Indicators: inimum of one (A1) ble (A2)	n and wet	; check all t	hat apply) Wate (excell Salt (a gleyed matrix r-Stained Leave pt MLRA 1, 2, 4 Crust (B11) tic Invertebrates	es (B9) 4A, and 4 5 (B13)	v 12 inches in ar	Seconda Wa (M) Dra	ary Indicators (2 or mater-Stained Leaves LRA 1, 2, 4A, and 4 ainage Patterns (B10 y-Season Water Tab	ore required (B9) B) (b) (b) (c) (d)	d)	
Iron Deposits (B5)	yDROLOGY etland Hydrology Irimary Indicators (m Surface Water High Water Tal Saturation (A3) Water Marks (E Sediment Depo	Indicators: inimum of one (A1) ble (A2) 0 31) osits (B2)	n and wet	; check all t	hat apply) Wate (exce Salt (Aqua	r-Stained Leave ept MLRA 1, 2, 4 Crust (B11) tic Invertebrates ogen Sulfide Od	es (B9) 4A, and 4 6 (B13) or (C1)	w 12 inches in ar	Seconda Wa (Mi) Dra Dra Sa	ary Indicators (2 or mater-Stained Leaves LRA 1, 2, 4A, and 4 ainage Patterns (B10 y-Season Water Tab turation Visible on A	ore required (B9) B) I) le (C2) erial Imagel	d)	
Surface Soil Cracks (B6) Stunted or Stresses Plants (D1) (LRR A) Raised Ant Mounds (D6) (LRR A) Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) Frost-Heave Hummocks (D7) Sparsely Vegetated Concave Surface (B8) eld Observations: urface Water Present? Yes No Depth (inches): ater Table Present? Yes No Depth (inches): perth (inches): Sturface Wetland Hydrology Present? Yes No Depth (inches):	yDROLOGY etland Hydrology imary Indicators (m Surface Water High Water Tal Saturation (A3) Water Marks (E Sediment Deposits (Indicators: inimum of one (A1) ble (A2) 31) osits (B2) B3)	n and wet	; check all t	hat apply) Wate (exce Salt (Aqua Hydre	r-Stained Leave ept MLRA 1, 2, 4 Crust (B11) tic Invertebrates ogen Sulfide Od zed Rhizospher	es (B9) 4A, and 4 s (B13) or (C1) es along	w 12 inches in ar	Seconda Wa (MI) Dra Dry Sa) Ge	ary Indicators (2 or mater-Stained Leaves LRA 1, 2, 4A, and 4 ainage Patterns (B10 y-Season Water Tab turation Visible on A comorphic Position (I	ore required (B9) B) I) le (C2) erial Imagel	d)	
Inundation Visible on Aerial Imagery (B7)	hydroph satisfied YDROLOGY Vetland Hydrology Irimary Indicators (m Surface Water High Water Tal Saturation (A3) Water Marks (E Sediment Depo Drift Deposits (Algal Mat or Cr	Indicators: inimum of one (A1) ble (A2) 31) osits (B2) B3) rust (B4)	n and wet	; check all t	hat apply) Wate (exce Salt (Aqua Hydro	r-Stained Leave ept MLRA 1, 2, 4 Crust (B11) tic Invertebrates ogen Sulfide Od zed Rhizospherence of Reduced	es (B9) 4A, and 4 s (B13) or (C1) es along d Iron (C4)	w 12 inches in ar 4B) Living Roots (C3	Seconda Wa (M) Dra Dry Sa) Ge	ary Indicators (2 or mater-Stained Leaves LRA 1, 2, 4A, and 4 ainage Patterns (B10 y-Season Water Tab turation Visible on A comorphic Position (I allow Aquitard (D3)	ore required (B9) B) I) le (C2) erial Imagel	d)	
Sparsely Vegetated Concave Surface (B8) ield Observations: urface Water Present? Yes No Depth (inches): /ater Table Present? Yes No Depth (inches): 11 aturation Present? Yes No Depth (inches): surface Wetland Hydrology Present? Yes No	hydroph satisfied IYDROLOGY Vetland Hydrology Irimary Indicators (m Surface Water High Water Tal Saturation (A3) Water Marks (E Sediment Deposits (Algal Mat or Cr Iron Deposits (Indicators: inimum of one (A1) ble (A2) 31) osits (B2) B3) rust (B4)	n and wet	; check all t	hat apply) Wate (exce Salt (Aqua Hydre Oxidi Prese Rece	ar-Stained Leave ept MLRA 1, 2, 4 Crust (B11) tic Invertebrates ogen Sulfide Od zed Rhizospherence of Reduced nt Iron Reduction	es (B9) 4A, and 4 s (B13) or (C1) es along d Iron (C4) on in Tille	4B) Living Roots (C3	Seconda	ary Indicators (2 or mater-Stained Leaves LRA 1, 2, 4A, and 4 ainage Patterns (B10 y-Season Water Tab turation Visible on A comorphic Position (I allow Aquitard (D3) C-Neutral Test (D5)	ore required (B9) B) I) le (C2) erial Imaged	d)	
ield Observations: urface Water Present? Yes No Depth (inches): /ater Table Present? Yes No Depth (inches): 11 aturation Present? Yes No Depth (inches): surface Wetland Hydrology Present? Yes No	hydroph satisfied IYDROLOGY /etland Hydrology rimary Indicators (m Surface Water High Water Tal Saturation (A3) Water Marks (E Sediment Depo Drift Deposits (Algal Mat or Cr Iron Deposits (I Surface Soil Cr	Indicators: inimum of one (A1) ble (A2) basits (B2) B3) rust (B4) B5) racks (B6)	required;	; check all t	hat apply) Wate (exce Salt (Aqua Hydre Oxidi Prese Rece Stunt	ar-Stained Leave pt MLRA 1, 2, 4 Crust (B11) tic Invertebrates ogen Sulfide Od zed Rhizospher ence of Reduced nt Iron Reduction ed or Stresses F	es (B9) 4A, and 4 5 (B13) or (C1) es along d Iron (C4) on in Tillee	4B) Living Roots (C3	Seconda Wa (M) Dra Dra Sa Sh Ra	ary Indicators (2 or mater-Stained Leaves LRA 1, 2, 4A, and 4 ainage Patterns (B10 y-Season Water Tab turation Visible on A comorphic Position (I allow Aquitard (D3) C-Neutral Test (D5) ised Ant Mounds (D0)	ore required (B9) B) (b) (B) (C2) (B) (C2) (B) (C3) (C4)	d)	
urface Water Present? Yes No Depth (inches): /ater Table Present? Yes No Depth (inches): 11 aturation Present? Yes No Depth (inches): surface Wetland Hydrology Present? Yes No	hydroph satisfied IYDROLOGY Vetland Hydrology I rimary Indicators (m Surface Water High Water Tal Saturation (A3) Water Marks (E Sediment Depo Drift Deposits (I Algal Mat or Cr Iron Deposits (I Surface Soil Cr Inundation Visi	Indicators: inimum of one (A1) ble (A2) 031) osits (B2) B3) rust (B4) B5) racks (B6) ble on Aerial In	required;	; check all t	hat apply) Wate (exce Salt (Aqua Hydre Oxidi Prese Rece Stunt	ar-Stained Leave pt MLRA 1, 2, 4 Crust (B11) tic Invertebrates ogen Sulfide Od zed Rhizospher ence of Reduced nt Iron Reduction ed or Stresses F	es (B9) 4A, and 4 5 (B13) or (C1) es along d Iron (C4) on in Tillee	4B) Living Roots (C3	Seconda Wa (M) Dra Dra Sa Sh Ra	ary Indicators (2 or mater-Stained Leaves LRA 1, 2, 4A, and 4 ainage Patterns (B10 y-Season Water Tab turation Visible on A comorphic Position (I allow Aquitard (D3) C-Neutral Test (D5) ised Ant Mounds (D0)	ore required (B9) B) (b) (B) (C2) (B) (C2) (B) (C3) (C4)	d)	
/ater Table Present? Yes No Depth (inches): 11 aturation Present? Yes No Depth (inches): surface Wetland Hydrology Present? Yes No	hydroph satisfied IYDROLOGY Vetland Hydrology Irimary Indicators (m Surface Water Tal Saturation (A3) Water Marks (E Sediment Depo Drift Deposits (Algal Mat or Cr Iron Deposits (I Surface Soil Cr Inundation Visi Sparsely Veger	Indicators: inimum of one (A1) ble (A2) 031) osits (B2) B3) rust (B4) B5) racks (B6) ble on Aerial In	required;	; check all t	hat apply) Wate (exce Salt (Aqua Hydre Oxidi Prese Rece Stunt	ar-Stained Leave pt MLRA 1, 2, 4 Crust (B11) tic Invertebrates ogen Sulfide Od zed Rhizospher ence of Reduced nt Iron Reduction ed or Stresses F	es (B9) 4A, and 4 5 (B13) or (C1) es along d Iron (C4) on in Tillee	4B) Living Roots (C3	Seconda Wa (M) Dra Dra Sa Sh Ra	ary Indicators (2 or mater-Stained Leaves LRA 1, 2, 4A, and 4 ainage Patterns (B10 y-Season Water Tab turation Visible on A comorphic Position (I allow Aquitard (D3) C-Neutral Test (D5) ised Ant Mounds (D0)	ore required (B9) B) (b) (B) (C2) (B) (C2) (B) (C3) (C4)	d)	
aturation Present? Yes M No D Depth (inches): surface Wetland Hydrology Present? Yes M No	hydroph satisfied IYDROLOGY Vetland Hydrology Irimary Indicators (m	Indicators: inimum of one (A1) ble (A2) 31) osits (B2) B3) rust (B4) B5) racks (B6) ble on Aerial II tated Concave	required; magery (E	; check all t	hat apply) Wate (exce Salt (Aqua Hydro Oxidi Prese Rece Stunt	a gleyed matrix ar-Stained Leave ept MLRA 1, 2, 4 Crust (B11) tic Invertebrates ogen Sulfide Od zed Rhizosphere ence of Reduced nt Iron Reduction ed or Stresses For (Explain in Rer	es (B9) 4A, and 4 5 (B13) or (C1) es along d Iron (C4) on in Tillee	4B) Living Roots (C3	Seconda Wa (M) Dra Dra Sa Sh Ra	ary Indicators (2 or mater-Stained Leaves LRA 1, 2, 4A, and 4 ainage Patterns (B10 y-Season Water Tab turation Visible on A comorphic Position (I allow Aquitard (D3) C-Neutral Test (D5) ised Ant Mounds (D0)	ore required (B9) B) (b) (B) (C2) (B) (C2) (B) (C3) (C4)	d)	
	hydroph satisfied YDROLOGY Vetland Hydrology Inimary Indicators (m	Indicators: inimum of one (A1) ble (A2) 31) osits (B2) B3) rust (B4) B5) racks (B6) ble on Aerial II tated Concave	required; magery (Es Surface	; check all t	hat apply) Wate (exce Salt (Aqua Hydre Coxidi Rece Stunt Other	a gleyed matrix ar-Stained Leave pt MLRA 1, 2, 4 Crust (B11) tic Invertebrates gen Sulfide Od zed Rhizosphere ence of Reduced nt Iron Reduction ed or Stresses F r (Explain in Rer Depth (inches):	es (B9) 4A, and 4 s (B13) or (C1) es along d Iron (C4 on in Tiller Plants (D marks)	4B) Living Roots (C3	Seconda Wa (M) Dra Dra Sa Sh Ra	ary Indicators (2 or mater-Stained Leaves LRA 1, 2, 4A, and 4 ainage Patterns (B10 y-Season Water Tab turation Visible on A comorphic Position (I allow Aquitard (D3) C-Neutral Test (D5) ised Ant Mounds (D0)	ore required (B9) B) (b) (B) (C2) (B) (C2) (B) (C3) (C4)	d)	
	hydroph satisfied HYDROLOGY Vetland Hydrology II Primary Indicators (m Surface Water High Water Tal Saturation (A3) Water Marks (E Sediment Depo Irift Deposits (I Algal Mat or Cr Iron Deposits (I Surface Soil Cr Inundation Visi Sparsely Veger Field Observations: Surface Water Present? Saturation Present? Includes capillary frin	Indicators: inimum of one (A1) ble (A2) 31) osits (B2) B3) rust (B4) B5) racks (B6) ble on Aerial II tated Concave nt? Yes Yes	magery (E	; check all t	hat apply) Wate (exce Salt (Aqua Hydre Oxidi Prese Stunt Other	ar-Stained Leave por MLRA 1, 2, 4 Crust (B11) tic Invertebrates pogen Sulfide Od zed Rhizospher ence of Reduced nt Iron Reductio ed or Stresses for (Explain in Rer Depth (inches): Depth (inches):	es (B9) 4A, and 4 s (B13) or (C1) es along d Iron (C2 on in Tiller Plants (D marks)	4B) Living Roots (C3 4) d Soils (C6) 1) (LRR A)	Seconda	ary Indicators (2 or mater-Stained Leaves LRA 1, 2, 4A, and 4 ainage Patterns (B10 y-Season Water Tab turation Visible on A comorphic Position (I allow Aquitard (D3) C-Neutral Test (D5) ised Ant Mounds (Di ost-Heave Hummock	ore required (B9) B) 0) le (C2) erial Imager 02) 6) (LRR A) s (D7)	d) ry (C9)	erion
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	hydroph satisfied NYDROLOGY Vetland Hydrology In Indicators (m. Surface Water High Water Tal Saturation (A3) Water Marks (E. Sediment Deposits (m. Sediment Deposits (m. Surface Soil Cr. Inundation Vision Sparsely Vegetal Sparsely Vegetal Surface Water Present Staturation Present? Includes capillary frin	Indicators: inimum of one (A1) ble (A2) 31) osits (B2) B3) rust (B4) B5) racks (B6) ble on Aerial II tated Concave nt? Yes Yes	magery (E	; check all t	hat apply) Wate (exce Salt (Aqua Hydre Oxidi Prese Stunt Other	ar-Stained Leave por MLRA 1, 2, 4 Crust (B11) tic Invertebrates pogen Sulfide Od zed Rhizospher ence of Reduced nt Iron Reductio ed or Stresses for (Explain in Rer Depth (inches): Depth (inches):	es (B9) 4A, and 4 s (B13) or (C1) es along d Iron (C2 on in Tiller Plants (D marks)	4B) Living Roots (C3 4) d Soils (C6) 1) (LRR A)	Seconda	ary Indicators (2 or mater-Stained Leaves LRA 1, 2, 4A, and 4 ainage Patterns (B10 y-Season Water Tab turation Visible on A comorphic Position (I allow Aquitard (D3) C-Neutral Test (D5) ised Ant Mounds (Di ost-Heave Hummock	ore required (B9) B) 0) le (C2) erial Imager 02) 6) (LRR A) s (D7)	d) ry (C9)	erion

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

Project Site:	ELST - South Sammamish Segn	<u>nent</u>			City/Coun	ty: Sammamish/K	ing	Sampling D	Date:	<u>10-2</u>	<u>5-13</u>	
Applicant/Owner:	King County					Sta	te: WA	Sampling F	Point:	W23 (rev)	A-SP	<u>1</u>
Investigator(s):	C. Worsley; M. Maynard					Section, Tov	vnship, Rang	e: S06, T2	24N, R06E	(iev)		
Landform (hillslope, te				Loca	I relief (conc	ave, convex, none):	convex		Slope	(%):	2	
Subregion (LRR):	<u>A</u>	Lat:				Long:			Datum: _			
Soil Map Unit Name:	Alderwood gravelly sandy loam	, 15 to 30% s	slopes				NWI class	sification:	PEM			
Are climatic / hydrolog	ic conditions on the site typical for	this time of y	year?	Ye	es 🛚	No ☐ (If	no, explain in	Remarks.)				
Are Vegetation □,	Soil □, or Hydrology	☐, signific	antly distu	ırbed	? Are "	Normal Circumstanc	es" present?		Yes	\boxtimes	No	
Are Vegetation □,	Soil , or Hydrology	☐, natural	ly problem	natic?	(If ne	eded, explain any ar	nswers in Rer	marks.)				
SUMMARY OF FIN	IDINGS – Attach site map sh	owing san	npling p	oint	locations,	transects, impor	rtant featur	es, etc.				
Hydrophytic Vegetatio	n Present?	Yes 🛛	No [
Hydric Soil Present?		Yes 🛛	No [Is the Samp within a We				Yes	\boxtimes	No	
Wetland Hydrology Pr	esent?	Yes 🛚	No [within a we	dana :						
Remarks: Sample p	lot is located at northern end of we	etland, appro	ximately 8	3 feet	east of trail,	3 feet east of dtich, a	and 20 feet so	outh of woo	d stairs.			
		, . , . , . , . , . , . , . , .	, , ,		,	,						
VEGETATION – Us	se scientific names of plants	6										
Tree Stratum (Plot siz	e: <u>NA</u>)	Absolute	Dominar		Indicator	Dominance Test \	Norksheet:					
1	_	% Cover	Species?	<u> </u>	<u>Status</u>	Number of Domina	ont Consiss					
2.						That Are OBL, FAC			<u>3</u>			(A)
3						Total Number of D	ominant					
4.						Species Across All			<u>5</u>			(B)
50% =, 20% =			= Total C	Cover		Percent of Domina	nt Species					
Sapling/Shrub Stratun						That Are OBL, FAC			<u>60</u>			(A/B)
Rosa pisocarpa		<u>35</u>	<u>yes</u>		FAC	Prevalence Index	worksheet:					
2.						<u>Total</u>	% Cover of:		Multiply	by:		
3						OBL species			x1 =		_	
4.						FACW species			x2 =			
5						FAC species			x3 =		_	
50% =, 20% =		<u>35</u>	= Total C	Cover		FACU species			x4 =		_	
Herb Stratum (Plot siz	e: 3 feet)					UPL species			x5 =			
Scirpus microcarp	· · · · · · · · · · · · · · · · · · ·	20	yes		OBL	Column Totals:		(A)			(B)
	um (Athyrium filix-femina)	<u>25</u>	yes		FAC		Prevalence I		=			<i>'</i>
·	gustifolium (Epilobium a.)	30	yes		FACU	Hydrophytic Vege						
Lotus corniculatus	·	<u>10</u>	no no		FAC	☐ 1 – Rapid Te			ation			
5. Phalaris arundinad		<u>10</u>	no no		FACW	□ 2 - Dominano		-	auo.			
6. Juncus effusus		<u>10</u>	no		FACW	☐ 3 - Prevalence						
7. Polystichum muni	tum	10	no		FACU		_		ida ayanami			
8. Festuca rubra	<u> </u>	<u>10</u>	no no		FAC	4 - Morpholo data in Re	gicai Adapiai emarks or on			ing		
Veronica americai	na	<u>8</u>	no no		OBL	5 - Wetland	Non-Vascular	r Plants ¹				
10. Equisetum telmat		<u>5</u>	no no		FACW				(Evalois)			
11. Equisetum hyema		<u>2</u>			FACW	☐ Problematic	пушторпушс	vegetation	(Explain)			
50% = 70, 20% = 28	<u> </u>	<u>2</u> 140	no = Total C	Over		¹ Indicators of hydri						
Woody Vine Stratum ((Plot size: 10 feet)	140	= Total C	20061		be present, unless	disturbed or	problemation	D.			
Rubus armeniacus	·	<u>15</u>	VAS		<u>FACU</u>							
Rubus armeniacus Rubus ursinus	<u>~</u>		<u>yes</u>		FACU FACU	Hydrophytic						
50% = 8, 20% = 3		<u>2</u>	no = Total C	201/05		Vegetation	Ye	es [\boxtimes	No		
	d. Otrasti 0	<u>15</u>	- Total C	20VEI		Present?						
% Bare Ground in Her					0	500/ ///						
	Species with less than 5% cover an hytic vegetation criterion.	re not consid	ered domi	ınant.	Greater than	n 50% of the domina	nt species ar	e hydrophy	tıc. This sa	tisfies	the	
, 9												

Project Site: ELST - South Sammamish

SOIL Sampling Point: W23A-SP1 (rev) Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (inches) Color (moist) % Color (moist) % Type¹ Loc² Remarks 10YR 2/1 0-10 100 gr. sa. loam 10-18 2.5Y 3/1 98 10YR 4/6 2 <u>C</u> Μ gr. sa. loam ²Location: PL=Pore Lining, M=Matrix ¹Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils3: Histosol (A1) Sandy Redox (S5) 2 cm Muck (A10) Histic Epipedon (A2) П Stripped Matrix (S6) Red Parent Material (TF2) Black Histic (A3) Loamy Mucky Mineral (F1) (except MLRA 1) Very Shallow Dark Surface (TF12) Loamy Gleyed Matrix (F2) \boxtimes Hydrogen Sulfide (A4) Other (Explain in Remarks) Depleted Below Dark Surface (A11) Depleted Matrix (F3) Thick Dark Surface (A12) Redox Dark Surface (F6) ³Indicators of hydrophytic vegetation and П Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) wetland hydrology must be present, Sandy Gleyed Matrix (S4) Redox Depressions (F8) unless disturbed or problematic Restrictive Layer (if present): Type: **Hydric Soils Present?** Yes \boxtimes Depth (inches): No Remarks: The presence of hydrophytic vegetation and wetland hydrology, and a dark matrix with redox consentrations, indicate the hydric soil criterion is satisfied. **HYDROLOGY** Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) Secondary Indicators (2 or more required) П Surface Water (A1) Water-Stained Leaves (B9) Water-Stained Leaves (B9) High Water Table (A2) (except MLRA 1, 2, 4A, and 4B) (MLRA 1, 2, 4A, and 4B) \boxtimes Salt Crust (B11) Drainage Patterns (B10) Saturation (A3) П Water Marks (B1) Aquatic Invertebrates (B13) \Box Dry-Season Water Table (C2) Sediment Deposits (B2) Hydrogen Sulfide Odor (C1) Saturation Visible on Aerial Imagery (C9) Drift Deposits (B3) Oxidized Rhizospheres along Living Roots (C3) Geomorphic Position (D2) Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Shallow Aguitard (D3) Iron Deposits (B5) Recent Iron Reduction in Tilled Soils (C6) FAC-Neutral Test (D5) Stunted or Stresses Plants (D1) (LRR A) Surface Soil Cracks (B6) Raised Ant Mounds (D6) (LRR A) Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) Frost-Heave Hummocks (D7) Sparsely Vegetated Concave Surface (B8) Field Observations: Surface Water Present? Yes No \boxtimes Depth (inches): Water Table Present? Yes \boxtimes No Depth (inches): Saturation Present? Wetland Hydrology Present? \boxtimes No Yes \boxtimes No Depth (inches): 9 (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: Soil saturation in the upper 12 inches satisfies the wetland hydrology criterion.

Data Plot #: 23A-SP2
Wetland: Upland near 23A

WETLAND DETERMINATION

(Modified from: 1987 ACOE Wetlands Delineation Manual)

Project/Site: ELST Re-delineation Applicant/Owner: King County Investigator: Erik Christensen, Chip Maney ☐ 1987 Method ✓ 1997 WA Do Normal Circumstances exist on the site? Is the site significantly disturbed (Atypical Situation)?		S od X	County: State: No	11/7/2 Kin WA	g	- '
Is the area a potential Problem Area?	Yes _		No _	Χ	ı	
Remarks (Explain sample location, disturbances, problem areas): This sample plot is located approximately 10 feet northeast of flag W23A-5. VEGETATION (>Dominant species are checked)						
Plant Species	%	Cover	Stratur	n	Indicator	
✓ 1. Equisetum arvense	50)	Н		FAC	
2 . Polystichum munitum		ace	Н		FACU	
✓ 3. Pteridium aquilinum)	_ <u>H</u>		FACU	
4. Gaultheria shallon		ace	<u>S</u>		FACU	
5 . Rosa pisocarpa 6 Rubus armeniacus			<u>s</u> s		FACU	
6. Rubus armeniacus ✓ 7. Acer macrophyllum)	- 5		FACU	
Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing amorphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, seasonal effects, etc.): The percent of dominant species that are hydrophytic is not greater than 50 percent. Hydrophytic vegetation criterion is not satisfied.						
HYDROLOGY						
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations:			Primary			ts
Depth of Surface Water: none (in.) Depth to Free Water in Pit: none (in.) Depth to Saturated Soil: 13 (in.)	udrologi-				Water-Stained Le Local Soil Survey Other (Explain in	heres in Upper 12 inches eaves Data
Remarks (As relevant, describe recent precipitation, hydrologic modifications, local variations, etc.): Saturation in the upper 12 inches satisfies wetland hydrology criterion.						

Revisited 10-25-13 Project/Site: ELST Re-delineation Date: 11/7/2007 SOIL Soil Survey Data: Drainage Class: Moderately well drained Map Unit Name: Alderwood gravelly sandy loam 15 to 30% slopes Field Observations Confirm Mapped Type? Taxonomy (Subgroup): Entic Durochrepts Yes No X NA **Profile Description:** Depth Horizon Mottle Color Matrix Color Mottle Texture, Concretions, (Inches) Designation (Munsell Moist) (Munsell Moist) Abundance/Contrast Rhizospheres, etc. 0-12 10YR 3/2 5YR 4/6 Α few, fine, prominent gravelly sandy loam 12-16 В 10YR 3/1 5YR 4/6 few, fine, prominent gravelly sandy loam **Hydric Soil Indicators:** Histosol Listed on Hydric Soils List Histic Epipedon Fe/Mn Concretions Sulfidic Odor Organic Streaking in Sandy Soils Aquic or Peraguic Moisture Regime Mottles (Redoximorphic Features) **Reducing Conditions** Other (Explain in Remarks) X Gleyed or Low-Chroma Colors High Organic Content in Surface Layer Remarks (Describe soil disturbances, local variations, etc.): Chroma 2 soil with redoximorphic features indicate hydric soils. WETLAND DETERMINATION **Hydrophytic Vegetation Present?** No Is this Sampling Point Within a Wetland? **Hydric Soils Present?** Yes No Yes ____ No _X__ **Wetland Hydrology Present?** Yes No

Data Plot #:

Wetland:

23A-SP2

Upland near 23A

Remarks

Hydrophytic vegetation and wetland hydrology criteria are not satisfied. Therefore, the sample plot is not located in a wetland.

Data Plot #:	23B-SP1
Wetland:	23B

(modified from: 1997 A	.002	otiaiiao i		<u>·</u>		
Project/Site: ELST Re-delineation			10/31/2007	Revisited 09-20-13		
Applicant/Owner: King County		County:	King County			
Investigator: Michael Muscari/Laura Brock		State:	WA			
☐ 1987 Method	. Method		Con	nmunity ID: PEM 09-20-13 - PSS		
Do Normal Circumstances exist on the site?	res X	No _		d Plot ID: 23B-SP1		
Is the site significantly disturbed (Atypical Situation)?	/es	No	X			
Is the area a potential Problem Area?	/es	No	X			
Remarks (Explain sample location, disturbances, problem Sample plot showed hydro at bottom slope, we assumed slapproximately 10' west of flag 23B-3. 109-20-13 Observations - Observed from trail.	,	ydro based	on wetland de	scription. This sample plot is located		
VEGETATION (✔Dominant species are checked)				09-20-13 Observations		
Plant Species	% Co	ver Stratui	m Indicator	Athyrium filix-femina 20% Eguisetum arvense 30%		
✓ 1. Athyrium filix-femina	20	Herb	FAC	Equisetum hyemale 10%		
✓ 2. Equisetum arvense	30	Herb	FAC	loosestrife (yellow?) 5%		
3. Equisetum hyemale	10	Herb	FACW	Lotus corniculatus 30% Scirpus microcarpus 20%		
4 . loosestrife (yellow?)	5	Herb	FACW	— Alnus rubra 15%		
✓ 5. Lotus corniculatus	30	Herb	<u>FAC</u>	— Fraxinus latifolia 15%		
✓ 6. Scirpus microcarpus	20	Herb	OBL	Populus balsamifera 30%		
7. Alnus rubra (5' tall)	5	Shrub	FAC	Thuja plicata 30%		
8 . Fraxinus latifolia (5' tall)	10	Shrub	FACW	<u> </u>		
9 Populus balsamifera (5' tall)	10	Shrub	FAC	_		
✓ 10 . Thuja plicata (15' tall)	25	Tree	FAC	_		
Percent of Dominant Species that are OBL, FACW, or lexcept FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations Somewhat undisturbed PEM on "bench" next to lake. The purple Hydrophytic vegetation criterion is satisfied.	s, seasona		•	hydrophytic is greater than 50 percent.		
HYDROLOGY						
Recorded Data (Describe in Remarks):	,	Wetland Hy	drology Indic	eators (Describe in Remarks):		
Stream, Lake, or Tide Gage			Indicators:	(Besonbe in Hemanie).		
				d		
Aerial Photograph		X Saturated in Upper 12 inches				
Other			Water M	• •		
X No Recorded Data Available			Drift Line			
Field Observations:				at Deposits		
				e Patterns in Wetlands		
Depth of Surface Water: none (in.)		Second	ary Indicators	(2 or more required):		
Depth to Free Water in Pit: 11 (in.)			Oxidized	Rhizospheres in Upper 12 inches		
Depth to Saturated Soil: <u>surface</u> (in.)			Water-St	tained Leaves		
			Local So	il Survey Data		
				xplain in Remarks)		
Remarks (As relevant, describe recent precipitation, hyd	-	odifications,				
Saturation to the surface satisfies wetland hydrology criteri	ion.					

Project/Site	e: ELST Re-de	elineation		Date:	10/31/2007	Revisited 09-20-13
SOIL Soil Surv	ey Data:					
Map Unit I	Name: Alderv	vood gravelly sandy l	oam, 6 to 15 % slopes		Drainage Class: Moderate Field Observations Confirm	
Taxonomy	(Subgroup):	Entic Durochrepts			Yes No _X	NA
Profile De	scription:					
Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)		Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-10	А	10YR 2/1	none		none	mucky loam
10-16	В	2.5YR 4/1	none		none	gravelly sand
Hi	educing Condit leyed or Low-C igh Organic Co (Describe soil	hroma Colors ntent in Surface Laye disturbances, local va		Fe/M Orga Mottle Othe	d on Hydric Soils List n Concretions nic Streaking in Sandy Soils es (Redoximorphic Features r (Explain in Remarks)	
Hydrophy Hydric So	ND DETER tic Vegetation ils Present? Hydrology Pres	Present?	/es		Is this Sampling Yes X	g Point Within a Wetland?

Data Plot #:

Wetland:

23B-SP1

23B

Remarks

Data Plot #: 23B-SP2
Wetland: Upland near 23B

WETLAND DETERMINATION

Project/Site: ELST Re-delineation		Date: 10/	31/2007	Revisited 09-20-13
Applicant/Owner: King County			King County	
Investigator: Michael Muscari/Laura Brock	-	VA		
☐ 1987 Method	St. Method	-		munity ID: Upland Shrub
Do Normal Circumstances exist on the site?	Yes X	No		Plot ID: 23B-SP2
Is the site significantly disturbed (Atypical Situation)?	Yes	No X		FIOU ID. 23D-3F2
Is the area a potential Problem Area?	Yes	No X		
Remarks (Explain sample location, disturbances, probler		110 <u>X</u>	_	
This sample plot is located approximatly 10' southeast of t	,			
09-20-13 Observations - Observed from trail.				
VEGETATION (✓Dominant species are checked)				09-20-13 Observations
Plant Species	% Cove	er Stratum	Indicator	Convolvulus spp. 10%
1.				Equisetum hyemale 20% Equisetum telmateia 15%
✓ 2. Convolvulus spp.	20	Herb	NL	Fraxinus latifolia 5%
y 3. Equisetum hyemale	30	Herb	FACW	Rosa pisocarpa 10% Rubus armeniacus 70%
4. Equisetum telmateia	15	Herb	FACW	Rubus ursinus 30%
5 . Fraxinus latifolia	5	Shrub	FACW	- Thuja plicata 5%
6 Rosa pisocarpa	10	Shrub	FAC	-
 7. Rubus armeniacus 				
· · · · 	70	Shrub	FACU	-
✓ 8. Rubus ursinus	30	Shrub	FACU	- -
Rubus ursinus Percent of Dominant Species that are OBL, FACW, or	30 r FAC	Shrub	1 1	-
✓ 8. Rubus ursinus	30 r FAC	Shrub	1 1	- -
Percent of Dominant Species that are OBL, FACW, or (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace	30 r FAC <u>50</u>	Shrub	FACU	- -
Rubus ursinus Percent of Dominant Species that are OBL, FACW, or (except FAC-). Include species noted (*) as showing	30 r FAC 50 e.	Shrub O effects, etc.)	FACU :	ty of the plot. Rubus parviflorus,
Rubus ursinus Percent of Dominant Species that are OBL, FACW, or (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace (Remarks (Describe disturbances, relevant local variation (Equisetum hyemale, Rubus armeniacus, Rubus ursinus of bracken fern, sword fern are also present along upland bo	30 r FAC e. 50 ns, seasonal dominate uploundary. The	Shrub O effects, etc.) and vegetation	FACU : on in the vicini	
Rubus ursinus Percent of Dominant Species that are OBL, FACW, or except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace (Remarks) (Describe disturbances, relevant local variation (Equisetum hyemale, Rubus armeniacus, Rubus ursinus obracken fern, sword fern are also present along upland bo	30 r FAC e. 50 ns, seasonal dominate uploundary.The	Shrub O effects, etc.) and vegetation	FACU : on in the vicini	
Rubus ursinus Percent of Dominant Species that are OBL, FACW, or except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace remarks (Describe disturbances, relevant local variation requisetum hyemale, Rubus armeniacus, Rubus ursinus cobracken fern, sword fern are also present along upland bothan 50 percent. Hydrophytic vegetation criterion is not sa	30 r FAC e. 50 ns, seasonal dominate uploundary.The	Shrub O effects, etc.) and vegetation	FACU : on in the vicini	
Rubus ursinus Percent of Dominant Species that are OBL, FACW, or (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace (Remarks (Describe disturbances, relevant local variation (Equisetum hyemale, Rubus armeniacus, Rubus ursinus of bracken fern, sword fern are also present along upland botthan 50 percent. Hydrophytic vegetation criterion is not sa	an FAC e. s, seasonal dominate uploundary. The putisfied.	Shrub offects, etc.) and vegetatic percent of do	FACU : on in the vicini	
Rubus ursinus Percent of Dominant Species that are OBL, FACW, or except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace Remarks (Describe disturbances, relevant local variation Equisetum hyemale, Rubus armeniacus, Rubus ursinus coracken fern, sword fern are also present along upland bothan 50 percent. Hydrophytic vegetation criterion is not sat HYDROLOGY Recorded Data (Describe in Remarks):	an FAC e. s, seasonal dominate uploundary. The putisfied.	Shrub offects, etc.) and vegetatic percent of do	FACU : on in the vicinisminant specie	es that are hydrophytic is not greate
Rubus ursinus Percent of Dominant Species that are OBL, FACW, or except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace (*) include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace (*) includes the semarks (Describe disturbances, relevant local variation (*) Equisetum hyemale, Rubus armeniacus, Rubus ursinus of bracken fern, sword fern are also present along upland both than 50 percent. Hydrophytic vegetation criterion is not sat hydrophytic vegetatio	an FAC e. s, seasonal dominate uploundary. The putisfied.	Shrub effects, etc.) and vegetatic percent of do	FACU : on in the vicinisminant specie	es that are hydrophytic is not greate
Rubus ursinus Percent of Dominant Species that are OBL, FACW, or except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace (*) Remarks (Describe disturbances, relevant local variation (*) Equisetum hyemale, Rubus armeniacus, Rubus ursinus of bracken fern, sword fern are also present along upland botthan 50 percent. Hydrophytic vegetation criterion is not sate (*) HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph	an FAC e. s, seasonal dominate uploundary. The putisfied.	Shrub effects, etc.) and vegetatic percent of do	FACU : on in the vicinion in	es that are hydrophytic is not greate
Rubus ursinus Percent of Dominant Species that are OBL, FACW, or (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace (Remarks) (Describe disturbances, relevant local variation (Equisetum hyemale, Rubus armeniacus, Rubus ursinus of bracken fern, sword fern are also present along upland botthan 50 percent. Hydrophytic vegetation criterion is not sate (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other	an FAC e. s, seasonal dominate uploundary. The putisfied.	Shrub effects, etc.) and vegetatic percent of do	FACU : on in the vicinion in	tors (Describe in Remarks): in Upper 12 inches
Rubus ursinus Percent of Dominant Species that are OBL, FACW, or (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace Remarks (Describe disturbances, relevant local variation Equisetum hyemale, Rubus armeniacus, Rubus ursinus obracken fern, sword fern are also present along upland bothan 50 percent. Hydrophytic vegetation criterion is not sat HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available	an FAC e. s, seasonal dominate uploundary. The putisfied.	Shrub effects, etc.) and vegetatic percent of do	FACU To in the vicinion in th	tors (Describe in Remarks): in Upper 12 inches
Rubus ursinus Percent of Dominant Species that are OBL, FACW, or (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace Remarks (Describe disturbances, relevant local variation Equisetum hyemale, Rubus armeniacus, Rubus ursinus obracken fern, sword fern are also present along upland bothan 50 percent. Hydrophytic vegetation criterion is not sat HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available	an FAC e. s, seasonal dominate uploundary. The putisfied.	Shrub effects, etc.) and vegetatic percent of do	FACU con in the vicinity cology Indicated dicators: Inundated Saturated Water Mai Drift Lines Sediment	tors (Describe in Remarks): in Upper 12 inches rks
Rubus ursinus Percent of Dominant Species that are OBL, FACW, or (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace (except FAC-). Remarks (Describe disturbances, relevant local variation (except Factorial processes (exce	an FAC e. s, seasonal dominate uploundary. The putisfied.	Shrub effects, etc.) and vegetatic percent of do	FACU con in the vicinity cology Indicated dicators: Inundated Saturated Water Mai Drift Lines Sediment	tors (Describe in Remarks): in Upper 12 inches
Rubus ursinus Percent of Dominant Species that are OBL, FACW, or except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace (*) include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace (*) includes the second of the sec	an FAC e. s, seasonal dominate uploundary. The putisfied.	effects, etc.) and vegetatic percent of do	cology Indicadicators: Inundated Saturated Water Man Drift Lines Sediment Drainage I	tors (Describe in Remarks): in Upper 12 inches rks Deposits Patterns in Wetlands
Rubus ursinus Percent of Dominant Species that are OBL, FACW, or except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace Remarks (Describe disturbances, relevant local variation Equisetum hyemale, Rubus armeniacus, Rubus ursinus or cacken fern, sword fern are also present along upland be than 50 percent. Hydrophytic vegetation criterion is not sate HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations:	an FAC e. s, seasonal dominate uploundary. The putisfied.	effects, etc.) and vegetatic percent of do	FACU con in the vicinity of vicinity of the vicinity of v	tors (Describe in Remarks): in Upper 12 inches rks Deposits Patterns in Wetlands 2 or more required):
Rubus ursinus Percent of Dominant Species that are OBL, FACW, or (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace (Remarks) (Describe disturbances, relevant local variation (Equisetum hyemale, Rubus armeniacus, Rubus ursinus of bracken fern, sword fern are also present along upland botthan 50 percent. Hydrophytic vegetation criterion is not sat (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.)	an FAC e. s, seasonal dominate uploundary. The putisfied.	effects, etc.) and vegetatic percent of do	FACU	tors (Describe in Remarks): in Upper 12 inches rks Deposits Patterns in Wetlands 2 or more required): Rhizospheres in Upper 12 inches
Percent of Dominant Species that are OBL, FACW, or (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace Remarks (Describe disturbances, relevant local variation Equisetum hyemale, Rubus armeniacus, Rubus ursinus of bracken fern, sword fern are also present along upland botthan 50 percent. Hydrophytic vegetation criterion is not sat HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: Depth to Free Water in Pit: none (in.)	an FAC e. s, seasonal dominate uploundary. The putisfied.	effects, etc.) and vegetatic percent of do	FACU FACU FACU FACU FOR In the vicining the vicinity	tors (Describe in Remarks): in Upper 12 inches rks Deposits Patterns in Wetlands 2 or more required): Rhizospheres in Upper 12 inches ined Leaves
Percent of Dominant Species that are OBL, FACW, or (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace Remarks (Describe disturbances, relevant local variation Equisetum hyemale, Rubus armeniacus, Rubus ursinus of bracken fern, sword fern are also present along upland botthan 50 percent. Hydrophytic vegetation criterion is not sat HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: Depth to Free Water in Pit: none (in.)	an FAC e. s, seasonal dominate uploundary. The putisfied.	effects, etc.) and vegetatic percent of do	FACU FACU FACU FACU FACU FACU FACU FOR Intervious Anninant species FOR Indicators: Inundated Saturated Water Man Drift Lines Sediment Drainage Intervious (2 Oxidized F Water-Sta Local Soil	tors (Describe in Remarks): in Upper 12 inches rks Deposits Patterns in Wetlands 2 or more required): Rhizospheres in Upper 12 inches ined Leaves Survey Data
Percent of Dominant Species that are OBL, FACW, or (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace Remarks (Describe disturbances, relevant local variation Equisetum hyemale, Rubus armeniacus, Rubus ursinus of bracken fern, sword fern are also present along upland botthan 50 percent. Hydrophytic vegetation criterion is not sat HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: Depth to Free Water in Pit: none (in.)	and an	effects, etc.) and vegetatic percent of do /etland Hydr Primary Inc.	FACU con in the vicinity of in the vicinity of in the vicinity of interest of	tors (Describe in Remarks): in Upper 12 inches rks Deposits Patterns in Wetlands 2 or more required): Rhizospheres in Upper 12 inches ined Leaves Survey Data Dain in Remarks)

Revisited 09-20-13 Project/Site: ELST Re-delineation Date: 10/31/2007 SOIL Soil Survey Data: Drainage Class: Moderately well drained Map Unit Name: Alderwood gravelly sandy loam 6 to 15% slopes Field Observations Confirm Mapped Type? Taxonomy (Subgroup): Entic Durochrepts Yes No X NA **Profile Description:** Depth Horizon Mottle Color Matrix Color Mottle Texture, Concretions, (Inches) Designation (Munsell Moist) (Munsell Moist) Abundance/Contrast Rhizospheres, etc. gravelly sandy loam 0-10 10YR 2/1 none none 10-16 В 10YR 4/3 none none sandy loam **Hydric Soil Indicators:** Histosol Listed on Hydric Soils List Histic Epipedon Fe/Mn Concretions Organic Streaking in Sandy Soils Sulfidic Odor Aquic or Peraguic Moisture Regime Mottles (Redoximorphic Features) **Reducing Conditions** Other (Explain in Remarks) Gleyed or Low-Chroma Colors High Organic Content in Surface Layer Remarks (Describe soil disturbances, local variations, etc.): No indicators of hydric soil were present. Hydric soil criterion is not satisfied. WETLAND DETERMINATION **Hydrophytic Vegetation Present?** Is this Sampling Point Within a Wetland? **Hydric Soils Present?** Yes No Yes ____ No _X__ **Wetland Hydrology Present?** Yes No

Data Plot #:

Wetland:

23B-SP2

Upland near 23B

Remarks

Hydrophytic vegetation, wetland hydrology, and wetland soil criteria are not satisfied. The sample plot is not located in a wetland.

Data Plot #:	23C-SP1
Wetland:	23C

(Modified from: 1987 AC	COE We	tlands D	elineation l	Manual)
Project/Site: ELST Re-delineation		Date: 11	1/7/2007	Revisited 09-20-13
		County:	King	
Investigator: Erik Christensen, Chip Maney		-	WA	
☐ 1987 Method	Method		Comr	munity ID: PSS
Do Normal Circumstances exist on the site?	es X	No		Plot ID: 23C-SP1
Is the site significantly disturbed (Atypical Situation)? Ye	es	No >		1 101 12. 200 01 1
Is the area a potential Problem Area?	25			
Remarks (Explain sample location, disturbances, problem a This sample plot is located 5 feet west of flag W23C-2 and 10		h of a cherr	y tree.	
VEGETATION (✓Dominant species are checked)				09-20-13 Observations
Plant Species	% Cove	r Stratum	Indicator	Athyrium filix-femina 70%
✓ 1. Athyrium filix-femina	70	Н	FAC	Lonicera involucrata 50% Rubus armeniacus 30%
✓ 2. Lonicera involucrata	20	S	FAC	Rubus spectabilis 15%
3 . Rubus armeniacus	15	S	FACU	-
✓ 4. Rubus spectabilis	30	S	FAC+	_
Remarks (Describe disturbances, relevant local variations, A Prunus sp. was rooted outside of the wetland but was over are hydrophytic is greater than 50 percent. Hydrophytic vege	r hanging t	o provide 1	5 percent cove	er.The percent of dominant species tha
HYDROLOGY				
Recorded Data (Describe in Remarks):	We	etland Hyd	Irology Indica	tors (Describe in Remarks):
Stream, Lake, or Tide Gage		Primary I	ndicators:	
Aerial Photograph			Inundated	
Other		X		in Upper 12 inches
X No Recorded Data Available			Water Mai	
Field Observations:			Drift Lines	
			Sediment Drainage I	Patterns in Wetlands
Donth of Surface Water: none (in)		-	_	
Depth of Surface Water: none (in.) Depth to Free Water in Pit: 12 (in.)		Secondai	•	2 or more required):
Depth to Saturated Soil: 9 (in.)				Rhizospheres in Upper 12 inches
<u> </u>				ined Leaves
				Survey Data plain in Remarks)
Describe (As relevant describe resent mass to the true best		itiantians !		
Remarks (As relevant, describe recent precipitation, hydro Saturation in the upper 12 inches satisfies wetland hydrology	•		ocai variations,	, etc.).
09-20-13 Observations - No saturation. Standing water in tr	ail-side dit	ch.		

					Wetland	23C		
Project/Site	e: ELST Re-de	elineation		Date:	11/7/2007	Revisited 09-20-13		
SOIL Soil Surve	ey Data:							
Map Unit Name: Alderwood gravelly sandy loam 6 to 15% slopes			oes	Drainage Class: Moderat	ely well drained			
					Field Observations Confir	m Mapped Type?		
Taxonomy	(Subgroup):	Entic Durochrepts			Yes No _X	NA		
Profile De	scription:							
Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moi	ist)	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.		
0-11	А	10YR 2/1	none		none	loam		
11-18	В	5Y 4/1	7.5YR 4/6		common, medium, prominent	loamy clay 09-20-13 - clay loam		
Hydric So	il Indicators:							
•	stosol			Liste	d on Hydric Soils List			
Hi	stic Epipedon		-	Fe/M	n Concretions			
Sı	ulfidic Odor			Orga	Organic Streaking in Sandy Soils			
A	quic or Peragu	ic Moisture Regime		Mottle	es (Redoximorphic Feature	s)		
R	educing Condit	tions	-	Othe	r (Explain in Remarks)			
	leyed or Low-C							
Hi	igh Organic Co	ontent in Surface Layer		09-20-13 Ob	servations - Disturbed soil	I. Carbon/partially decomposed		
Remarks	(Describe soil	disturbances, local variat	ions, etc.):		er and gravel in lower layer.	, , ,		
Chroma 1	soil matix indi	icates hydric soils. Hydric	soil crtierion i	is satisfied.				
WETLA	ND DETER	MINATION						
Hydrophy	tic Vegetation	Present? Yes	X No		Is this Samplin	g Point Within a Wetland?		
	ils Present?	Yes				/ NI-		
•	lydrology Pre				Yes X	<u> </u>		

Data Plot #:

23C-SP1

Remarks

Data Plot #: 23C-SP2
Wetland: Upland near 23C

WETLAND DETERMINATION

Project/Site: ELST Re-delineation		Date:	11/7/	2007	Revisited 09-20-13	:
Applicant/Owner: King County			Kir	ng		_
Investigator: Erik Christensen, Chip Maney		County: State:	WA	<u> </u>		_
☐ 1987 Method	ethod			Commun	nity ID: Upland Forest	
Do Normal Circumstances exist on the site? Yes X					t ID: 23C-SP2	
Is the site significantly disturbed (Atypical Situation)? Yes		No	Χ		<u> </u>	
Is the area a potential Problem Area?		No	Х	-		
Remarks (Explain sample location, disturbances, problem are	eas):	-		-		
This sample plot is located 15 feet south/southwest of flag W23	,	l 12 feet r	north/	northeast of the	e largest cherry tree.	
VEGETATION (✓Dominant species are checked)						
Plant Species	% Cove	r Stratu	m	Indicator		
1 Equisetum telmateia	15	Н		FACW		
2 . Polystichum munitum	10	Н		FACU		
✓ 3. Rubus armeniacus	90	S		FACU		
✓ 4. Prunus spp.	66	<u> </u>				
Percent of Dominant Species that are OBL, FACW, or FAC						
(except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.	0					
Remarks (Describe disturbances, relevant local variations, se	asonal e	effects et	c).			
The percent of dominant species that are hydrophytic is not gre			,	Hydrophytic ve	getation criterion is not s	satisfied.
HYDROLOGY		•				
	W	atland Hy	ıdrol	oay Indicators	(Describe in Remarks	.).
Recorded Data (Describe in Remarks):	***	Primary			Describe in hemarks	>).
Stream, Lake, or Tide Gage		1 mmary	maic			
Aerial Photograph				Inundated Saturated in I	Jpper 12 inches	
Other				Water Marks	opper 12 mones	
X No Recorded Data Available				Drift Lines		
Field Observations:				Sediment Dep	oosits	
				Drainage Patte	erns in Wetlands	
Depth of Surface Water: none (in.)		Second	arv I	Indicators (2 or	more required):	
Depth to Free Water in Pit: none (in.)			,	•	ospheres in Upper 12 in	chas
Depth to Saturated Soil: 14 (in.)				Water-Stained		CITCS
				Local Soil Sur		
				Other (Explain	•	
Remarks (As relevant, describe recent precipitation, hydrolo	aic modi	fications	loca	` '	,	
No indicators of wetland hydrology present. Hydric soil criteria	-		1004	ii variations, cto	··)·	
,, . , ,						

Revisited 09-20-13 Project/Site: ELST Re-delineation Date: 11/7/2007 SOIL Soil Survey Data: Drainage Class: Moderately well drained Map Unit Name: Alderwood gravelly sandy loam 6 to 15% slopes Field Observations Confirm Mapped Type? Taxonomy (Subgroup): Entic Durochrepts Yes No X NA **Profile Description:** Depth Horizon Mottle Color Matrix Color Mottle Texture, Concretions, (Inches) Designation (Munsell Moist) (Munsell Moist) Abundance/Contrast Rhizospheres, etc. 0-9 10YR 2/1 Α none none loam 9-18 В 5Y 4/1 10YR 4/6 medium, common, prominent sandy loam **Hydric Soil Indicators:** Histosol Listed on Hydric Soils List Histic Epipedon Fe/Mn Concretions Organic Streaking in Sandy Soils Sulfidic Odor Aquic or Peraguic Moisture Regime Mottles (Redoximorphic Features) **Reducing Conditions** Other (Explain in Remarks) X Gleyed or Low-Chroma Colors High Organic Content in Surface Layer Remarks (Describe soil disturbances, local variations, etc.): Chroma 1 soil matrix and the presence of redoximorphic features indicate hydric soils. WETLAND DETERMINATION **Hydrophytic Vegetation Present?** No Is this Sampling Point Within a Wetland? **Hydric Soils Present?** Yes No Yes No **Wetland Hydrology Present?** Yes No

Data Plot #:

Wetland:

23C-SP2

Upland near 23C

Remarks

Hydrophytic vegetation and wetland hydrology criteria are not satisfied. Therefore, the sample plot is not located in a wetland.

Data Plot #:	24A-SP1
Wetland:	24A

(Modified from: 19	87 AC	JE Wei	lands	Delir	neation Manua	11)
Project/Site: ELST Re-delineation			Date:	11/7/2	2007	Revisited 09-20-13
Applicant/Owner: King County			County:	King	g	
Investigator: Chip Maney			State:	WA		
☐ 1987 Method	VA St. M	ethod			Community II	D: PSS
Do Normal Circumstances exist on the site?	Yes	X	No		Field Plot ID:	
Is the site significantly disturbed (Atypical Situation)?	Yes		No	Χ	11010 1101 101	2 17. 01 1
Is the area a potential Problem Area?	Yes		No	X		
Remarks (Explain sample location, disturbances, pro This sample plot is located 30 feet east from flag W24. wetland.		,	ito a will	ow thic	cket. No location o	f upland plot is available for
VEGETATION (✓Dominant species are checked	d)					
Plant Species		% Cover	Stratu	ım	Indicator	
1. Equisetum telmateia		5	Н		FACW	
2 . Glyceria striata		5	<u> H</u>		OBL	
3 . Phalaris arundinacea		trace	_ H		FACW	
4 . Cornus sericea Rubus armeniacus		20	_ <u>s</u> _ s		FACU FACU	
5. Hubus armeniacus ✓ 6. Salix scouleriana		100	_ <u>s</u>		FAC	
7. Alnus rubra		10	– j –		FAC	
Remarks (Describe disturbances, relevant local variation of the percent of dominant species that are hydrophytic				,	ophytic vegetation	criterion is satisfied.
HYDROLOGY						
Recorded Data (Describe in Remarks):		We	etland H	lydrolo	ogy Indicators ([Describe in Remarks):
Stream, Lake, or Tide Gage			Primary	y Indica	ators:	
Aerial Photograph					Inundated	
Other			>		Saturated in Uppe	r 12 inches
X No Recorded Data Available					Water Marks	
Field Observations:					Drift Lines Sediment Deposit	6
					Drainage Patterns	
Depth of Surface Water: none (in.)			Second		ndicators (2 or mor	
Depth to Free Water in Pit: 13 (in.)					Oxidized Rhizosph	neres in Upper 12 inches
Depth to Saturated Soil: 4 (in.)					Water-Stained Lea	aves
					Local Soil Survey	Data
					Other (Explain in I	Remarks)
Remarks (As relevant, describe recent precipitation	n, hydrolo	gic modi	fications	s, local	variations, etc.):	
Saturation in the upper 12 inches satisfies wetland hy	drology (criterion.				
09-20-13 Observations - Shallow inundation.						I

Project/Sit	e: ELST Re-de	elineation		Date:	11/7/2007	Revisited 09-20-13
SOIL Soil Surv	vey Data:					
Map Unit	Name: Seattle	e muck			Drainage Class: very poo	orly drained
					Field Observations Confi	rm Mapped Type?
Taxonom	y (Subgroup):	Typic Medihemists			Yes No _X	NA
Profile De	escription:					
Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)		Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-12	A	10YR 2/1	none		none	silt loam
12-18	A2	10YR 3/1	none		none	sandy loam
H H H H H H H H H H H H H H H H H H H	Reducing Condit Gleyed or Low-C ligh Organic Co	throma Colors ntent in Surface Layer disturbances, local varia	tions, etc.):	Fe/Mi Orgai Mottle	d on Hydric Soils List in Concretions nic Streaking in Sandy Soil es (Redoximorphic Feature r (Explain in Remarks)	
Hydrophy Hydric So	AND DETER ytic Vegetation oils Present? Hydrology Pre	Present? Yes	X No		.,	ng Point Within a Wetland?

Data Plot #:

Wetland:

24A-SP1

24A

Remarks

Data Plot #:	24B-SP1
Wetland:	24B

(Modified from: 198	37 ACC	JE We	tiands	Dei	ineation i	Manual)
Project/Site: ELST Re-delineation			Date:	11/2	/2007	Revisited 09-25-13
Applicant/Owner: King County			County:	Ki	ng County	
Investigator: Linda Krippner/Rachel Hulscher			State:	W	Α	
☐ 1987 Method	A St. M	ethod			Comr	munity ID: PFO
Do Normal Circumstances exist on the site?	Yes	Χ	No		- Field	Plot ID: 24B-SP1
Is the site significantly disturbed (Atypical Situation)?	Yes		No	Χ		<u></u>
Is the area a potential Problem Area?	Yes		No	Χ		
Remarks (Explain sample location, disturbances, prob	olem are	eas):			_	
This sample plot is located approximately 10 feet norther	east of I	Flag 24B	?-5.			
VEGETATION (✓Dominant species are checked))					09-25-13 Observations Equisetum telmateia 30%
Plant Species		% Cove	r Stratu	ım	Indicator	Phalaris arundinacea 5%
Equisetum telmateia		30	Herb		FACW	Urtica dioica 40%
Phalaris arundinacea Urtica dioica		50 40	Herb Herb		FACW FAC+	Fraxinus latifolia 2% Rubus armeniacus 40%
3 . Urtica dioica 4 . Fraxinus latifolia		2	Shrub		FACW	Rubus spectabilis 10%
✓ 5. Rubus armeniacus		40	Shrub		FACU	- Alnus rubra 5%
6. Rubus spectabilis		10	Shrub		FAC+	 Salix sepulcralis (fallen branches) 40° Populus balsamifera 5%
7. Alnus rubra		5	Tree		FAC	Calystegia sepium 40%
✓ 8. Salix sepulcralis		70	Tree		FAC+	_
Percent of Dominant Species that are OBL, FACW	or FAC					
(except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates tr.	ace.	80				bservations - Few, small, recently plan
Remarks (Describe disturbances, relevant local variat		easonal e	effects e			nity (e.g., Thuja plicata, Cedrus deodora onifers)
The percent of dominant species that are hydrophytic is						<u> </u>
HYDROLOGY						
Recorded Data (Describe in Remarks):		W	etland H	lvdro	logy Indica	tors (Describe in Remarks):
,		***		-	icators:	(Describe in hemarks).
Stream, Lake, or Tide Gage Aerial Photograph				,	Inundated	
Other				<	-	in Upper 12 inches
				•	Water Mai	''
					Drift Lines	
Field Observations:					Sediment	·
					Drainage I	Patterns in Wetlands
Depth of Surface Water: none (in.)			Second	dary	Indicators (2	2 or more required):
Depth to Free Water in Pit: none (in.)					Oxidized F	Rhizospheres in Upper 12 inches
Depth to Saturated Soil: 10 (in.)					-	ined Leaves
					Local Soil	Survey Data
					Other (Exp	olain in Remarks)
Remarks (As relevant, describe recent precipitation,	hydrolo	gic modi	ifications	, loca	- al variations,	, etc.):
Soil saturation in the upper 12 inches satisfies wetland	-					
southwest.	-	-				
09-25-13 Observations - No saturated soils to at least	20 inch	es below	v the sur	face.		

					Wetland	d: 24B
	FLOT D. I	и и		Б.	44/0/0007	Revisited 09-25-13
roject/Site	e: ELST Re-de	elineation		Date:	11/2/2007	Revisited 09-25-15
SOIL Soil Surv	ey Data:					
Map Unit	Name: Norma	a Sandy Loam			Drainage Class: Poorly	drained
					Field Observations Conf	irm Mapped Type?
Taxonom	y (Subgroup):	Fluventic Humaquep	ts		Yes No _X	NA
Profile De	escription:					
Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)		Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-16	Α	10YR 2/1	none		none	silt loam
H H S S A R X G	Reducing Condit Reducing Condit			Fe/M Orga Mottl	d on Hydric Soils List in Concretions nic Streaking in Sandy Soi es (Redoximorphic Feature r (Explain in Remarks)	
		disturbances, local va ndicates hydric soils.	riations, etc.):			
WETLA	ND DETER	MINATION				
Hydrophy	tic Vegetation	Present?	res <u>x</u> No		Is this Samplin	ng Point Within a Wetland?
Hydric Sc	oils Present?	•	res X No		Yes	X No
Wetland	Hydrology Pre	sent?	res X No			<u> </u>

Data Plot #:

24B-SP1

Remarks

Data Plot #: 24B-SP2
Wetland: Upland near 24B

WETLAND DETERMINATION

Project/Site: ELST Re-delineation Applicant/Owner: King County Investigator: Linda Krippner/Rachel Hulscher ☐ 1987 Method ☑ 1997 WA St. M Do Normal Circumstances exist on the site? Yes Is the site significantly disturbed (Atypical Situation)? Yes Is the area a potential Problem Area? Yes Remarks (Explain sample location, disturbances, problem are A large pond is located just east of Pine Lake Creek area, over located approximately 15 feet east of Flag 24B-6.	X eas):	County: State: No _ No _ No _	X X	County Commu Field Pl	
Plant Species ✓ 1. Equisetum telmateia ✓ 2. Phalaris arundinacea ✓ 3. Physocarpus capitatus ✓ 4. Rubus armeniacus ✓ 6. Alnus rubra ✓ 7. Populus balsamifera Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, set The percent of dominant species that are hydrophytic is greater.	71 easonal e	Herb Herb Shrub Shrub Shrub Tree Tree	F./ F./ F./ F./ F./ F./	ACW ACW- ACU AC- AC AC AC	09-25-13 Observations Equisetum telmateia 20% Phalaris arundinacea 40% Physocarpus capitatus 30% Rubus armeniacus 50% Rubus parviflorus 20% Alnus rubra 50% Populus balsamifera 20% Corylus cornuta 30% Symphoricarpos albus 20% Urtica dioica 10%
HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.) Depth to Free Water in Pit: none (in.) Depth to Saturated Soil: none (in.)	W	Primary	Indicate In S W D S D D Arry Ind	ors: nundated faturated in Vater Marks brift Lines fediment De brainage Pa dicators (2 o bxidized Rh Vater-Staine ocal Soil Si	eposits Itterns in Wetlands or more required): Izospheres in Upper 12 inches ed Leaves
Remarks (As relevant, describe recent precipitation, hydrology Soils are dry. No primary or secondary indicators of hydrology 09-25-13 Observations - No saturated soils to at least 18 inch	y are pre	esent. Wet	land hy		,

Remarks

Project/Site	e: ELST Re-de	elineation			Date:	11/2/200)7	Revisited 09-25-13
SOIL Soil Surv	ey Data:							
Map Unit	Name: <u>Seattl</u>	e muck				Drainage	e Class: very p	oorly drained
						Field Ob	servations Cor	nfirm Mapped Type?
Taxonomy	y (Subgroup):	Typic Medihemists				Yes	No X	NA
Profile De	escription:							
Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle (Muns	Color ell Moist)		Mottle Abundan	nce/Contrast	Texture, Concretions, Rhizospheres, etc.
0-12	Α	10YR 2/2	none			none		silt loam
12-16	В	10YR 5/2	none			none		silt loam
H S A R G H	leducing Conditional Conditions of the Condition of the C			c.):	Fe/M Orga Mottl	In Concreti nic Streaki es (Redoxi	c Soils List ions ing in Sandy So imorphic Featu in Remarks)	
No hydric	soil indicators	are present. Hydric so	oil criterion i	s not satis	fied.			
WETLA	ND DETER	MINATION						
Hydrophy	tic Vegetation	Present?	Yes X	No			Is this Sampl	ing Point Within a Wetland?
Hydric Sc	oils Present?		Yes	No	Χ		Yes	No X
Wetland I	Hydrology Pre	sent?	Yes	No	Χ			

Hydric soil and wetland hydrology criteria are not met. Therefore, the sample plot is not located in a wetland.

Data Plot #:

Wetland:

24B-SP2

Upland near 24B

Data Plot #:	24C-SP1
Wetland:	24C

WETLAND DETERMINATION (Modified from: 1987 ACOE Wetlands Delineation Manual)

Project/Site: ELST Re-delineation		Date:	11/7/2	2007	R	evisited (9-25-13
Applicant/Owner: King County		County:	Kin	ıg			
Investigator: Matt Maynard		State:	WA	\			
☐ 1987 Method	Method			Commur	nity ID:	PSS	09-25-13 - PEM
Do Normal Circumstances exist on the site?	s <u>X</u>	No		Field Plo	•		
Is the site significantly disturbed (Atypical Situation)? Ye	s	No	Χ				
Is the area a potential Problem Area?	s	No	Χ	•			
Remarks (Explain sample location, disturbances, problem a This sample plot is located 8 feet northeast of flag W24C-14.	reas):						
VEGETATION (✓Dominant species are checked) Plant Species	% Cove		m	Indicator			
1. Equisetum telmateia	15	_ <u>H</u>		FACW			
Phalaris arundinacea Salarum dulaamara	90 5	_ 		FAC+			
3 . Solanum dulcamara ✓ 4 . Rubus armeniacus	50	_ H		FACU			
Remarks (Describe disturbances, relevant local variations, so Due to wetland hydrology and hydric soil observed at the sand Therefore, hydrophytic vegetation criterion is satisfied.		-	,	acus is believe	d to be	growing	hydrophytically.
HYDROLOGY							
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations:	W	Primary	Indic	Inundated Saturated in U Water Marks Drift Lines Sediment Dep Drainage Path	Jpper 1 posits erns in	2 inches Wetland	is.
Depth of Surface Water: none (in.) Depth to Free Water in Pit: 11 (in.) Depth to Saturated Soil: surface (in.)		Second	lary I	ndicators (2 or Oxidized Rhiz Water-Stained Local Soil Sur Other (Explair	ospher d Leave vey Da	res in Upp es ata	
Remarks (As relevant, describe recent precipitation, hydro Saturation in the upper 12 inches satisfies wetland hydrology	•		, loca	l variations, etc	c.):		

Project/Sit	e: ELST Re-de	elineation				Date:	11/7/200	07	R	evisited 09-25-13
SOIL Soil Surv	vey Data:									
Map Unit	Name: Seattle	e muck					Drainage	e Class: ver	ry poorl	y drained
							Field Ob	servations (Confirm	Mapped Type?
Taxonom	y (Subgroup): _	Typic Medihemists					Yes	No	Χ	NA
Profile D	escription:									
Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)		tle C nsell	olor I Moist)		Mottle Abundar	nce/Contras	t	Texture, Concretions, Rhizospheres, etc.
0-6	Α	10YR 2/1	none)			none			loam
6-10	B1	10YR 3/1	none)			none			gravelly sandy loam
10-16	B2	10YR 4/2	none)			none			gravelly sandy loam
16-18	С	10YR 5/1	10YI	R 5/6			common, n	nedium, prom	ninent	silt
Hydric S	oil Indicators:									
F	listosol					Liste	d on Hydri	c Soils List		
F	listic Epipedon					Fe/M	n Concreti	ons		
s	Sulfidic Odor					Orga	nic Streak	ing in Sandy	y Soils	
A	quic or Peragui	c Moisture Regime				Mottl	es (Redoxi	imorphic Fe	atures))
F	Reducing Condit	ions				Othe	r (Explain i	in Remarks))	
XC	Gleyed or Low-C	hroma Colors								
H	ligh Organic Co	ntent in Surface Layer								
	(Describe soil	disturbances, local va	riations,	etc.):					
WEILA	AND DETERI	MINATION								
Hydrophy	ytic Vegetation	Present?	′es <u>></u>	(No			Is this San	npling	Point Within a Wetland?
Hydric So	oils Present?	١	′es ≥	(No			Yes	. X	No
Wetland	Hydrology Pres	sent?	′es ≥	(No			. 30		

Data Plot #:

Wetland:

24C-SP1

24C

Remarks

Data Plot #: 24C-SP2
Wetland: Upland near 24C

WETLAND DETERMINATION

Project/Site: ELST Re-delineation Applicant/Owner: King County Investigator: Chip Maney, Erik Christensen 1987 Method Do Normal Circumstances exist on the site? Is the site significantly disturbed (Atypical Situation)? Yes Is the area a potential Problem Area? Yes Remarks (Explain sample location, disturbances, problem are This sample plot is located in a stand of alders approximately 5	ethod X eas):	County: I State: N No X No X	
VEGETATION (✔Dominant species are checked)			
Plant Species	% Cover	Stratum	Indicator
✓ 1. Rubus armeniacus ✓ 2. Alnus rubra	90	_ <u>S</u> T	FACU FAC
Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, see The percent of dominant species that are hydrophytic is not great the percent of dominant species that are hydrophytic is not great that the percent of dominant species that are hydrophytic is not great that the percent of dominant species that are hydrophytic is not great that the percent of dominant species that are hydrophytic is not great that the percent of dominant species that are hydrophytic is not great that the percent of dominant species that are hydrophytic is not great that the percent of dominant species that are hydrophytic is not great that the percent of dominant species that are hydrophytic is not great that the percent of the percent of dominant species that are hydrophytic is not great that the percent of dominant species that are hydrophytic is not great that the percent of dominant species that are hydrophytic is not great that the percent of dominant species that are hydrophytic is not great that the percent of dominant species that are hydrophytic is not great that the percent of the percent	50 easonal e	,	
HYDROLOGY			
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations:	We	etland Hydi Primary In	rology Indicators (Describe in Remarks): dicators: Inundated Saturated in Upper 12 inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands
Depth of Surface Water: none (in.) Depth to Free Water in Pit: none (in.) Depth to Saturated Soil: none (in.) Remarks (As relevant, describe recent precipitation, hydrological forms (in.)	aic modi		y Indicators (2 or more required): Oxidized Rhizospheres in Upper 12 inches Water-Stained Leaves Local Soil Survey Data Other (Explain in Remarks)
No primary or secondary indicators of hydrology are present.	•	-	,

Remarks

Revisited 09-25-13 Project/Site: ELST Re-delineation Date: 11/7/2007 SOIL Soil Survey Data: Drainage Class: Moderately well drained Map Unit Name: Kitsap Silt Loam 2 to 8% slopes Field Observations Confirm Mapped Type? Taxonomy (Subgroup): Dystric Xerochrepts No X NA **Profile Description:** Depth Horizon Matrix Color Mottle Color Mottle Texture, Concretions, (Inches) Designation (Munsell Moist) (Munsell Moist) Abundance/Contrast Rhizospheres, etc. 0-8 10YR 2/2 Α none none gravelly loam 8-16 В 10YR 5/2 7.5YR 5/6 few, fine, prominent loam **Hydric Soil Indicators:** Histosol Listed on Hydric Soils List Histic Epipedon Fe/Mn Concretions Sulfidic Odor Organic Streaking in Sandy Soils Aquic or Peraguic Moisture Regime Mottles (Redoximorphic Features) **Reducing Conditions** Other (Explain in Remarks) Gleyed or Low-Chroma Colors High Organic Content in Surface Layer Remarks (Describe soil disturbances, local variations, etc.): Chroma 2 soil with redoximorphic features indicate hydric soils. WETLAND DETERMINATION **Hydrophytic Vegetation Present?** No Is this Sampling Point Within a Wetland? **Hydric Soils Present?** Yes No ___ No X **Wetland Hydrology Present?** Yes No

Hydrophytic vegetation and wetland hydrology criteria are not satisfied. The sample plot is not located in a wetland.

Data Plot #:

Wetland:

24C-SP2

Upland near 24C

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

Application County Control County Coun
Investigation C. Worder, M. Maymant
Solid Map Unit Numer Climate with Numer Climate Clima
Soli Map Unit Name
Are climatic / hydrologic conditions on the site typical for this time of year? Yes
Are Vegetation
SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc. Hydrofrysic Vegetation Present?
SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc. Hydrophylic Vegetation Present? Yes No S with a Wetland? Yes No S with a Wetland? Wetland Hydroboy Present? Yes No S with a Wetland? Wetland Hydroboy Present? Yes No S with a Wetland? Wetland Hydroboy Present? Yes No S with a Wetland? Wetland Hydroboy Present? Yes No S with a Wetland? Wetland Hydroboy Present? Yes No S with a Wetland? Wetland Hydroboy Present? Yes No S with a Wetland? Wetland Hydroboy Present? Yes No S with a Wetland? Wetland Hydroboy Present? Yes No S with a Wetland? Wetland Hydroboy Present? Yes No S with a Wetland? Wetland Hydroboy Present? Yes No S with a Wetland? Wetland Hydroboy Present? Yes No S with a Wetland? Wetland Hydroboy Present? Yes No S with a Wetland? Wetland Hydroboy Present? Yes No S Wetland Hydroboy Present A to Prese
Hydric Oligo Present?
Hydric Oligo Present?
Sample Present? Yes No Sample Westland Area Westla
Wetland Hydrology Present? Yes
Remarks: Sample plot is located in what was previously identified as Wetland 24D. This area is no longer wetland as it does not meet the 3 wetland criteria. Sample plot is located 13 feet west of second chain link fence post north of split rail fence. Vegetation has been cleard mowed with some disturbance to soil. VEGETATION — Use scientific names of plants Tree Stratum (Plot size: NA)
VEGETATION - Use scientific names of plants Tree Stratum (Plot size: NA)
VEGETATION - Use scientific names of plants Tree Stratum (Plot size: NA) Na Solute Species? Slatus
Absolute Species Species Species Status Species Species Species Species Species Species Species Species Status Species Speci
Absolute Species Species Species Status Species Species Species Species Species Species Species Species Status Species Speci
Number of Dominant Species 1
2
Species Across All Strata: 2
Sapling/Shrub Stratum (Plot size: NA)
Total Ke Ost., PACW, OF PAC.
Total % Cover of: Multiply by:
OBL species
FACW species X2 =
FAC species X3 =
FACU species
Herb Stratum (Plot size: 3 feet) UPL species
1. Phalaris arundinacea 50 yes FACW Column Totals:
2. Convolvulus arvensis 10 no NL (UPL) Prevalence Index = B/A =
3. Epilobium ciliatum 2 no FACW Hydrophytic Vegetation Indicators: 4. Cardamine oligosperma 2 no FAC 1 - Rapid Test for Hydrophytic Vegetation 5
4. Cardamine oligosperma 2 no FAC □ 1 - Rapid Test for Hydrophytic Vegetation 5. □ □ 2 - Dominance Test is >50% 6. □ □ 3 - Prevalence Index is ≤3.0¹ 7. □ □ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) 9. □ □ □ 5 - Wetland Non-Vascular Plants¹ 10. □ □ □ Problematic Hydrophytic Vegetation¹ (Explain) 11. □ □ □ ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. 10. □ □ □ Hydrophytic 11. Rubus armeniacus 35 yes FACU 12. □ Hydrophytic 13. Vegetation Yes □ 14. Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) □ 15. Wetland Non-Vascular Plants¹ □ □ 16. □ □ □ □ 17. Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. □ 16. □ □ □ □ 17. Indicators of hydric soil and wetland hydrology must be present, unless disturbed or probl
5
6
7
8
8
10
11
50% = 32, 20% = 13 Woody Vine Stratum (Plot size: 10 feet) 1. Rubus armeniacus 2 Mydrophytic 2 Mydrophytic 35
be present, unless disturbed or problematic. Woody Vine Stratum (Plot size: 10 feet) 1. Rubus armeniacus 2 Hydrophytic 2 Hydrophytic 4. Pegetation 5. Vegetation 5. Vegetation 5. Vegetation 5. Vegetation 5. Vegetation 5. Vegetation 6. Vegeta
1. Rubus armeniacus 35 yes FACU 2 Hydrophytic Vegetation Yes \(\text{No.} \) \end{No.} \(\text{No.} \(\text{No.} \(\text{No.} \(\text{No.} \) \end{No.} \(\text{No.} \(\text{No.} \(\text{No.} \) \end{No.} \(\text{No.} \(\text{No.} \) \end{No.} \(\text{No.} \(\text{No.} \) \end{No.} \(\text{No.} \)
2 Hydrophytic
FOOY 200Y 25 Total Cover Vegetation 165 L NO A
50% =, 20% = <u>35</u> = Total Cover Present?
% Bare Ground in Herb Stratum 20
Remarks: Species with less than 5% cover are not considered dominant. Vegetation has been cleared/mowed.

Project Site: <u>ELST - South Sammamish</u>

Depth	Matrix				Redox Fea	tures							
nches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture		l	Remarks	3	
<u>0-8</u>	10YR 3/1	<u>100</u>	=		=	Ξ	Ξ	gr. sa. loam					
<u>8-18</u>	2.5Y 3/1	<u>100</u>	Ξ		Ξ.	Ξ	Ξ	gr. sa. loam	w. many	cobbles	and woo	d debris	
			_	_									
				_									
					-								
				_									
/pe: C= Conce	entration, D=Depl	 letion. RM=	Reduced M	 atrix. CS=	Covered or Co	ated Sand	Grains. ² Lo	cation: PL=Poi	re Linina. M	=Matrix			
-	cators: (Applica								ors for Prob		Hydric S	Soils ³ :	
Histosol (A					y Redox (S5)			□ 2	cm Muck (A10)	-		
Histic Epip	edon (A2)			Stripp	oed Matrix (S6)			□ F	Red Parent I	Material (ΓF2)		
Black Histi	ic (A3)			Loam	ny Mucky Miner	al (F1) (exc	cept MLRA 1)	□ V	ery Shallow	v Dark Su	rface (TI	F12)	
Hydrogen	Sulfide (A4)			Loam	ny Gleyed Matri	ix (F2)			Other (Expla	in in Rem	arks)		
Depleted E	Below Dark Surfa	ce (A11)		Deple	eted Matrix (F3))							
Thick Dark	Surface (A12)			Redo	x Dark Surface	e (F6)							
Sandy Mu	cky Mineral (S1)			Deple	eted Dark Surfa	ace (F7)			ors of hydror and hydrolog				
Sandy Gle	yed Matrix (S4)			Redo	x Depressions	(F8)			s disturbed			ιι,	
strictive Laye	er (if present):												
e:													
oth (inches):							Hydric Soils Pr	esent?		Yes		No	
emarks: So	il disturbance an	d vegetatio	n mowing/c	earing on	site.								
YDROLOGY		d vegetatio	n mowing/c	earing on	site.								
YDROLOGY etland Hydrol	ogy Indicators:												
YDROLOGY etland Hydrol imary Indicato	ogy Indicators:		l; check all t	nat apply)					y Indicators	-		ed)	
YDROLOGY etland Hydrol imary Indicato Surface W	ogy Indicators: rs (minimum of o			hat apply) Wate	r-Stained Leav	. ,		☐ Wat	er-Stained L	_eaves (B	9)	ed)	
/DROLOGY etland Hydrol mary Indicato Surface W High Wate	ogy Indicators: rs (minimum of o /ater (A1) er Table (A2)		l; check all t	nat apply) Wate (exce	r-Stained Leav	. ,	В)	☐ Wat	er-Stained L	Leaves (B	9)	ed)	
'DROLOGY etland Hydrol mary Indicato Surface W High Wate Saturatior	ogy Indicators: rs (minimum of or /ater (A1) er Table (A2)		l; check all t	nat apply) Wate (exce	r-Stained Leav ept MLRA 1, 2, Crust (B11)	4A, and 4I	В)	☐ Wat (ML	er-Stained L RA 1, 2, 4A inage Patter	Leaves (B Leaves (B Leaves (B Leaves (B Leaves (B	9)	ed)	
TDROLOGY Itland Hydrol mary Indicato Surface W High Wate Saturatior Water Ma	ogy Indicators: rs (minimum of or /ater (A1) er Table (A2) n (A3) rks (B1)		l; check all t	nat apply) Wate (exce Salt (r-Stained Leav ept MLRA 1, 2, Crust (B11) tic Invertebrate	4A, and 4I es (B13)	В)	☐ Wat (ML ☐ Drai ☐ Dry-	er-Stained L RA 1, 2, 4A inage Patter Season Wa	Leaves (B Leaves (B Leaves (B10) Leaves (B10)	9) (C2)	•	
MOROLOGY etland Hydrol mary Indicato Surface W High Wate Saturatior Water Ma Sediment	ogy Indicators: rs (minimum of or /ater (A1) er Table (A2) n (A3) rks (B1) Deposits (B2)		l; check all t	nat apply) Wate (exce Salt (Aqua	r-Stained Leav ept MLRA 1, 2, Crust (B11) tic Invertebrate ogen Sulfide O	4A, and 4I as (B13) dor (C1)		☐ Wat (ML ☐ Drai ☐ Dry- ☐ Satu	er-Stained L RA 1, 2, 4A inage Patter Season Wa uration Visib	Leaves (B., and 4B) rns (B10) ater Table	9) (C2) al Image	•	
MOROLOGY etland Hydrol mary Indicato Surface W High Wate Saturatior Water Ma Sediment Drift Depo	ogy Indicators: rs (minimum of or Jater (A1) er Table (A2) n (A3) rks (B1) Deposits (B2) sists (B3)		I; check all t	nat apply) Wate (exce Salt (Aqua Hydro	r-Stained Leav ept MLRA 1, 2, Crust (B11) tic Invertebrate ogen Sulfide Oo zed Rhizosphe	4A, and 4I es (B13) dor (C1) eres along L	iving Roots (C3)	☐ Wat (ML ☐ Drai ☐ Dry- ☐ Satu ☐ Geo	rer-Stained L RA 1, 2, 4A inage Patter Season Wa uration Visib	Leaves (Bundards (B10) atter Table on Aerics (D2)	9) (C2) al Image	•	
MOROLOGY Etland Hydrol mary Indicato Surface W High Wate Saturation Water Ma Sediment Drift Depo	ogy Indicators: rs (minimum of or /ater (A1) er Table (A2) n (A3) rks (B1) Deposits (B2) sists (B3) or Crust (B4)		l; check all t	mat apply) Wate (exce Salt (Aqua Hydro Oxidi;	r-Stained Leav ept MLRA 1, 2, Crust (B11) tic Invertebrate ogen Sulfide Or zed Rhizosphe ence of Reduce	4A, and 4I es (B13) dor (C1) res along L ed Iron (C4)	iving Roots (C3)	Wat (ML Drai Dry- Satu Geo Sha	rer-Stained L RA 1, 2, 4A inage Patter Season Wa uration Visib imorphic Po	Leaves (B a, and 4B) rns (B10) ater Table ble on Aeri sition (D2	9) (C2) al Image	•	
MOROLOGY etland Hydrol mary Indicato Surface W High Wate Saturation Water Ma Sediment Drift Depo	ogy Indicators: rs (minimum of or /ater (A1) er Table (A2) n (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5)		l; check all t	hat apply) Wate (exce Salt (Aqua Hydre Oxidi: Prese Rece	r-Stained Leaver MLRA 1, 2, Crust (B11) tic Invertebrate ogen Sulfide Or zed Rhizospheence of Reducent Iron Reducti	4A, and 4l es (B13) dor (C1) res along L ed Iron (C4) on in Tilled	iving Roots (C3) Soils (C6)	Wat (ML Drai Dry- Satu Geo Sha	rer-Stained L RA 1, 2, 4A inage Patter Season Wa uration Visib morphic Po Illow Aquitar C-Neutral Te	Leaves (B a, and 4B) rns (B10) ater Table ole on Aeri esition (D2 rd (D3) est (D5)	9) (C2) (al Image	ery (C9)	
Petland Hydrol mary Indicato Surface W High Water Saturation Water Ma Sediment Drift Depo	ogy Indicators: rs (minimum of or /ater (A1) er Table (A2) n (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6)	ne required	l; check all t	nat apply) Wate (exce Salt C Aqua Hydro Oxidi: Prese Rece Stunt	r-Stained Leaver MLRA 1, 2, Crust (B11) tic Invertebrate ogen Sulfide Oczed Rhizosphe ence of Reducent Iron Reductied or Stresses	as (B13) dor (C1) res along L ed Iron (C4) on in Tilled Plants (D1)	iving Roots (C3) Soils (C6)	Wat (ML Drai Dry- Satu Geo Sha FAC	rer-Stained L RA 1, 2, 4A inage Patter Season Wa uration Visib bmorphic Po Illow Aquitar C-Neutral Te sed Ant Mou	Leaves (B Leaves (B Leaves (B10) Leaves (B10	9) (C2) (al Image	ery (C9)	
MOROLOGY Etland Hydrol mary Indicato Surface W High Water Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Surface S Inundation	ogy Indicators: rs (minimum of or /ater (A1) er Table (A2) n (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) n Visible on Aeria	ne required	l; check all t	nat apply) Wate (exce Salt C Aqua Hydro Oxidi: Prese Rece Stunt	r-Stained Leaver MLRA 1, 2, Crust (B11) tic Invertebrate ogen Sulfide Or zed Rhizospheence of Reducent Iron Reducti	as (B13) dor (C1) res along L ed Iron (C4) on in Tilled Plants (D1)	iving Roots (C3) Soils (C6)	Wat (ML Drai Dry- Satu Geo Sha FAC	rer-Stained L RA 1, 2, 4A inage Patter Season Wa uration Visib morphic Po Illow Aquitar C-Neutral Te	Leaves (B Leaves (B Leaves (B10) Leaves (B10	9) (C2) (al Image	ery (C9)	
PROLOGY etland Hydrol mary Indicato Surface W High Wate Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Surface S Inundation Sparsely	ogy Indicators: rs (minimum of or Jater (A1) er Table (A2) n (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) n Visible on Aeria Vegetated Conca	ne required	l; check all t	nat apply) Wate (exce Salt C Aqua Hydro Oxidi: Prese Rece Stunt	r-Stained Leaver MLRA 1, 2, Crust (B11) tic Invertebrate ogen Sulfide Oczed Rhizosphe ence of Reducent Iron Reductied or Stresses	as (B13) dor (C1) res along L ed Iron (C4) on in Tilled Plants (D1)	iving Roots (C3) Soils (C6)	Wat (ML Drai Dry- Satu Geo Sha FAC	rer-Stained L RA 1, 2, 4A inage Patter Season Wa uration Visib bmorphic Po Illow Aquitar C-Neutral Te sed Ant Mou	Leaves (B Leaves (B Leaves (B10) Leaves (B10	9) (C2) (al Image	ery (C9)	
PROLOGY etland Hydrol mary Indicato Surface W High Water Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Surface S Inundation Sparsely	ogy Indicators: rs (minimum of or /ater (A1) er Table (A2) n (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) n Visible on Aeria Vegetated Conca	ne required	l; check all t	nat apply) Wate (exce Salt (Aqua Hydre Oxidi: Prese Rece Stunt Other	r-Stained Leaver MLRA 1, 2, Crust (B11) tic Invertebrate ogen Sulfide Oczed Rhizosphe ence of Reducent Iron Reductied or Stresses	as (B13) dor (C1) res along L ed Iron (C4) on in Tilled Plants (D1)	iving Roots (C3) Soils (C6)	Wat (ML Drai Dry- Satu Geo Sha FAC	rer-Stained L RA 1, 2, 4A inage Patter Season Wa uration Visib bmorphic Po Illow Aquitar C-Neutral Te sed Ant Mou	Leaves (B Leaves (B Leaves (B10) Leaves (B10	9) (C2) (al Image	ery (C9)	
MOROLOGY etland Hydrol mary Indicato Surface W High Water Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Surface S Inundation Sparsely eld Observation	ogy Indicators: rs (minimum of or /ater (A1) er Table (A2) n (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) n Visible on Aeria vegetated Conca	ne required	l; check all t	hat apply) Wate (exce Salt (Aqua Hydre Oxidi: Prese Stunt Other	r-Stained Leav ept MLRA 1, 2, Crust (B11) tic Invertebrate ogen Sulfide Oc zed Rhizosphe ence of Reduce nt Iron Reducti ed or Stresses r (Explain in Re	as (B13) dor (C1) res along L ed Iron (C4) on in Tilled Plants (D1)	iving Roots (C3) Soils (C6)	Wat (ML Drai Dry- Satu Geo Sha FAC	rer-Stained L RA 1, 2, 4A inage Patter Season Wa uration Visib bmorphic Po Illow Aquitar C-Neutral Te sed Ant Mou	Leaves (B Leaves (B Leaves (B10) Leaves (B10	9) (C2) (al Image	ery (C9)	
YDROLOGY etland Hydrol imary Indicato Surface W High Water Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Surface S Inundation	ogy Indicators: rs (minimum of or /ater (A1) er Table (A2) n (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) n Visible on Aeria Vegetated Conca ons: resent? Ye ent? Ye	ne required	l; check all t	mat apply) Wate (exce Salt C Aqua Hydro Oxidi: Prese Rece Stunt Other	r-Stained Leaver the MLRA 1, 2, Crust (B11) tic Invertebrate ogen Sulfide Or zed Rhizosphe ence of Reduce ont Iron Reductied or Stresses r (Explain in Reduction Company (Explain in Reduction Company).	as (B13) dor (C1) res along L ed Iron (C4) on in Tilled Plants (D1)	Soils (C6)	Wat (ML Drai Dry- Satu Geo Sha FAC	er-Stained L RA 1, 2, 4A inage Patter Season Wa uration Visib omorphic Po Illow Aquitar C-Neutral Te sed Ant Mou	Leaves (B a, and 4B) rns (B10) ater Table ole on Aeri sistion (D2 rd (D3) set (D5) unds (D6)	9) (C2) (al Image	ery (C9)	0
POROLOGY etland Hydrol imary Indicato Surface W High Water Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Surface S Inundation Sparsely eld Observati urface Water P ater Table Pre cludes capillar	ogy Indicators: rs (minimum of or /ater (A1) er Table (A2) n (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) n Visible on Aeria Vegetated Conca ons: resent? Ye ent? Ye	ne required Il Imagery (Ive Surface	I; check all t	hat apply) Wate (exce Salt C Aqua Hydro Oxidi: Prese Stunt Other	r-Stained Leaver MLRA 1, 2, Crust (B11) tic Invertebrate ogen Sulfide October State of Reduce on the Iron Reductied or Stresses (Explain in Reductied or Stresses (Explain in Reductied or Stresses (Explain in Reductied or Stresses) (Explain in Reductied or Stres	des (B13) dor (C1) res along L ded Iron (C4) on in Tilled Plants (D1)	iving Roots (C3) Soils (C6)) (LRR A) Wet	☐ Wat (ML ☐ Drai ☐ Dry- ☐ Satu ☐ Geo ☐ Sha ☐ FAC ☐ Rais ☐ Fros	er-Stained L RA 1, 2, 4A inage Patter Season Wa uration Visib omorphic Po Illow Aquitar C-Neutral Te sed Ant Mou	Leaves (B a, and 4B) rns (B10) ater Table ole on Aeri sistion (D2 rd (D3) set (D5) unds (D6)	9) (C2) (al Image) (LRR A) (D7)	ery (C9)	0
POROLOGY etland Hydrol imary Indicato Surface W High Water Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Surface S Inundation Sparsely eld Observati urface Water P ater Table Pre cludes capillar	ogy Indicators: rs (minimum of or /ater (A1) er Table (A2) n (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) n Visible on Aeria Vegetated Conca ons: resent? ye ent? y fringe)	ne required Il Imagery (Ive Surface	I; check all t	hat apply) Wate (exce Salt C Aqua Hydro Oxidi: Prese Stunt Other	r-Stained Leaver MLRA 1, 2, Crust (B11) tic Invertebrate ogen Sulfide October State of Reduce on the Iron Reductied or Stresses (Explain in Reductied or Stresses (Explain in Reductied or Stresses (Explain in Reductied or Stresses) (Explain in Reductied or Stres	des (B13) dor (C1) res along L ded Iron (C4) on in Tilled Plants (D1)	iving Roots (C3) Soils (C6)) (LRR A) Wet	☐ Wat (ML ☐ Drai ☐ Dry- ☐ Satu ☐ Geo ☐ Sha ☐ FAC ☐ Rais ☐ Fros	er-Stained L RA 1, 2, 4A inage Patter Season Wa uration Visib omorphic Po Illow Aquitar C-Neutral Te sed Ant Mou	Leaves (B a, and 4B) rns (B10) ater Table ole on Aeri sistion (D2 rd (D3) set (D5) unds (D6)	9) (C2) (al Image) (LRR A) (D7)	ery (C9)	0

Data Plot #:	25A-SP1
Wetland:	25A

Project/Site: ELST Re-delineation	[Date: 11/	/8/2007 Revisited 09-25-13
Applicant/Owner: King County		County: k	King
Investigator: Chip Maney, Erik Christensen		State: V	WA
☐ 1987 Method	ethod	_	Community ID: PFO/PSS
Do Normal Circumstances exist on the site?	X	No	Field Plot ID: 25A-SP1
Is the site significantly disturbed (Atypical Situation)? Yes		No X	
Is the area a potential Problem Area? Yes		No X	
Remarks (Explain sample location, disturbances, problem are	eas):		
This sample plot is located between flags W25A-3 and W25-4 of	on the bou	undary betv	ween grasses and shrubs.
VEGETATION (✓Dominant species are checked)			
Plant Species	% Cover	Stratum	Indicator
✓ 1. Phalaris arundinacea	75	_ <u>H</u>	FACW
Cornus sericea Lonicera involucrata	20	- <u>S</u>	FAC FAC
Lonicera involucrata Rubus armeniacus	20	_ <u>S</u> _ S	FACU
✓ 5. Salix lucida	50	s	FACW+
Percent of Dominant Species that are OBL, FACW, or FAC		_	
 (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, see The percent of dominant species that are hydrophytic is greate. 		fects, etc.)	
	T triair 50	percent. 11	ydrophytic vegetation enteriorns satisfied.
HVI)R()I()(-V			
HYDROLOGY	VA/ - 1		orla mala dia stana (D
Recorded Data (Describe in Remarks):		-	rology Indicators (Describe in Remarks):
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage		tland Hydr Primary Ind	dicators:
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph		Primary Inc	dicators:Inundated
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other		-	dicators:Inundated Saturated in Upper 12 inches
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available		Primary Inc	dicators:Inundated
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other		Primary Inc	dicators: Inundated Saturated in Upper 12 inches Water Marks
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available		Primary Inc	dicators: InundatedSaturated in Upper 12 inchesWater MarksDrift Lines
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available		Primary Ind	dicators: Inundated Saturated in Upper 12 inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations:		Primary Ind	dicators: Inundated Saturated in Upper 12 inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands Indicators (2 or more required):
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.)		Primary Ind	dicators: Inundated Saturated in Upper 12 inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands Indicators (2 or more required): Oxidized Rhizospheres in Upper 12 inches
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.) Depth to Free Water in Pit: surface (in.)		Primary Ind	dicators: Inundated Saturated in Upper 12 inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands Indicators (2 or more required): Oxidized Rhizospheres in Upper 12 inches Water-Stained Leaves
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.) Depth to Free Water in Pit: surface (in.)		Primary Ind	dicators: Inundated Saturated in Upper 12 inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands Indicators (2 or more required): Oxidized Rhizospheres in Upper 12 inches Water-Stained Leaves Local Soil Survey Data
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.) Depth to Free Water in Pit: surface (in.) Depth to Saturated Soil: surface (in.)		X X Secondary	dicators: Inundated Saturated in Upper 12 inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands Indicators (2 or more required): Oxidized Rhizospheres in Upper 12 inches Water-Stained Leaves Local Soil Survey Data Other (Explain in Remarks)
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.) Depth to Free Water in Pit: surface (in.)	gic modifi	X X Secondary	dicators: Inundated Saturated in Upper 12 inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands Indicators (2 or more required): Oxidized Rhizospheres in Upper 12 inches Water-Stained Leaves Local Soil Survey Data Other (Explain in Remarks)

Remarks

Project/Site	e: ELST Re-de	elineation		Date:	11/8/2007	[Revisited 09-25-13
SOIL Soil Surv	ey Data:						
Map Unit	Name: Norma	a Sandy Loam			Drainage Class:	Poorly dr	rained
					Field Observatio	ns Confirr	m Mapped Type?
Taxonomy	(Subgroup):	Fluventic Humaquept	s		Yes No	X	NA
Profile De	escription:						
Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)		Mottle Abundance/Con	trast	Texture, Concretions, Rhizospheres, etc.
0-8	А	10YR 3/1	none		none		silt loam
8-18	В	10YR 2/1	none		none		loam
H H S S A A R X G H Remarks	educing Condit leyed or Low-C igh Organic Co	hroma Colors ntent in Surface Layer disturbances, local va	riations, etc.):	Fe/M Orga Mottle	d on Hydric Soils I n Concretions nic Streaking in Sa es (Redoximorphic r (Explain in Rema	andy Soils Features	
Hydrophy Hydric So	ND DETERING NO. 1	Present? Y	es X No es X No	<u> </u>		Sampling Yes <u>X</u>	g Point Within a Wetland?

Wetland vegetation, hydrology, and soil criteria are met. Therefore, the sample plot is located in a wetland.

Data Plot #:

Wetland:

25A-SP1

25A

Data Plot #: 25A-SP2
Wetland: Upland near 25A

WETLAND DETERMINATION

Project/Site: ELST Re-delineation		Date: <u>11</u>	/8/2007	Revisited 09-25-13
Applicant/Owner: King County		County:	King	
Investigator: Chip Maney		State:	WA	
☐ 1987 Method	. Method		Comn	nunity ID: Upland Shrub
Do Normal Circumstances exist on the site?	'es X	No	— Field	Plot ID: 25A-SP2
Is the site significantly disturbed (Atypical Situation)?	'es	No >	<u>(</u>	
Is the area a potential Problem Area?	'es	No _>	<u> </u>	
Remarks (Explain sample location, disturbances, problem	areas):			
This sample plot is located 20 feet north of flag W25A-9.				
VEGETATION (✓Dominant species are checked)				09-25-13 Observations
Plant Species	% Cove	r Stratum	Indicator	Rubus armeniacus 50%
 1 . Agrostis stolonifera 	20	Н	FAC*	
2 . Geranium molle	trace	Н	NL	-
3 . Hypochaeris radicata	trace	H	<u>FACU</u>	_
✓ 4. Poa spp.	50	_ <u>H</u>		-
5 Taraxacum officinale	trace	— H ——	FACU FAC*	-
6. Trifolium repens 7. Rubus armeniacus	trace 50		FACU	-
Percent of Dominant Species that are OBL, FACW, or F			17.00	-
(except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations	50		lawn. Area	bservations - Vegetation used to be is now bark with few landscaping plants.
The percent of dominant species that are hydrophytic is not				
HYDROLOGY				
Recorded Data (Describe in Remarks):	W	etland Hyd	rology Indicat	tors (Describe in Remarks):
Stream, Lake, or Tide Gage		Primary In	ndicators:	
Aerial Photograph			Inundated	
Other			Saturated	in Upper 12 inches
X No Recorded Data Available			Water Mar	ks
Field Observations:			Drift Lines	.
			Sediment I	Deposits Patterns in Wetlands
			Drainage F	-alterns in Wellands
Depth of Surface Water: none (in.)		Secondar	y Indicators (2	2 or more required):
Depth to Free Water in Pit: none (in.)			Oxidized F	Rhizospheres in Upper 12 inches
Depth to Saturated Soil: none (in.)		-		ined Leaves
			Local Soil	Survey Data
			Other (Exp	olain in Remarks)
Remarks (As relevant, describe recent precipitation, hydroxidation)	rologic mod	ifications. Id	ocal variations.	etc.):
No primary or secondary indicators of hydrology are preser	•			·
		. 07		

Revisited 09-25-13 Project/Site: ELST Re-delineation Date: 11/8/2007 SOIL Soil Survey Data: Drainage Class: Well drained to very poorly drained Map Unit Name: Mixed Alluvial Land Field Observations Confirm Mapped Type? Taxonomy (Subgroup): N/A Yes No X NA **Profile Description:** Depth Horizon Matrix Color Mottle Color Mottle Texture, Concretions, (Inches) Designation (Munsell Moist) (Munsell Moist) Abundance/Contrast Rhizospheres, etc. 0-6 10YR 3/2 Α none none loam 6-16 В 10YR 3/2 10YR 5/6 few, fine, prominent gravelly loam **Hydric Soil Indicators:** Histosol Listed on Hydric Soils List Histic Epipedon Fe/Mn Concretions Organic Streaking in Sandy Soils Sulfidic Odor Mottles (Redoximorphic Features) Aquic or Peraguic Moisture Regime **Reducing Conditions** Other (Explain in Remarks) X Gleyed or Low-Chroma Colors High Organic Content in Surface Layer Remarks (Describe soil disturbances, local variations, etc.): Chroma 2 soil with redoximorphic features indicate hydric soils. WETLAND DETERMINATION **Hydrophytic Vegetation Present?** No Is this Sampling Point Within a Wetland? **Hydric Soils Present?** Yes No No X **Wetland Hydrology Present?** Yes No

Data Plot #:

Wetland:

25A-SP2

Upland near 25A

Remarks

Wetland vegetation, and hydrology criteria are not met. Therefore, the sample plot is not located in a wetland.

Data Plot #:	25B-SP1
Wetland:	25B

Project/Site: ELST Re-delineation		Date: 11/8	8/2007	Revisited 09-25-13
Applicant/Owner: King County		County: K	(ing	
Investigator: Matt Maynard		State: W	VA	
☐ 1987 Method	. Method	_	Commur	nity ID: PEM
Do Normal Circumstances exist on the site?	es X	No		ot ID: 25B-SP1
Is the site significantly disturbed (Atypical Situation)?	/es	No X		
Is the area a potential Problem Area?	/es	No X	_	
Remarks (Explain sample location, disturbances, problem This sample plot is located approximately 10 feet north of fla	,	feet east/noi	rtheast of flag 3.	
VEGETATION (✓Dominant species are checked) Plant Species	% Cover	Stratum	Indicator	
District the second sec	100	Herb	FACW	
1. Phalaris arundinacea 2. Lonicera involucrata	trace	Shrub	FAC	
3 Rosa nutkana	trace	Shrub	FAC	
4 . Alnus rubra	15	Tree	FAC	
(except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations The percent of dominant species that are hydrophytic is gre	s, seasonal e	ffects, etc.):		ation criterion is satisfied.
HYDROLOGY				
Recorded Data (Describe in Remarks):	We			s (Describe in Remarks):
	We	tland Hydro Primary Inc		s (Describe in Remarks):
Recorded Data (Describe in Remarks):	We	Primary Inc	dicators: Inundated	
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other	We		dicators: _ Inundated _ Saturated in I	s (Describe in Remarks): Upper 12 inches
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available	We	Primary Inc	dicators: _ Inundated _ Saturated in I _ Water Marks	
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available	We	Primary Inc	dicators: _ Inundated _ Saturated in I	Jpper 12 inches
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other	We	Primary Inc	dicators: Inundated Saturated in I Water Marks Drift Lines Sediment De	Jpper 12 inches
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available	We	X X	dicators: Inundated Saturated in I Water Marks Drift Lines Sediment De Drainage Pat	Jpper 12 inches
Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.) Depth to Free Water in Pit: none (in.)	We	X X	dicators: Inundated Saturated in I Water Marks Drift Lines Sediment De Drainage Pat Indicators (2 or	Upper 12 inches posits terns in Wetlands more required):
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.)	We	X X	dicators: Inundated Saturated in I Water Marks Drift Lines Sediment De Drainage Pat Indicators (2 or	Upper 12 inches posits terns in Wetlands more required): cospheres in Upper 12 inches
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.) Depth to Free Water in Pit: none (in.)	We	X X	dicators: Inundated Saturated in I Water Marks Drift Lines Sediment De Drainage Pat Indicators (2 or Oxidized Rhiz	Upper 12 inches posits terns in Wetlands more required): cospheres in Upper 12 inches d Leaves
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.) Depth to Free Water in Pit: none (in.)	We	X X	dicators: Inundated Saturated in I Water Marks Drift Lines Sediment De Drainage Pat Indicators (2 or Oxidized Rhiz Water-Staine Local Soil Su	Upper 12 inches posits terns in Wetlands more required): cospheres in Upper 12 inches d Leaves
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.) Depth to Free Water in Pit: none (in.)		X Secondary	dicators: Inundated Saturated in I Water Marks Drift Lines Sediment De Drainage Pat Indicators (2 or Oxidized Rhiz Water-Staine Local Soil Su Other (Explai	Upper 12 inches posits terns in Wetlands more required): cospheres in Upper 12 inches d Leaves rvey Data n in Remarks)
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.) Depth to Free Water in Pit: none (in.) Depth to Saturated Soil: 4 (in.)	rologic modi	Secondary fications, localizations	dicators: Inundated Saturated in I Water Marks Drift Lines Sediment De Drainage Pat Indicators (2 or Oxidized Rhiz Water-Staine Local Soil Su Other (Explaical variations, etc.	Upper 12 inches posits terns in Wetlands more required): cospheres in Upper 12 inches d Leaves rvey Data n in Remarks) c.):

roject/Site	e: ELST Re-de	elineation		Date:	11/8/2007	Revisited 09-25-13
SOIL Soil Surv	ey Data:					
Map Unit	Name: Mixed	Alluvial Land			Drainage Class: Well o	drained to very poorly drained
					Field Observations Cor	nfirm Mapped Type?
Taxonomy	y (Subgroup):	N/A			Yes No _X	NA
Profile De	escription:					
Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Mo		Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-6	А	10YR 3/2	none		none	gravelly silt loam
6-17	В	10YR 3/1	10YR 3/3		few, fine, faint	silt loam
H H S A A R X G H	educing Conditileyed or Low-Cligh Organic Co		riations, etc.):	Fe/M Orga X Mottl	d on Hydric Soils List n Concretions nic Streaking in Sandy So es (Redoximorphic Featu r (Explain in Remarks)	
Hydrophy	ND DETER	Present?	'es <u>X</u> No		Is this Sampl	ing Point Within a Wetland

Data Plot #:

Wetland:

25B-SP1

25B

Remarks

Data Plot #: 25B-SP2
Wetland: Upland near 25B

WETLAND DETERMINATION

Project/Site: ELST Re-delineation Applicant/Owner: King County Investigator: Matt Maynard ☐ 1987 Method ☐ 1997 WA St. Method ☐ Do Normal Circumstances exist on the site? Yes Is the site significantly disturbed (Atypical Situation)? Yes Is the area a potential Problem Area? Yes Remarks (Explain sample location, disturbances, problem are This sample plot is located 20 feet south of flag 1 under a canop	S
VEGETATION (✓Dominant species are checked) Plant Species 1. Phalaris arundinacea ✓ 2. Rubus armeniacus ✓ 3. Alnus rubra Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, se The percent of dominant species that are hydrophytic is not greater.	50
HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations:	Wetland Hydrology Indicators (Describe in Remarks): Primary Indicators: Inundated Saturated in Upper 12 inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands
Depth of Surface Water: none (in.) Depth to Free Water in Pit: none (in.) Depth to Saturated Soil: none (in.) Remarks (As relevant, describe recent precipitation, hydrolo No primary or secondary indicators of hydrology are present. In the surface of the surfac	,

Remarks

wetland.

Project/Site: ELST Re-delineation				Da	ate:	11/8/2007	Revisited 09-25-13	
SOIL Soil Surv	ey Data:							
Map Unit	Name: Mixed	Alluvial Land				Drainage Class: Well	drained to very poorly drained	
						Field Observations Co	nfirm Mapped Type?	
Taxonomy	y (Subgroup):	N/A				Yes No _>	<u> </u>	
Profile De	escription:							
Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Co (Munsell	-		Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.	
0-16	А	10YR 3/2	none			none	gravelly loam	
6-18+	В	10YR 3/2	none			none	gravelly loam	
H S A R G	educing Condit		er	F	e/Mn Organ Mottle	on Hydric Soils List Concretions Sic Streaking in Sandy Sic (Redoximorphic Feature) (Explain in Remarks)		
Silt inclus profile. No	ions with a colo	icators are present. F	YR 4/6 were p	resent from			les were also found throughout the	
			Voo	No. V		le thie Samn	ling Point Within a Wetland?	
	rtic Vegetation oils Present?		Yes	No X	-	is this samp	mig Fomit Within a Wetland?	
•	Hydrology Pres		Yes	-	Yes No <u>X</u>			

Hydrophytic vegetation, hydric soil, and wetland hydrology criteria are not satisfied. Therefore, the sample plot is not located in a

Data Plot #:

Wetland:

25B-SP2

Upland near 25B

Data Plot #:	25B-SP3
Wetland:	25B

Project/Site: ELST Re-delineation		Date: 11/8	3/2007	Revisited 09-25-13
Applicant/Owner: King County			ling	
Investigator: Matt Maynard		· · ·	/A	
☐ 1987 Method	Method	_	Commur	nity ID: PFO
Do Normal Circumstances exist on the site?	es X	No		t ID: 25B-SP3
Is the site significantly disturbed (Atypical Situation)?	es	No X		
1 II A 0	es	No X		
Remarks (Explain sample location, disturbances, problem		110 <u>X</u>	_	
This sample plot is located approximately 12 feet east of flag				
	,			
VEGETATION				
VEGETATION (✓Dominant species are checked) Plant Species	% Cover	Stratum	Indicator	
	50	Herb	OBL	
Carex obnupta Cornus sericea		Shrub	FACW	
3 Rosa pisocarpa	trace	Shrub	FAC	
✓ 4. Fraxinus latifolia	60	Tree	FACW	
Percent of Dominant Species that are OBL, FACW, or F	AC			
(except FAC-). Include species noted (*) as showing	100)		
morphological adaptations to wetlands. "T" indicates trace.				
Remarks (Describe disturbances, relevant local variations,				
The percent of dominant species that are hydrophytic is gre-	ater than 50			
		регсепі. пу	drophytic vegeta	ation criterion is satisfied.
HYDROLOGY		percent. Hy	drophytic vegeta	ation criterion is satisfied.
	We			ation criterion is satisfied. (Describe in Remarks):
Recorded Data (Describe in Remarks):	We		ology Indicators	
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage	We	tland Hydro	ology Indicators	
Recorded Data (Describe in Remarks):	We	tland Hydro	ology Indicators licators: Inundated	
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph	We	tland Hydro Primary Inc	ology Indicators licators: Inundated Saturated in U Water Marks	(Describe in Remarks):
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available	We	etland Hydro Primary Inc	ology Indicators licators: Inundated Saturated in U Water Marks Drift Lines	6 (Describe in Remarks): Jpper 12 inches
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other	We	etland Hydro Primary Inc	Dlogy Indicators licators: Inundated Saturated in U Water Marks Drift Lines Sediment De	(Describe in Remarks): Upper 12 inches posits
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available	We	etland Hydro Primary Inc	Dlogy Indicators licators: Inundated Saturated in U Water Marks Drift Lines Sediment De	6 (Describe in Remarks): Jpper 12 inches
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available	We	Primary Inc	Dlogy Indicators licators: Inundated Saturated in U Water Marks Drift Lines Sediment Dep Drainage Patt	(Describe in Remarks): Upper 12 inches posits
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.) Depth to Free Water in Pit: 18 (in.)	We	Primary Inc	Diogy Indicators licators: Inundated Saturated in U Water Marks Drift Lines Sediment Dep Drainage Patt	(Describe in Remarks): Upper 12 inches Dosits erns in Wetlands more required):
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.)	We	Primary Inc	Diogy Indicators licators: Inundated Saturated in U Water Marks Drift Lines Sediment Dep Drainage Pate Indicators (2 or	Describe in Remarks): Upper 12 inches Dosits erns in Wetlands more required): ospheres in Upper 12 inches
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.) Depth to Free Water in Pit: 18 (in.)	We	Primary Inc	Diogy Indicators: Inundated Saturated in U Water Marks Drift Lines Sediment Dep Drainage Patt Indicators (2 or Oxidized Rhiz Water-Stainer	Describe in Remarks): Upper 12 inches Dosits
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.) Depth to Free Water in Pit: 18 (in.)	We	Primary Inc	Diogy Indicators licators: Inundated Saturated in U Water Marks Drift Lines Sediment Dep Drainage Patt Indicators (2 or Oxidized Rhiz Water-Stainer Local Soil Sur	Describe in Remarks): Upper 12 inches Dosits Describe in Remarks): Dosits
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.) Depth to Free Water in Pit: 18 (in.) Depth to Saturated Soil: 12 (in.)		Primary Inc	Diogy Indicators licators: Inundated Saturated in U Water Marks Drift Lines Sediment Dep Drainage Patt Indicators (2 or Oxidized Rhiz Water-Stainer Local Soil Sui Other (Explain	Describe in Remarks): Upper 12 inches Dosits erns in Wetlands more required): Ospheres in Upper 12 inches d Leaves Evey Data in Remarks)
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.) Depth to Free Water in Pit: 18 (in.) Depth to Saturated Soil: 12 (in.) Remarks (As relevant, describe recent precipitation, hydrometric processing stress of the same stress of the	rologic modit	Primary Inc X X X Secondary	Diogy Indicators licators: Inundated Saturated in U Water Marks Drift Lines Sediment Dep Drainage Patt Indicators (2 or Oxidized Rhiz Water-Stainer Local Soil Suil Other (Explain	Describe in Remarks): Upper 12 inches Dosits erns in Wetlands more required): Ospheres in Upper 12 inches d Leaves vey Data n in Remarks) 2.):
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.) Depth to Free Water in Pit: 18 (in.) Depth to Saturated Soil: 12 (in.)	rologic modit Saturation a	Primary Inc X X X Secondary	Diogy Indicators licators: Inundated Saturated in U Water Marks Drift Lines Sediment Dep Drainage Patt Indicators (2 or Oxidized Rhiz Water-Stainer Local Soil Suil Other (Explain	Describe in Remarks): Upper 12 inches Dosits erns in Wetlands more required): ospheres in Upper 12 inches d Leaves vey Data n in Remarks) 2.):
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.) Depth to Free Water in Pit: 18 (in.) Depth to Saturated Soil: 12 (in.) Remarks (As relevant, describe recent precipitation, hydr Watermarks indicate inundation at approximately 8 inches.	rologic modit Saturation a d.	Primary Inc X X Secondary fications, locate 12 inches	blogy Indicators licators: Inundated Saturated in U Water Marks Drift Lines Sediment Dep Drainage Patt Indicators (2 or Oxidized Rhiz Water-Stained Local Soil Suil Other (Explained and watermarks)	Describe in Remarks): Upper 12 inches Dosits erns in Wetlands more required): Ospheres in Upper 12 inches d Leaves vey Data n in Remarks) 2.):

Project/Site	e: ELST Re-de	elineation				Date:	11/8/20	07	Revisited 09-25-13			
SOIL Soil Surv	ey Data:											
Map Unit	Name: Mixed	Alluvial Land					Drainage Class: Well drained to very poorly drained					
							Field Ob	firm Mapped Type?				
Taxonomy	y (Subgroup):	N/A					Yes No _X_		NA			
Profile De	escription:											
Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)		Mottle (Munse	Color ell Moist)		Mottle Abunda	nce/Contrast	Texture, Concretions, Rhizospheres, etc.			
0-7	А	10YR 2/1		none			none		loam			
7-17	В	2.5Y 4/1		7.5YR 4	/6		common, i	medium, prominer	nt clay loam			
17-20	С	10YR 5/1		7.5YR 4	/6		common, r	medium, prominer	nt clay loam			
Hydric So	oil Indicators:											
Н	istosol					Liste	d on Hydri	ic Soils List				
——	istic Epipedon					Fe/M	In Concret	ions				
S	ulfidic Odor					Orga	Organic Streaking in Sandy Soils Mottles (Redoximorphic Features)					
A	quic or Peragui	c Moisture Regime				X Mottl						
R	educing Condit	ions				Othe	Other (Explain in Remarks)					
XG	leyed or Low-C	hroma Colors										
н	igh Organic Co	ntent in Surface Laye	r									
	•	disturbances, local va		-	,							
		- ,		,								
WETLA	ND DETER	MINATION										
Hydrophy	tic Vegetation	Present?	Yes	Х	No			Is this Sampl	ing Point Within a Wetland?			
Hydric Sc	oils Present?	,	Yes	X	No			V	V N-			
Wetland I	Hydrology Pre	sent?	Yes	X	No			Yes _	<u>X</u> No			

Data Plot #:

Wetland:

25B-SP3

25B

Remarks

Data Plot #:	25C-SP1
Wetland:	25C

Droinet/Cite. FLCT De delineation					
Project/Site: ELST Re-delineation		Date:	11/8/20	07	Revisited 09-25-13
Applicant/Owner: King County	_ (County:	King		
Investigator: Chip Maney	s	State:	WA		
☐ 1987 Method	hod			Commun	ty ID: PFO
Do Normal Circumstances exist on the site?	Χ	No		Field Plot	ID: 25C-SP1
Is the site significantly disturbed (Atypical Situation)? Yes		No	Χ		
Is the area a potential Problem Area? Yes		No	Χ		
Remarks (Explain sample location, disturbances, problem areas	s):	_			
This sample plot is located 25 feet west of flay W25C-3. No uplar	nd plot w	vas sam	ple for i	this wetland.	
VEGETATION (✓Dominant species are checked) Plant Species	% Cover	Stratu	m In	dicator	
	5	Herb		ACW	
· · · · · · · · · · · · · · · · · · ·	2 2	Herb		ACW	
	45	Shrub		ACW	
4 . Rosa pisocarpa 1	10	Shrub	F/	AC	
• • •	20	Shrub		ACU	
✓ 6. Alnus rubra 7	75	Tree	F/	AC	
Remarks (Describe disturbances, relevant local variations, seas The percent of dominant species that are hydrophytic is greater to			,	ohytic vegeta	tion criterion is satisfied.
HYDROLOGY					
Recorded Data (Describe in Remarks):	Wet				
		tland Hy	ydrolog	y Indicators	(Describe in Remarks):
Stream, Lake, or Tide Gage		t land H y Primary			(Describe in Remarks):
,			Indicat		(Describe in Remarks):
Stream, Lake, or Tide Gage			Indicate	ors: lundated	(Describe in Remarks): pper 12 inches
Stream, Lake, or Tide Gage Aerial Photograph		Primary 	Indicate In	ors: lundated aturated in U later Marks	
Stream, Lake, or Tide Gage Aerial Photograph Other		Primary 	Indicate In S W D	ors: nundated aturated in U /ater Marks rift Lines	pper 12 inches
Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available		Primary 	Indicate In S W	ors: undated aturated in U ater Marks rift Lines ediment Dep	pper 12 inches osits
Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations:	1	Primary X	Indicate In S W D S D	ors: nundated aturated in U later Marks rift Lines ediment Dep rainage Patt	pper 12 inches osits erns in Wetlands
Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.)	1	Primary X	Indicate In S S W D S D Idary Ind	ors: nundated aturated in U tater Marks rift Lines ediment Dep rainage Patte icators (2 or	pper 12 inches osits erns in Wetlands more required):
Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.) Depth to Free Water in Pit: none (in.)	1	Primary X	Indicate In S S D D D D D D D D D D D D D D D D D	ors: nundated aturated in U tater Marks rift Lines ediment Dep rainage Patte icators (2 or	pper 12 inches osits erns in Wetlands more required): ospheres in Upper 12 inches
Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.)	1	Primary X	Indicate Ind	ors: nundated aturated in U tater Marks rift Lines ediment Dep rainage Patte icators (2 or xidized Rhize tater-Stained	pper 12 inches osits erns in Wetlands more required): ospheres in Upper 12 inches Leaves
Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.) Depth to Free Water in Pit: none (in.)	1	Primary X	Indicate In Indica	ors: nundated aturated in U later Marks rift Lines ediment Dep rainage Patte icators (2 or xidized Rhize later-Stained ocal Soil Sur	pper 12 inches osits erns in Wetlands more required): ospheres in Upper 12 inches Leaves vey Data
Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.) Depth to Free Water in Pit: none (in.) Depth to Saturated Soil: 1 (in.)	!	X Second	Indicate Indicate S W D S D Hary Ind O Lo	ors: Jundated aturated in U Jater Marks rift Lines ediment Dep rainage Patte icators (2 or xidized Rhize Jater-Stained ocal Soil Sur ther (Explain	pper 12 inches osits erns in Wetlands more required): ospheres in Upper 12 inches Leaves vey Data in Remarks)
Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.) Depth to Free Water in Pit: none (in.) Depth to Saturated Soil: 1 (in.) Remarks (As relevant, describe recent precipitation, hydrological contents of the contents o	ic modifi	Second Cations,	Indicate Ind	ors: Jundated aturated in U Jater Marks rift Lines ediment Dep rainage Patte icators (2 or xidized Rhize Jater-Stained ocal Soil Sur ther (Explain ariations, etc	pper 12 inches osits erns in Wetlands more required): ospheres in Upper 12 inches Leaves vey Data in Remarks)
Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.) Depth to Free Water in Pit: none (in.) Depth to Saturated Soil: 1 (in.)	ic modifi	Second Cations,	Indicate Ind	ors: Jundated aturated in U Jater Marks rift Lines ediment Dep rainage Patte icators (2 or xidized Rhize Jater-Stained ocal Soil Sur ther (Explain ariations, etc	pper 12 inches osits erns in Wetlands more required): ospheres in Upper 12 inches Leaves vey Data in Remarks)

					Wetland:	25C				
Project/Site	e: ELST Re-de	elineation		Date:	11/8/2007	Revisited 09-25-13				
SOIL Soil Surv	ey Data:									
Map Unit	Name: Alderv	wood gravelly sandy loa	m, 6 to 15 % slopes		Drainage Class: Moderately well drained					
					Field Observations Confirm	n Mapped Type?				
Taxonomy	y (Subgroup): _	Entic Durochrepts			Yes No _X	NA				
Profile De	escription:									
Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)		Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.				
0-10	А	10YR 3/1, 10YR 5/2	10YR 5/6		common, fine, prominent	loam				
10-18	В	10YR 3/1	none		none	silt loam				
Hydric So	oil Indicators:									
	istosol				d on Hydric Soils List					
	istic Epipedon				In Concretions					
	ulfidic Odor	ia Maiatuua Danima			nic Streaking in Sandy Soils					
	educing Condit	ic Moisture Regime	X		es (Redoximorphic Features r (Explain in Remarks)	·)				
	ileyed or Low-C				i (Explain in Hemarks)					
	•	Intent in Surface Layer								
Remarks	(Describe soil	disturbances, local varia								
Chroma 1	soil and redox	imorphic features indica	te hydric soils.							
WETLA	ND DETER	MINATION								
Hydrophy	tic Vegetation	Present? Ye	s X No		Is this Sampling	Point Within a Wetland?				
Hydric Sc	ils Present?	Ye	s X No		Voc. V	No				
Wetland I	Hydrology Pres	sent? Ye	s X No		Yes X	No				

Data Plot #:

25C-SP1

Remarks

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

Project Site:	ELST - South Sammamish Seg	<u>gment</u>		City/Cou	nty: Sammamish/King	Sampling Date:	10-25-13
Applicant/Owner:	King County				State: WA	Sampling Point:	W25D-SP1 (rev)
Investigator(s):	C. Worsley; M. Maynard				Section, Township, Ra	ange: <u>S32, T25N, R06E</u>	
Landform (hillslope, to	errace, etc.): shallow swale		Loc	cal relief (cond	cave, convex, none): concav	-	e (%): <u>2</u>
Subregion (LRR):	<u>A</u>	Lat:			Long:	Datum:	
Soil Map Unit Name:	Mixed alluvial land					assification: NA	
Are climatic / hydrolog	gic conditions on the site typical f	or this time of	f year?	Yes 🗵	No ☐ (If no, explair	n in Remarks.)	
Are Vegetation	l, Soil □, or Hydrology	☐, signif	icantly disturbe	ed? Are	"Normal Circumstances" preser	nt? Yes	⊠ No □
Are Vegetation	I, Soil □, or Hydrology	☐, natur	ally problemati	c? (If n	eeded, explain any answers in I	Remarks.)	
SUMMARY OF FI	NDINGS - Attach site map	showing sa	mpling poin	t locations	, transects, important feat	ures, etc.	
Hydrophytic Vegetation	on Present?	Yes [□ No 🖾				
Hydric Soil Present?		Yes [□ No 🖾	Is the Sam within a W		Yes	□ No ⊠
Wetland Hydrology P	resent?	Yes [□ No 🖾	within a vv	suana :		
Remarks: Sample	plot is located in what was previo	usly identified	as Wetland 2	5D. This area	is no longer wetland as it does	not meet the 3 wetland	criteria. Sample
	cated 35 feet north of Pseudotsu						
VEGETATION – U	se scientific names of plan	ts					
Tree Stratum (Plot size	•	Absolute	Dominant	Indicator	Dominance Test Workshee	t:	
1	<u> </u>	% Cover	Species?	<u>Status</u>	No and the set Density and Consider	_	
2		-			Number of Dominant Species That Are OBL, FACW, or FA		(A)
3					Total Number of Dominant		
4.					Species Across All Strata:	<u>2</u>	(B)
50% =, 20% =			= Total Cov	 er	Percent of Dominant Species		
Sapling/Shrub Stratu					That Are OBL, FACW, or FA		(A/B)
1	<u> </u>				Prevalence Index workshee	et:	
2					Total % Cover of		ly by:
3.					OBL species	x1 =	
4.					FACW species	x2 =	
5					FAC species	x3 =	
50% =, 20% =	:		= Total Cov	er	FACU species	x4 =	
Herb Stratum (Plot si	· · · · · · · · · · · · · · · · · · ·				UPL species	x5 =	
1. Holcus lanatus		<u>70</u>	<u>yes</u>	FAC		_ (A)	(B)
Taraxacum officir	nale	<u>25</u>	<u>yes</u>	FACU		ce Index = B/A =	(5)
Ranunculus repe		<u>15</u>	no	FAC	Hydrophytic Vegetation Inc		
Hypochaeris radii		<u>10</u> 5	no no	FACU	☐ 1 – Rapid Test for Hyd		
5. Other grasses	odia	<u>20</u>	<u>n/a*</u>	<u>- 7.00</u>	2 - Dominance Test is		
6.		<u>20</u>	11/ CL	-			
7						_	
8.						otations1 (Provide suppor on a separate sheet)	rting
9.					5 - Wetland Non-Vascu	. ,	
10		-					
					☐ Problematic Hydrophyt	ic Vegetation ¹ (Explain)	
11		115	Total Cau		¹ Indicators of hydric soil and	wetland hydrology must	
50% = <u>58</u> , 20% = <u>23</u>		<u>115</u>	= Total Cov	er	be present, unless disturbed	or problematic.	
Woody Vine Stratum	(Plot Size: <u>NA</u>)						
1					Hydrophytic		
2						Yes 🗆	No 🗵
50% =, 20% =	·		= Total Cov	eı.	Present?		
% Bare Ground in He							
Remarks: mowin	Species with less than 5% cover	are not consi	dered dominar	nt. Vegetation	is routinely mowed. Not all of t	he grasses were identific	ed due to
IIIOWIII	ઝ ·						

Project Site: <u>ELST - South Sammamish</u>

SOIL									Sampling	g Point: W2	25D-SP1	(rev)	
Profile Description: (Desc	ribe to the	e depth	needed	to doc	ument the indicate	or or conf	firm the abse	nce of indicat	ors.)				
Depth M	atrix				Redox Fea	tures							
(inches) Color (mois	st)	%	Color	(moist) %	Type ¹	Loc ²	Texture)		Remark	s	
<u>0-18</u> <u>10YR 3/</u>	1 :	100		=	= =	=		gr. sa. lo	oam				
	_									i			
	_		_										
	_												
	_												
									<u> </u>				
	_												
	_												
Type: C= Concentration, D	=Depletion	n, RM=f	Reduced I	Matrix,	CS=Covered or Co	oated San	d Grains.	² Location: PL:	=Pore Lining,	M=Matrix			
lydric Soil Indicators: (A	pplicable	to all L	RRs, unle	ess oth	nerwise noted.)			Indi	cators for Pro	oblematic	Hydric	Soils ³ :	
Histosol (A1)] 8	Sandy Redox (S5)				2 cm Muck	(A10)			
Histic Epipedon (A2)] 8	Stripped Matrix (S6))			Red Paren	t Material	(TF2)		
☐ Black Histic (A3)] [oamy Mucky Mine	ral (F1) (e :	xcept MLRA 1) 🗆	Very Shallo	ow Dark S	urface (T	F12)	
☐ Hydrogen Sulfide (A4	.)			_	oamy Gleyed Matr		•		Other (Exp				
☐ Depleted Below Dark		A11)		_	Depleted Matrix (F3						•		
Thick Dark Surface (A12)	•		_	Redox Dark Surface								
☐ Sandy Mucky Minera	,				Depleted Dark Surfa				icators of hydr				
Sandy Gleyed Matrix					Redox Depressions				vetland hydrol Inless disturbe			nt,	
lestrictive Layer (if prese	. ,				.,,	(-/		u	illiess disturbe	tu di pioble	emano.		
ype:	,												
							Hydric Soil	s Present?		Yes		No	\boxtimes
	oetween 9	and 10	inches.										
Remarks: Debris/trash l	oetween 9	and 10	inches.										
Remarks: Debris/trash l		and 10	inches.										
Remarks: Debris/trash l	itors:			that a	pply)			Secon	ndary Indicato	rs (2 or mo	ore requii	red)	
Remarks: Debris/trash l HYDROLOGY Vetland Hydrology Indica Primary Indicators (minimu	itors:		; check all		pply) Vater-Stained Leav	res (B9)			ndary Indicato Water-Stained	,		red)	
HYDROLOGY Wetland Hydrology Indicators (minimu) Surface Water (A1)	i tors: m of one re		; check all	v		. ,				d Leaves (I	B9)	red)	
HYDROLOGY Vetland Hydrology Indicators (minimu Surface Water (A1) High Water Table (A	i tors: m of one re		; check all		Vater-Stained Leav	. ,			Water-Stained	d Leaves (I	B9)	red)	
HYDROLOGY Vetland Hydrology Indicatrianary Indicators (minimulary In	i tors: m of one re		; check all		Vater-Stained Leav	, 4A, and			Water-Stained	d Leaves (I	B9) 3)	red)	
AYDROLOGY Vetland Hydrology Indicatrianary Indicators (minimular Surface Water (A1) High Water Table (A Saturation (A3) Water Marks (B1)	utors: m of one re		; check all [[V (i	Vater-Stained Leavexcept MLRA 1, 2, Salt Crust (B11)	, 4A, and es (B13)			Water-Stained (MLRA 1, 2, 4 Drainage Patt	d Leaves (I IA, and 4E terns (B10) Vater Table	B9) (B) (C2)	,	
AYDROLOGY Wetland Hydrology Indica Primary Indicators (minimul Surface Water (A1) High Water Table (A Saturation (A3) Water Marks (B1) Sediment Deposits (utors: m of one re		; check all [[[[V (i	Water-Stained Leavexcept MLRA 1, 2, Salt Crust (B11) Aquatic Invertebrate	es (B13)	4B)		Water-Stained (MLRA 1, 2, 4 Drainage Patt Dry-Season V	d Leaves (I IA, and 4E terns (B10) Vater Table sible on Ae	B9) (C2) (rial Imag	,	
HYDROLOGY Wetland Hydrology Indicators (minimular Surface Water (A1) High Water Table (A Saturation (A3) Water Marks (B1) Sediment Deposits (B3)	ntors: m of one ro 2)		; check all [[[[[V	Water-Stained Leavexcept MLRA 1, 2, Salt Crust (B11) Aquatic Invertebrate Hydrogen Sulfide O	es (B13) dor (C1) eres along	4B) Living Roots (Water-Stained (MLRA 1, 2, 4 Drainage Patt Dry-Season V Saturation Vis	d Leaves (I AA, and 4E terns (B10) Vater Table Sible on Ae Position (D	B9) (C2) (rial Imag	,	
HYDROLOGY Vetland Hydrology Indica Primary Indicators (minimu Surface Water (A1) High Water Table (A Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (E	ntors: m of one ro 2)		; check all [[[[[V	Water-Stained Leav except MLRA 1, 2, Salt Crust (B11) Aquatic Invertebrate Hydrogen Sulfide O Oxidized Rhizosphe	es (B13) dor (C1) eres along ed Iron (C4	4B) Living Roots (4)	C3)	Water-Stained (MLRA 1, 2, 4 Drainage Patt Dry-Season V Saturation Vis Geomorphic F	IA, and 4E erns (B10) Vater Table sible on Ae Position (D ard (D3)	B9) (C2) (rial Imag	,	
HYDROLOGY Vetland Hydrology Indica Primary Indicators (minimu) Surface Water (A1) High Water Table (A Saturation (A3) Water Marks (B1) Sediment Deposits (B1) Drift Deposits (B3) Algal Mat or Crust (B1) Iron Deposits (B5)	ators: m of one re 22) 32)		; check all [[[[[[V	Water-Stained Leavexcept MLRA 1, 2, Salt Crust (B11) Aquatic Invertebrate Hydrogen Sulfide O Dxidized Rhizosphe Presence of Reduce	es (B13) dor (C1) eres along ed Iron (C4	4B) Living Roots (4) ad Soils (C6)	C3)	Water-Stained (MLRA 1, 2, 4 Drainage Patt Dry-Season V Saturation Vis Geomorphic F Shallow Aquit	d Leaves (I IAA, and 4E terns (B10) Vater Table sible on Ae Position (D ard (D3)	B9) (B) (C2) (C3) (C3) (C4) (C4)	ery (C9)	
AYDROLOGY Vetland Hydrology Indica Primary Indicators (minimul Surface Water (A1) High Water Table (A Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B1) Iron Deposits (B5) Surface Soil Cracks	ators: m of one re 2) 32) 44) (B6)	equired;	; check all [[[[[[[() () () () () () () () () () () () () (Water-Stained Leavexcept MLRA 1, 2, Salt Crust (B11) Aquatic Invertebrate Hydrogen Sulfide O Dixidized Rhizosphe Presence of Reduce Recent Iron Reducti	es (B13) dor (C1) eres along ed Iron (C4 ion in Tille Plants (D	4B) Living Roots (4) ad Soils (C6)	C3)	Water-Stained (MLRA 1, 2, 4 Drainage Patt Dry-Season V Saturation Vis Geomorphic F Shallow Aquit	d Leaves (I AA, and 4E terns (B10) Vater Table sible on Ae Position (D ard (D3) Test (D5) ounds (D6	B9) (C2) (C2) (C3) (LRR A	ery (C9)	
AYDROLOGY Wetland Hydrology Indicators (minimular of the content	ators: In of one re 2) 32) 44) (B6) Aerial Ima	equired;	; check all [[[[[[[] []	() () () () () () () () () () () () () (Water-Stained Leavexecept MLRA 1, 2, Salt Crust (B11) Aquatic Invertebrate Hydrogen Sulfide O Dxidized Rhizosphe Presence of Reduce Recent Iron Reduction	es (B13) dor (C1) eres along ed Iron (C4 ion in Tille Plants (D	4B) Living Roots (4) ad Soils (C6)	C3)	Water-Stained (MLRA 1, 2, 4 Drainage Patt Dry-Season V Saturation Vis Geomorphic F Shallow Aquit FAC-Neutral	d Leaves (I AA, and 4E terns (B10) Vater Table sible on Ae Position (D ard (D3) Test (D5) ounds (D6	B9) (C2) (C2) (C3) (LRR A	ery (C9)	
AYDROLOGY Vetland Hydrology Indicators (minimular) Surface Water (A1) High Water Table (A Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B Iron Deposits (B5) Surface Soil Cracks Inundation Visible or	ators: In of one re 2) 32) 44) (B6) Aerial Ima	equired;	; check all [[[[[[[] []	() () () () () () () () () () () () () (Water-Stained Leavexecept MLRA 1, 2, Salt Crust (B11) Aquatic Invertebrate Hydrogen Sulfide O Dxidized Rhizosphe Presence of Reduce Recent Iron Reduction	es (B13) dor (C1) eres along ed Iron (C4 ion in Tille Plants (D	4B) Living Roots (4) ad Soils (C6)	C3)	Water-Stained (MLRA 1, 2, 4 Drainage Patt Dry-Season V Saturation Vis Geomorphic F Shallow Aquit FAC-Neutral	d Leaves (I AA, and 4E terns (B10) Vater Table sible on Ae Position (D ard (D3) Test (D5) ounds (D6	B9) (C2) (C2) (C3) (LRR A	ery (C9)	
HYDROLOGY Vetland Hydrology Indicators (minimular Surface Water (A1) High Water Table (A Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B1) Iron Deposits (B5) Surface Soil Cracks Inundation Visible or Sparsely Vegetated Field Observations:	ators: In of one re 2) 32) 44) (B6) Aerial Ima	equired;	; check all [[[[[[[37) [(B8)	() () () () () () () () () () () () () (Water-Stained Leavexecept MLRA 1, 2, Salt Crust (B11) Aquatic Invertebrate Hydrogen Sulfide O Dxidized Rhizosphe Presence of Reduce Recent Iron Reduction	es (B13) dor (C1) eres along ed Iron (C4) ion in Tille Plants (D	4B) Living Roots (4) ad Soils (C6)	C3)	Water-Stained (MLRA 1, 2, 4 Drainage Patt Dry-Season V Saturation Vis Geomorphic F Shallow Aquit FAC-Neutral	d Leaves (I AA, and 4E terns (B10) Vater Table sible on Ae Position (D ard (D3) Test (D5) ounds (D6	B9) (C2) (C2) (C3) (LRR A	ery (C9)	
AYDROLOGY Vetland Hydrology Indicators (minimumary Indicators (Material Material	ntors: m of one re 2) B2) (B6) Aerial Ima	equired; agery (E Surface	; check all [[[[[[[[[[[[V	Water-Stained Leavexcept MLRA 1, 2, Salt Crust (B11) Aquatic Invertebrate Hydrogen Sulfide O Dixidized Rhizosphe Presence of Reduce Recent Iron Reducti Stunted or Stresses Other (Explain in Re	es (B13) dor (C1) eres along ed Iron (C4) ion in Tille Plants (D emarks)	4B) Living Roots (4) ad Soils (C6)	C3)	Water-Stained (MLRA 1, 2, 4 Drainage Patt Dry-Season V Saturation Vis Geomorphic F Shallow Aquit FAC-Neutral	d Leaves (I AA, and 4E terns (B10) Vater Table sible on Ae Position (D ard (D3) Test (D5) ounds (D6	B9) (C2) (C2) (C3) (LRR A	ery (C9)	
HYDROLOGY Wetland Hydrology Indicators (minimulary Indicators (Mater Table (Mater Table Present?) High Water Table (Mater Table (Mater Table Present?) Algal Mat or Crust (Ellipion Indicators (Mater Table Present?)	ntors: m of one re 2) 32) 44) (B6) Aerial Ima Concave S	equired; agery (E	; check all [[[[[[[[[[[[V	Water-Stained Leavexeeve MLRA 1, 2, Salt Crust (B11) Aquatic Invertebrate Hydrogen Sulfide OD Dividized Rhizosphe Presence of Reduce Recent Iron Reducti Stunted or Stresses Other (Explain in Reduction Company)	es (B13) dor (C1) eres along ed Iron (C4 ion in Tille Plants (D emarks)	4B) Living Roots (4) ad Soils (C6) 1) (LRR A)	C3)	Water-Stained (MLRA 1, 2, 4) Drainage Patt Dry-Season V Saturation Vis Geomorphic F Shallow Aquit FAC-Neutral Raised Ant M Frost-Heave H	d Leaves (I IA, and 4E Lerns (B10) Vater Table Sible on Ae Position (D ard (D3) Test (D5) ounds (D6 Hummocks	B9) (C2) (C2) (C3) (LRR A	ery (C9)	No [
HYDROLOGY Wetland Hydrology Indicators (minimulators) Surface Water (A1) High Water Table (A Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (E Iron Deposits (B5) Surface Soil Cracks Inundation Visible or	tors: m of one re 2) 32) 44) (B6) Aerial Ima Concave S Yes Yes	agery (E	; check all	V V V V V V V V V V	Water-Stained Leavexcept MLRA 1, 2, Salt Crust (B11) Aquatic Invertebrate Hydrogen Sulfide OD Dividized Rhizosphe Presence of Reduce Recent Iron Reducti Stunted or Stresses Other (Explain in Reduction Depth (inches): Depth (inches): Depth (inches):	es (B13) dor (C1) eres along ed Iron (C4) ion in Tille Plants (D emarks)	4B) Living Roots (4) d Soils (C6) (1) (LRR A)	C3)	Water-Stained (MLRA 1, 2, 4) Drainage Patt Dry-Season V Saturation Vis Geomorphic F Shallow Aquit FAC-Neutral Raised Ant M Frost-Heave H	d Leaves (I IA, and 4E Lerns (B10) Vater Table Sible on Ae Position (D ard (D3) Test (D5) ounds (D6 Hummocks	B9) (C2) (C2) (C3) (C3) (LRR A) (D7)	ery (C9)	No [
HYDROLOGY Wetland Hydrology Indicators (minimu) Surface Water (A1) High Water Table (A Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (E Iron Deposits (B5) Surface Soil Cracks Inundation Visible or Sparsely Vegetated Field Observations: Surface Water Present? Water Table Present? Saturation Present? Includes capillary fringe)	tors: m of one re 2) 32) 44) (B6) Aerial Ima Concave S Yes Yes	agery (E	; check all	V V V V V V V V V V	Water-Stained Leavexcept MLRA 1, 2, Salt Crust (B11) Aquatic Invertebrate Hydrogen Sulfide OD Dividized Rhizosphe Presence of Reduce Recent Iron Reducti Stunted or Stresses Other (Explain in Reduction Depth (inches): Depth (inches): Depth (inches):	es (B13) dor (C1) eres along ed Iron (C4) ion in Tille Plants (D emarks)	4B) Living Roots (4) d Soils (C6) (1) (LRR A)	C3)	Water-Stained (MLRA 1, 2, 4) Drainage Patt Dry-Season V Saturation Vis Geomorphic F Shallow Aquit FAC-Neutral Raised Ant M Frost-Heave H	d Leaves (I IA, and 4E Lerns (B10) Vater Table Sible on Ae Position (D ard (D3) Test (D5) ounds (D6 Hummocks	B9) (C2) (C2) (C3) (C3) (LRR A) (D7)	ery (C9)	No [

Data Plot #:	25F-SP1
Wetland:	25F

			ands De		
Project/Site: ELST Re-delineation		D)ate: 11/8	8/2007	Revisited 09-27-13
Applicant/Owner: King County	_		ling		
Investigator: Chip Maney, Erik Christensen			· -	/A	
☐ 1987 Method	A St. Met	thod	_	Comn	nunity ID: PFO
Do Normal Circumstances exist on the site?		No		Plot ID: 25F-SP1	
Is the site significantly disturbed (Atypical Situation)?	Yes		No X		FIOU ID. 231-3F1
Is the area a potential Problem Area?		No X			
Remarks (Explain sample location, disturbances, probl			_		
This sample plot is located approximately 12 feet norther	ast of fla	ag W25F-	1.		
VEGETATION (✔Dominant species are checked)					
Plant Species	(% Cover	Stratum	Indicator	
1 . Convolvulus arvensis		15	Herb	NL	-
2 Ranunculus repens		15	Herb	FACW	-
✓ 3. Cornus sericea		75	Shrub	FACW	-
4. Rubus armeniacus		15	Shrub	FACU FAC	-
5. Alnus rubra 6 Salix lucida		25 40	Tree Tree	FACW+	-
Percent of Dominant Species that are OBL, FACW,		40	1166	I ACW+	-
morphological adaptations to wetlands. "T" indicates tra					
Remarks (Describe disturbances, relevant local variation	ons, sea		. ,		getation criterion is satisfied.
Remarks (Describe disturbances, relevant local variation. The percent of dominant species that are hydrophytic is	ons, sea		. ,		getation criterion is satisfied.
Remarks (Describe disturbances, relevant local variation. The percent of dominant species that are hydrophytic is: HYDROLOGY	ons, sea	than 50 p	percent. Hy	vdrophytic veg	
Remarks (Describe disturbances, relevant local variation. The percent of dominant species that are hydrophytic is: HYDROLOGY Recorded Data (Describe in Remarks):	ons, sea	than 50 p	percent. Hy	vdrophytic veg	getation criterion is satisfied. Ors (Describe in Remarks):
Remarks (Describe disturbances, relevant local variation. The percent of dominant species that are hydrophytic is: HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage	ons, sea	than 50 p	percent. Hy	ology Indicat	
Remarks (Describe disturbances, relevant local variation. The percent of dominant species that are hydrophytic is: HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph	ons, sea	than 50 p	percent. Hy	ology Indicatdicators: Inundated	ors (Describe in Remarks):
Remarks (Describe disturbances, relevant local variation. The percent of dominant species that are hydrophytic is: HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other	ons, sea	than 50 p	percent. Hy	ology Indicat dicators: Inundated Saturated	ors (Describe in Remarks):
Remarks (Describe disturbances, relevant local variation. The percent of dominant species that are hydrophytic is: HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available	ons, sea	than 50 p	percent. Hy	ology Indicat dicators: Inundated Saturated i Water Mar	ors (Describe in Remarks):
Remarks (Describe disturbances, relevant local variation. The percent of dominant species that are hydrophytic is: HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other	ons, sea	than 50 p	percent. Hy	ology Indicat dicators: Inundated Saturated	in Upper 12 inches
Remarks (Describe disturbances, relevant local variation. The percent of dominant species that are hydrophytic is: HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available	ons, sea	than 50 p	percent. Hy	ology Indicat dicators: Inundated Saturated i Water Mar Drift Lines Sediment I	in Upper 12 inches
Remarks (Describe disturbances, relevant local variation. The percent of dominant species that are hydrophytic is: HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations:	ons, sea	Wetl	land Hydro	ology Indicat dicators: Inundated Saturated i Water Mar Drift Lines Sediment I Drainage F	in Upper 12 inches ks Deposits Patterns in Wetlands
Remarks (Describe disturbances, relevant local variation. The percent of dominant species that are hydrophytic is: HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.)	ons, sea	Wetl	land Hydro	ology Indicat dicators: Inundated Saturated i Water Mar Drift Lines Sediment I Drainage F	in Upper 12 inches ks Deposits Patterns in Wetlands e or more required):
Remarks (Describe disturbances, relevant local variation. The percent of dominant species that are hydrophytic is: HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: Depth to Free Water in Pit: none (in.)	ons, sea	Wetl	land Hydro	ology Indicat dicators: Inundated Saturated in Water Mar Drift Lines Sediment In Drainage F	in Upper 12 inches ks Deposits Patterns in Wetlands or more required): chizospheres in Upper 12 inches
Remarks (Describe disturbances, relevant local variation. The percent of dominant species that are hydrophytic is: HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.)	ons, sea	Wetl	land Hydro	ology Indicat dicators: Inundated Saturated Water Mar Drift Lines Sediment I Drainage F Indicators (2 Oxidized R Water-Stai	in Upper 12 inches ks Deposits Patterns in Wetlands or more required): Phizospheres in Upper 12 inches ned Leaves
Remarks (Describe disturbances, relevant local variation. The percent of dominant species that are hydrophytic is: HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: Depth to Free Water in Pit: none (in.)	ons, sea	Wetl	land Hydro	ology Indicat dicators: Inundated Saturated if Water Mar Drift Lines Sediment If Drainage F Indicators (2 Oxidized R Water-Stait Local Soil	in Upper 12 inches ks Deposits Patterns in Wetlands or more required): thizospheres in Upper 12 inches ned Leaves Survey Data
Remarks (Describe disturbances, relevant local variation. The percent of dominant species that are hydrophytic is: HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: Depth to Free Water in Pit: Depth to Saturated Soil: 8 (in.)	ons, sea	Wet	land Hydro	ology Indicat dicators: Inundated Saturated i Water Mar Drift Lines Sediment I Drainage F Indicators (2 Oxidized R Water-Stai Local Soil: Other (Exp	in Upper 12 inches ks Deposits Patterns in Wetlands or more required): chizospheres in Upper 12 inches ned Leaves Survey Data llain in Remarks)
Remarks (Describe disturbances, relevant local variation. The percent of dominant species that are hydrophytic is: HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: Depth to Free Water in Pit: Depth to Saturated Soil: Remarks (As relevant, describe recent precipitation, Inc.)	ons, sea	Wetl	land Hydro Primary Inc	ology Indicat dicators: Inundated Saturated i Water Mar Drift Lines Sediment I Drainage F Indicators (2 Oxidized R Water-Stai Local Soil Other (Exp	in Upper 12 inches ks Deposits Patterns in Wetlands or more required): chizospheres in Upper 12 inches ned Leaves Survey Data clain in Remarks) etc.):
Remarks (Describe disturbances, relevant local variation. The percent of dominant species that are hydrophytic is: HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: Depth to Free Water in Pit: Depth to Saturated Soil: 8 (in.)	ons, sea	Wetl	land Hydro Primary Inc	ology Indicat dicators: Inundated Saturated i Water Mar Drift Lines Sediment I Drainage F Indicators (2 Oxidized R Water-Stai Local Soil Other (Exp	in Upper 12 inches ks Deposits Patterns in Wetlands or more required): chizospheres in Upper 12 inches ned Leaves Survey Data clain in Remarks) etc.):

					,	Wetland:	25F		
						-			
Project/Si	te: ELST Re-de	elineation		Date:	11/8/2007	F	Revisited 09-27-13		
SOIL Soil Sur	vey Data:								
Map Unit	Name: Mixed	Alluvial Land			Drainage Class: Well drained to very poorly drained				
					Field Observatio	ns Confirr	m Mapped Type?		
Taxonom	y (Subgroup):	N/A			Yes No	X	NA		
Profile D	escription:								
Depth (Inches)	Horizon Designation			t)	Mottle Abundance/Contrast		Texture, Concretions, Rhizospheres, etc.		
0-10	A	10YR 2/1	none		none		silt loam		
10-18	В	10YR 4/1	7.5Y 4/6		common, fine, prom	inent	sandy loam		
-	oil Indicators:								
	Histosol		_		d on Hydric Soils L	ist			
	Histic Epipedon Sulfidic Odor		_		n Concretions nic Streaking in Sa	andu Saila			
		ic Moisture Regime	_		es (Redoximorphic	•			
	Reducing Condit	_	_		r (Explain in Rema		·/		
X	Gleyed or Low-C	Chroma Colors				,			
H	High Organic Co	ontent in Surface Layer							
	`	disturbances, local varia	. ,						
WETL	AND DETER	MINATION							
Hydroph	ytic Vegetation	Present? Ye	s X No		Is this	Sampling	Point Within a Wetland?		
Hydric S	oils Present?	Ye	s X No		,	Yes X	No		
Wetland	Hydrology Pres	sent? Ye	s X No				<u> </u>		

Data Plot #:

25F-SP1

Remarks

Data Plot #:	26A-SP1
Wetland:	26A

WETLAND DETERMINATION (Modified from: 1987 ACOE Wetlands Delineation Manual)

Project/Site: ELST Re-delineation		Date: 11/9	9/2007	Revisited 09-27-13
Applicant/Owner: King County			ing	
Investigator: Matt Maynard		_	/A	
☐ 1987 Method	Method	_	Commun	ity ID: PEM
Do Normal Circumstances exist on the site?	s X	No		ID: 26A-SP1
Is the site significantly disturbed (Atypical Situation)? Ye	s	No X		
Is the area a potential Problem Area?	s	No X		
Remarks (Explain sample location, disturbances, problem a	reas):		_	
This sample plot is located approximately 35 feet southeast of	of flag W26	SA-13.		
VEGETATION (✓Dominant species are checked)				
Plant Species	% Cove	r Stratum	Indicator	
✓ 1. Phalaris arundinacea	100	Herb	FACW	
2. Rubus spectabilis	trace	Shrub	FAC+	
Percent of Dominant Species that are OBL, FACW, or FA				
(except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.	100	0		
		offeete ete \.		
Remarks (Describe disturbances, relevant local variations, the percent of dominant species that are hydrophytic is greater than the percent of dominant species that are hydrophytic is greater than the percent of dominant species that are hydrophytic is greater than the percent of the perc		. ,	drophytic vegeta	tion criterion is satisfied
HYDROLOGY		, , , , , , , , , , , , , , , , , , , ,		
Recorded Data (Describe in Remarks):	W	etland Hydro	ology Indicators	(Describe in Remarks):
Stream, Lake, or Tide Gage	•	Primary Ind		(Describe in Hernand).
Aerial Photograph		X	Inundated	
Other			-	lpper 12 inches
X No Recorded Data Available			Water Marks	
Field Observations:			Drift Lines	
Tield Observations.			_ Sediment Dep	
			_ Drainage Patte	erns in Wetlands
Depth of Surface Water: 1 (in.)		Secondary	Indicators (2 or	more required):
Depth to Free Water in Pit: na (in.)				moro roquirou).
Depth to Free Water III II.			Oxidized Rhize	ospheres in Upper 12 inches
Depth to Saturated Soil: na (in.)			Oxidized Rhize	ospheres in Upper 12 inches
、 ,			_	ospheres in Upper 12 inches I Leaves
、 ,			Water-Stained	ospheres in Upper 12 inches I Leaves vey Data
、 ,	ologic modi	ifications, loc	Water-Stained Local Soil Sur Other (Explain	ospheres in Upper 12 inches I Leaves vey Data in Remarks)
Depth to Saturated Soil: na (in.)	Ū	-	Water-Stained Local Soil Sur Other (Explain al variations, etc	ospheres in Upper 12 inches I Leaves vey Data in Remarks)

								Wetland	l: <u>26A</u>	
Project/Site	e: ELST Re-de	elineation				Date:	11/9/2007		Revisited 09	9-27-13
SOIL Soil Surv	ey Data:									
Map Unit	Name: Shalc	ar Muck					Drainage C	lass: very po	orly drained	
							Field Obse	rvations Confi	rm Mapped T	ype?
Taxonomy	(Subgroup):	Terric Med	lisaprists				Yes	No X	NA	_
Profile De	escription:									
Depth (Inches)	Horizon Designation	Matrix Co (Munsell					Mottle Abundance	e/Contrast	Texture, C Rhizosphe	Concretions, eres, etc.
0-16	А	10YR 2/1		none			none		silt	
			09-27-13 O	bservations	- 0-20	Α	10YR 2	/1 none	none	silt
Hydric Sc	oil Indicators:									
н	istosol					Listed	d on Hydric S	Soils List		
н	istic Epipedon					Fe/Mi	n Concretion	S		
	ulfidic Odor					_	_	in Sandy Soi		
	quic or Peragu		Regime			_		orphic Feature	es)	
	educing Condi					_Other	(Explain in I	Remarks)		
	leyed or Low-C									
	igh Organic Co	ontent in Sur	face Layer							
	(Describe soil soil indicates		es, local varia	tions, etc.):						
WETLA	ND DETER	MINATIO	N							
Hydrophy	rtic Vegetation	Present?	Ye	s X N	No		Is	this Samplir	ng Point With	nin a Wetland?
	oils Present?		Ye							
•	Hydrology Pre	sent?	Ye		اه اه			Yes	X No	
	-,		10	- <u> · · · · · · · · · · · · · · · · ·</u>	_					

Data Plot #:

26A-SP1

Remarks

Wetland vegetation, hydrology, and soil criteria are met. Therefore, the sample plot is located in a wetland.

Data Plot #:	26A-SP2
Wetland:	26A

WETLAND DETERMINATION

Project/Site: ELST Re-delineation			Date: 1	1/9/	/2007	Revisited 09-27-13
Applicant/Owner: King County			County:	Kir	ng	
Investigator: Chip Maney, Erik Christensen		State:	W	A		
☐ 1987 Method ✓ 1997 WA	87 Method 📝 1997 WA St. Method				Comn	nunity ID: PSS
Do Normal Circumstances exist on the site?	ances exist on the site? Yes X		No _		- Field	Plot ID: 26A-SP2
Is the site significantly disturbed (Atypical Situation)?	Yes		No _	Χ		
Is the area a potential Problem Area?	Yes		No	Χ		
Remarks (Explain sample location, disturbances, prob	lem are	eas):	_		-	
This sample plot is located 6 feet east of flag W26A-4.						
VEGETATION (✓Dominant species are checked)						09-27-13 Observations
Plant Species			Stratun	n	Indicator	Phalaris arundinacea 40% Rubus armeniacus 5%
✓ 1. Phalaris arundinacea		60	Herb		FACW	Rubus spectabilis 15%
2 . Rubus armeniacus	· · ·				FACU	Salix lucida 60%
3. Rubus spectabilis		15	Shrub		FAC+	Spiraea douglasii 15% Acer macrophyllum (overhanging) 90
 ✓ 4. Salix lucida 5. Spiraea douglasii 		60 15	Shrub Shrub		FACW+	- Neer maereprijnam (evernanging) ee
5. Spiraea douglasii			Tree			-
✓ 6 Acer macrophyllum*		90	Hee		FACU	
✓ 6. Acer macrophyllum* Percent of Dominant Species that are OBL, FACW, (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates transfer. "T		90			FACU	-
Percent of Dominant Species that are OBL, FACW,	ace. ions, se <i>but was</i>	100 easonal ef	ffects, etc	vide	e 90 percent	
Percent of Dominant Species that are OBL, FACW, (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates transport (Describe disturbances, relevant local variations** *Acer macrophyllum was rooted outside of the wetland a species that are hydrophytic is greater than 50 percent.	ace. ions, se <i>but was</i>	100 easonal ef	ffects, etc	vide	e 90 percent	
Percent of Dominant Species that are OBL, FACW, (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates transport that are observed that are species that are hydrophytic is greater than 50 percent. HYDROLOGY	ace. ions, se <i>but was</i>	100 easonal ef s overhani ohytic veg	ffects, etc ing to pro netation c	vide eriter	e 90 percent ion is satisfi	
Percent of Dominant Species that are OBL, FACW, (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates transport that are the disturbances, relevant local variating the species that are hydrophytic is greater than 50 percent. HYDROLOGY Recorded Data (Describe in Remarks):	ace. ions, se <i>but was</i>	asonal ef s overhani phytic veg	ffects, etc ing to pro netation c	ovide riter drol	e 90 percent ion is satisfi logy Indicat	ed.
Percent of Dominant Species that are OBL, FACW, (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates transport that are observed that are hydrophytic is greater than 50 percent. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage	ace. ions, se <i>but was</i>	asonal ef s overhani phytic veg	ffects, etc ing to pro letation c	drol	e 90 percent ion is satisfi logy Indicat	ed.
Percent of Dominant Species that are OBL, FACW, (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates transport that are the disturbances, relevant local variating the species that are hydrophytic is greater than 50 percent. HYDROLOGY Recorded Data (Describe in Remarks):	ace. ions, se <i>but was</i>	asonal ef	iffects, etc ing to pro retation c tland Hy Primary	drol	e 90 percention is satisfi logy Indicat cators:	ed.
Percent of Dominant Species that are OBL, FACW, (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates transpecies (Describe disturbances, relevant local variating *Acer macrophyllum was rooted outside of the wetland a species that are hydrophytic is greater than 50 percent. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph	ace. ions, se <i>but was</i>	asonal ef	iffects, etc ing to pro retation c tland Hy Primary	drol	e 90 percent ion is satisfi logy Indicat cators: Inundated Saturated Water Mar	tors (Describe in Remarks): in Upper 12 inches
Percent of Dominant Species that are OBL, FACW, (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates transpecies (Describe disturbances, relevant local variating *Acer macrophyllum was rooted outside of the wetland a species that are hydrophytic is greater than 50 percent. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other	ace. ions, se <i>but was</i>	asonal ef	iffects, etc ing to pro retation c tland Hy Primary	drol	e 90 percention is satisficators: Inundated Saturated Water Mar	tors (Describe in Remarks): in Upper 12 inches
Percent of Dominant Species that are OBL, FACW, (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates transpecies (Describe disturbances, relevant local variating *Acer macrophyllum was rooted outside of the wetland a species that are hydrophytic is greater than 50 percent. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available	ace. ions, se <i>but was</i>	asonal ef	iffects, etc ing to pro retation c tland Hy Primary	drol	logy Indicate cators: Inundated Saturated Water Mar Drift Lines Sediment	in Upper 12 inches
Percent of Dominant Species that are OBL, FACW, (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates tracker macrophyllum was rooted outside of the wetland species that are hydrophytic is greater than 50 percent. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations:	ace. ions, se <i>but was</i>	asonal ef	iffects, etc ing to pro retation c tland Hy Primary	drol	logy Indicate cators: Inundated Saturated Water Mar Drift Lines Sediment	tors (Describe in Remarks): in Upper 12 inches
Percent of Dominant Species that are OBL, FACW, (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace Remarks (Describe disturbances, relevant local variating *Acer macrophyllum was rooted outside of the wetland a species that are hydrophytic is greater than 50 percent. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations:	ace. ions, se <i>but was</i>	easonal ef s overhani phytic veg Wet	ifects, etc ing to pro- netation c tland Hy Primary X	ovide vdrol	logy Indicate cators: Inundated Saturated Water Mar Drift Lines Sediment Drainage F	in Upper 12 inches
Percent of Dominant Species that are OBL, FACW, (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace that are observed outside of the wetland species that are hydrophytic is greater than 50 percent. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: Depth to Free Water in Pit: na (in.)	ace. ions, se <i>but was</i>	easonal ef s overhani phytic veg Wet	ifects, etc ing to pro- netation c tland Hy Primary X	ovide vdrol	logy Indicated Saturated Water Mar Drift Lines Sediment Drainage F	in Upper 12 inches ks Deposits Patterns in Wetlands
Percent of Dominant Species that are OBL, FACW, (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace Remarks (Describe disturbances, relevant local variating *Acer macrophyllum was rooted outside of the wetland a species that are hydrophytic is greater than 50 percent. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations:	ace. ions, se <i>but was</i>	easonal ef s overhani phytic veg Wet	ifects, etc ing to pro- netation c tland Hy Primary X	ovide vdrol	logy Indicate cators: Inundated Saturated Water Mar Drift Lines Sediment Drainage Fundicators (2 Oxidized F Water-Statistics)	tors (Describe in Remarks): in Upper 12 inches rks Deposits Patterns in Wetlands 2 or more required): Rhizospheres in Upper 12 inches ined Leaves
Percent of Dominant Species that are OBL, FACW, (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace that are observed outside of the wetland species that are hydrophytic is greater than 50 percent. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: Depth to Free Water in Pit: na (in.)	ace. ions, se <i>but was</i>	easonal ef s overhani phytic veg Wet	ifects, etc ing to pro- netation c tland Hy Primary X	ovide vdrol	logy Indicate cators: Inundated Saturated Water Mar Drift Lines Sediment Drainage Fundicators (2 Oxidized Fundicat Soil	in Upper 12 inches ks Deposits Patterns in Wetlands 2 or more required): Rhizospheres in Upper 12 inches ined Leaves Survey Data
Percent of Dominant Species that are OBL, FACW, (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace that are observed outside of the wetland species that are hydrophytic is greater than 50 percent. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: Depth to Free Water in Pit: na (in.)	ace. ions, se <i>but was</i>	easonal ef s overhani phytic veg Wet	ifects, etc ing to pro- netation c tland Hy Primary X	ovide vdrol	logy Indicate cators: Inundated Saturated Water Mar Drift Lines Sediment Drainage Fundicators (2 Oxidized Fundicat Soil	tors (Describe in Remarks): in Upper 12 inches rks Deposits Patterns in Wetlands 2 or more required): Rhizospheres in Upper 12 inches ined Leaves
Percent of Dominant Species that are OBL, FACW, (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace that are observed outside of the wetland species that are hydrophytic is greater than 50 percent. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: Depth to Free Water in Pit: na (in.)	ace. ions, se but was Hydrop	easonal ef s overhani phytic veg Wet	ffects, etc ing to pro- retation c tland Hy Primary X	ovide rriter drol India	e 90 percention is satisfications: Inundated Saturated Water Mar Drift Lines Sediment Drainage Fundicators (2 Oxidized Fundicators (2 Coxidized Fundicators) Water-Stai Local Soil Other (Exp.	in Upper 12 inches rks Deposits Patterns in Wetlands 2 or more required): Rhizospheres in Upper 12 inches ined Leaves Survey Data blain in Remarks)

Project/Site	e: ELST Re-de	elineation				Date:	11/9/200	7	I	Revisit	ed 09-27-13]
SOIL Soil Surv	ey Data:											
Map Unit Name: Shalcar Muck							Drainage	Class: Ve	ery poo	rly drai	ined	
							Field Obs	ervations	Confirm	т Мар	ped Type?	
Taxonomy	(Subgroup):	Terric M	edisaprists				Yes	No	X	NA		
Profile De	escription:											
Depth (Inches)	Horizon Designation	Matrix ((Munse		Mottle Co (Munsell	-		Mottle Abundan	ce/Contra	st	Text	ure, Concretic ospheres, etc	ons,
0-10	А	10YR 3/1		none			none			loam		
10-18	В	10YR 3/1		10YR 5/6			common, fine, prominent		silt loam			
Hydric Sc	oil Indicators:		09-27-13 Obse		0-10 10-18	A B	10YR 3/ 10YR 4/ 10YR 5/	1 (40%)	none 10YR	5/6	none 20%	loam silt loam
Н	istosol					Listed	d on Hydric	Soils List	t			
	istic Epipedon					Fe/M	n Concretion	ons				
	ulfidic Odor					_ ~	nic Streakir	Ū	•			
	quic or Peragui		e Regime		X	_	es (Redoxir	•		s)		
	educing Condit					Othe	r (Explain ir	n Remark	s)			
	leyed or Low-C											
H	igh Organic Co	ntent in S	urface Layer									
	•		ces, local variaties indicate	. ,								
WETLA	ND DETER	MINATI	ON									
Hydrophy	tic Vegetation	Present	? Yes	X	No _			Is this Sa	mpling	Poin	t Within a We	etland?
•	ils Present? Hydrology Pre	sent?	Yes Yes		No _ No _			Ye	s X	N	lo	

Data Plot #:

Wetland:

26A-SP2

26A

Remarks

Wetland vegetation, hydrology, and soil criteria are met. Therefore, the sample plot is located in a wetland.

Data Plot #: 26A-SP3
Wetland: Upland near 26A

WETLAND DETERMINATION

(Modified from: 1987 ACOE Wetlands Delineation Manual)

Project/Site: ELST Re-delineation			Date: 11	/9/2007	Revisited 09-27-13
Applicant/Owner: King County			King		
Investigator: Chip Maney, Erik Christensen		•	WA .		
☐ 1987 Method	A St. Me		•	Comp	nunity ID: Upland Shrub
Do Normal Circumstances exist on the site?	Yes	X	No		Plot ID: 26A-SP3
Is the site significantly disturbed (Atypical Situation)?	Yes		No X	rieid	1 101 ID. 20A-31 3
Is the area a potential Problem Area?	Yes		No X		
Remarks (Explain sample location, disturbances, prob This sample plot is located approximately 10 feet north of		,	- <u>-</u>	_	
VEGETATION (✓Dominant species are checked) Plant Species		% Cover		Indicator	09-27-13 Observations Equisetum telmateia 20% Equisetum hyemale 5%
✓ 1. Phalaris arundinacea		20	Herb	FACW	Polystichum munitum 5%
2 . Rosa pisocarpa ✓ 3 Rubus armeniacus		10 40	Shrub Shrub	FACU FACU	Calystegia sepium 5% Rubus armeniacus 80%
✓ 3 Rubus armeniacus ✓ 4 Spiraea douglasii		40	Shrub	FACU	Acer macropyllum 80%
			percent. n	ıyaropnytic veç	getation criterion is satisfied.
HYDROLOGY			percent. H	iyaropnytic veg	getation criterion is satisfied.
HYDROLOGY Recorded Data (Describe in Remarks):			tland Hyd	rology Indicat	dors (Describe in Remarks):
				rology Indicat	
Recorded Data (Describe in Remarks):			tland Hyd	rology Indicated	ors (Describe in Remarks):
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage			tland Hyd	rology Indicat dicators: Inundated Saturated	ors (Describe in Remarks): in Upper 12 inches
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph			tland Hyd	rology Indicat dicators: Inundated Saturated Water Mar	ors (Describe in Remarks): in Upper 12 inches
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other			tland Hyd	rology Indicat dicators: Inundated Saturated	in Upper 12 inches
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available			tland Hyd	rology Indicated dicators: Inundated Saturated Water Mar Drift Lines Sediment	in Upper 12 inches
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available			Primary In	rology Indicatorical idicators: Inundated Saturated Water Mar Drift Lines Sediment Drainage F	in Upper 12 inches ks Deposits Patterns in Wetlands
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations:			Primary In	rology Indicatorical dicators: Inundated Saturated Water Mar Drift Lines Sediment Drainage F	in Upper 12 inches ks Deposits Patterns in Wetlands
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.)			Primary In	rology Indicators: Inundated Saturated Water Mar Drift Lines Sediment Drainage F y Indicators (2 Oxidized F	in Upper 12 inches ks Deposits Patterns in Wetlands or more required): thizospheres in Upper 12 inches
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.) Depth to Free Water in Pit: none (in.)			Primary In	rology Indicators: Inundated Saturated Water Mar Drift Lines Sediment Drainage F y Indicators (2 Oxidized F Water-Stai	in Upper 12 inches ks Deposits Patterns in Wetlands or more required): thizospheres in Upper 12 inches ined Leaves
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.) Depth to Free Water in Pit: none (in.)			Primary In	rology Indicat dicators: Inundated Saturated Water Mar Drift Lines Sediment Drainage F y Indicators (2 Oxidized F Water-Stai Local Soil	in Upper 12 inches ks Deposits Patterns in Wetlands or more required): thizospheres in Upper 12 inches
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.) Depth to Free Water in Pit: none (in.) Depth to Saturated Soil: none (in.)	hydrolo	We	Primary In	rology Indicatorical dicators: Inundated Saturated Water Mar Drift Lines Sediment Drainage For Value of Coxidized For Water-Stai Local Soil Other (Exp.	in Upper 12 inches ks Deposits Patterns in Wetlands or more required): thizospheres in Upper 12 inches ned Leaves Survey Data blain in Remarks)
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.) Depth to Free Water in Pit: none (in.)		We	Secondary	rology Indicators: Inundated Saturated Water Mar Drift Lines Sediment Drainage F y Indicators (2 Oxidized F Water-Stai Local Soil Other (Expocal variations,	in Upper 12 inches ks Deposits Patterns in Wetlands or more required): thizospheres in Upper 12 inches ned Leaves Survey Data blain in Remarks) etc.):

Revisited 09-27-13 Project/Site: ELST Re-delineation Date: 11/9/2007 SOIL Soil Survey Data: Drainage Class: very poorly drained Map Unit Name: Shalcar Muck Field Observations Confirm Mapped Type? Taxonomy (Subgroup): Terric Medisaprists No X NA **Profile Description:** Depth Horizon Matrix Color Mottle Color Mottle Texture, Concretions, (Inches) Designation (Munsell Moist) (Munsell Moist) Abundance/Contrast Rhizospheres, etc. 0-10 10YR 3/2 7.5YR 4/6 Α common, fine-coarse, prominent loam 10-18 В 10YR 4/2 none 10YR 3/2 09-27-13 Observations - 0-18 none none sa. loam 18-20 10YR 4/4 В none none gr. sa. loam **Hydric Soil Indicators:** Histosol Listed on Hydric Soils List Histic Epipedon Fe/Mn Concretions Organic Streaking in Sandy Soils Sulfidic Odor Aquic or Peraguic Moisture Regime Mottles (Redoximorphic Features) **Reducing Conditions** Other (Explain in Remarks) Gleyed or Low-Chroma Colors High Organic Content in Surface Layer Remarks (Describe soil disturbances, local variations, etc.): No indicators of hydric soil are present. Hydric soil criterion is not satisfied. WETLAND DETERMINATION **Hydrophytic Vegetation Present?** Is this Sampling Point Within a Wetland? **Hydric Soils Present?** No Yes ____ No _X__ **Wetland Hydrology Present?**

Data Plot #:

Wetland:

26A-SP3

Upland near 26A

Remarks

Wetland hydrology and hydric soil criterion are not satisfed. Therefore, the sample plot is not located in a wetland.

Data Plot #:	26B-SP1
Wetland:	26B

WETLAND DETERMINATION

(Modified	from: 1987	ACOE V			elineation M	lanual)
Project/Site: ELST Re-delineation			Da	ate: 11	/2/2007	Revisited 03-20-14
•					King County	
Investigator: Linda Krippner/Rachel Huls	cher			•	WA	_
1987 Method	✓ 1997 WA S	St. Method		,	Comm	nunity ID: PEM
Do Normal Circumstances exist on the site	_	Yes	N	lo X	,	
Is the site significantly disturbed (Atypical		Yes X	_	lo	- Fleid F	Plot ID: 26B-SP1
Is the area a potential Problem Area?	,					
Remarks (Explain sample location, distur		Yes	_ '\	10 X	<u>`</u>	
Vegetation has been highly modified by hu wetland determination. This sample plot is						
VEGETATION (✓Dominant species	are checked)					03-20-14 Observations
Plant Species		% Co	over	Stratum	Indicator	Trifolium repens 40%
1. Geranium robertianum		10		Herb	NL	Agrostis capillaris 30% Poa spp. 30%
✓ 2 . Phalaris arundinacea		20		Herb	FACW	Holcus lanatus 10%
✓ 3. Poa spp.		40		Herb		Scirpus microcarpus 5%
✓ 4. Taraxacum officinale		80		Herb	FACU	Taraxacum officinale 5%
✓ 5. Rubus armeniacus		30		Shrub	FACU	
The percent of dominant species that are in the lawn is dominated by dandelions, fram Disturbed site has weeds and planted veg	ned by a mix of	apple trees				
HYDROLOGY						
Recorded Data (Describe in Remarks):						ors (Describe in Remarks):
Stream, Lake, or Tide Gage	e		Pı	rimary In	ndicators:	
Aerial Photograph					Inundated	
Other				X		n Upper 12 inches
X No Recorded Data Availabl	е		,		Water Mark	KS .
Field Observations:					Drift Lines	Non-adha
					Sediment D Drainage P	Deposits Latterns in Wetlands
Depth of Surface Water: none	(in.)		S	econdar	y Indicators (2	or more required):
Depth to Free Water in Pit: none	(in.)				Oxidized RI	hizospheres in Upper 12 inches
Depth to Saturated Soil: 9	(in.)				Water-Stair	
					Local Soil S	Survey Data
					Other (Expl	lain in Remarks)
Remarks (As relevant, describe recent	orecipitation, hv	drologic m	odifica	ations, Ic	cal variations.	etc.):
Soil saturation in the upper 12 inches sati		_			-,	•
					holow curfoca	
03-20-14 Observations - Soil saturation a	t a mones. Flet	water iii	on at 8	, inclies	DEIOW SUITACE.	

Project/Si	te: ELST Re-de	elineation				Date:	11/2/2007	F	Revisited 03-2	20-14
SOIL Soil Sur	vey Data:									
Map Uni	t Name: Shalca	ar Muck					Drainage Class: ve	ry poor	ly drained	
							Field Observations	Confirm	n Mapped Typ	oe?
Taxonon	ny (Subgroup):	Terric Me	disaprists				Yes No	Χ	NA	
Profile D	Description:									
Depth (Inches)	Horizon Designation	Matrix C (Munsel		Mottle C (Munsell			Mottle Abundance/Contras	st	Texture, Con Rhizosphere	
0-12	А	10YR 2/1		none			none		sandy loam	
12-16	В	2.5Y 3/2		10YR 5/6			few, medium, distinct		sand	
Hydric S	Soil Indicators:		03-20-14 Obs	ervations	- 0-12 12-16	A B	10YR 2/1 2.5Y 4/2 (85%)	none 10YR		sa. loam sand
	Histosol						d on Hydric Soils List			
	Histic Epipedon						n Concretions			
	Sulfidic Odor		Devise			_ ~	nic Streaking in Sand	•		
	Aquic or Peragui Reducing Condit		Regime		<u> X</u>		es (Redoximorphic Fo r (Explain in Remarks)	
	Gleyed or Low-C		lore			Othe	i (Expiaiii iii neiliaiks	•)		
	High Organic Co									
Remark	s (Describe soil	disturband	es, local varia	. ,						
WETL	AND DETER	MINATIO	ON							
Hydroph	ytic Vegetation	Present?	Yes		No	Χ	Is this Sa	mpling	Point Within	n a Wetland?
-	oils Present?		Yes	X	No		V		No	
Wetland	Hydrology Pres	sent?	Yes	Χ	No _		Yes	s <u>X</u>	No	

Data Plot #:

Wetland:

26B-SP1

26B

Remarks

Vegetation has been highly modified by human disturbance. Vegetation is not used in the wetland determination. Hydric soil and wetland hydrology criteria are satisfied. The area has been determined to be wetland based on best professional judgement.

Data Plot #: 26B-SP-2
Wetland: Upland near 26B

WETLAND DETERMINATION

(Modified from: 1987 ACOE Wetlands Delineation Manual)

Project/Site: ELST Re-delineation			Date: 11	1/2/2007	Revisited 03-20-14
Applicant/Owner: King County		County:	King County		
Investigator: Linda Krippner/Rachel Hulscher				WA	
☐ 1987 Method	A St. Me	ethod		Comn	nunity ID: Upland Shrub/Herb
Do Normal Circumstances exist on the site? Yes X				— Field	Plot ID: 26B-SP2
Is the site significantly disturbed (Atypical Situation)?		No _>	<u> </u>		
Is the area a potential Problem Area?				<u> </u>	
Remarks (Explain sample location, disturbances, prob	lem are	eas):			
This sample plot is located near the trail. This sample pl	lot is loc	cated appi	roximately	y 6 feet south o	f Flag 26B-2.
VEGETATION (✓Dominant species are checked)					03-20-14 Observations
Plant Species		% Cover	Stratum	Indicator	Phalaris arundinacea 25% Poa spp. 20%
1 . Equisetum telmateia		10	Herb	FACW	Agrostis capillaris 20%
✓ 2. Pampas grass		20	Herb	NL	Festuca arundinacea 10% Taraxacum officinale 5%
✓ 3. Phalaris arundinacea		50	Herb	FACW FACU	- Taraxacum omcinale 5 /6
✓ 4. Rubus armeniacus 5. Malus spp.		10	Shrub Tree	FACU	
Percent of Dominant Species that are OBL, FACW,	or EAC				-
(except FAC-). Include species noted (*) as showing		33			
(except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates transport (Describe disturbances, relevant local variations)	ace. ions, se	33 asonal eff	-	,	
(except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates tra	ace. ions, se	33 asonal eff	-	,	vegetation criterion is not satisfic
(except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates transport the percent of dominant species that are hydrophytic is Athough the vegetation is very disturbed.	ace. ions, se	33 asonal eff	-	,	vegetation criterion is not satisfic
(except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates transport to the percent of dominant species that are hydrophytic is Athough the vegetation is very disturbed. HYDROLOGY	ace. ions, se	33 easonal eff	50 perce	nt. Hydrophytic	
(except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates tra Remarks (Describe disturbances, relevant local variation of the percent of dominant species that are hydrophytic is Athough the vegetation is very disturbed. HYDROLOGY Recorded Data (Describe in Remarks):	ace. ions, se	asonal effecter than	50 perce	nt. Hydrophytic	vegetation criterion is not satisfic
(except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates transport to the percent of dominant species that are hydrophytic is Athough the vegetation is very disturbed. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage	ace. ions, se	asonal effecter than	50 perce	nt. Hydrophytic	
(except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates tra Remarks (Describe disturbances, relevant local variation of the percent of dominant species that are hydrophytic is Athough the vegetation is very disturbed. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph	ace. ions, se	asonal effecter than	50 perce	nt. Hydrophytic Irology Indicat Indicators: Inundated	ors (Describe in Remarks):
(except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates tra Remarks (Describe disturbances, relevant local variati The percent of dominant species that are hydrophytic is Athough the vegetation is very disturbed. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other	ace. ions, se	asonal effecter than	50 perce	nt. Hydrophytic Irology Indicat Indicators: Inundated	ors (Describe in Remarks):
(except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates tra Remarks (Describe disturbances, relevant local variation of the percent of dominant species that are hydrophytic is Athough the vegetation is very disturbed. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available	ace. ions, se	asonal effecter than	50 perce	Irology Indicated Saturated Water Mar Drift Lines	in Upper 12 inches
(except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates tra Remarks (Describe disturbances, relevant local variati The percent of dominant species that are hydrophytic is Athough the vegetation is very disturbed. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other	ace. ions, se	asonal effecter than	50 perce	Irology Indicated Saturated Water Mar Drift Lines Sediment	nors (Describe in Remarks): in Upper 12 inches ks
(except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates tra Remarks (Describe disturbances, relevant local variation of the percent of dominant species that are hydrophytic is Athough the vegetation is very disturbed. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available	ace. ions, se	asonal effecter than	50 perce	Irology Indicated Saturated Water Mar Drift Lines Sediment	in Upper 12 inches
(except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates tra Remarks (Describe disturbances, relevant local variation of the percent of dominant species that are hydrophytic is Athough the vegetation is very disturbed. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available	ace. ions, se	asonal effecter than	sland Hyd	Irology Indicated Saturated Water Mar Drift Lines Sediment I Drainage F	nors (Describe in Remarks): in Upper 12 inches ks
(except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates tra Remarks (Describe disturbances, relevant local variation of the percent of dominant species that are hydrophytic is Athough the vegetation is very disturbed. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: Depth to Free Water in Pit: none (in.)	ace. ions, se	asonal effecter than	sland Hyd	Irology Indicated Saturated Water Mar Drift Lines Sediment Indicators (2)	in Upper 12 inches ks Deposits Patterns in Wetlands
(except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates tra Remarks (Describe disturbances, relevant local variation of the percent of dominant species that are hydrophytic is Athough the vegetation is very disturbed. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.)	ace. ions, se	asonal effecter than	sland Hyd	Irology Indicated Saturated Water Mar Drift Lines Sediment I Drainage Fory Indicators (2 Oxidized Final	in Upper 12 inches ks Deposits Patterns in Wetlands
(except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates tra Remarks (Describe disturbances, relevant local variation of the percent of dominant species that are hydrophytic is Athough the vegetation is very disturbed. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: Depth to Free Water in Pit: none (in.)	ace. ions, se	asonal effecter than	sland Hyd	Irology Indicated Saturated Water Mar Drift Lines Sediment I Drainage Fory Indicators (2 Oxidized F Water-Stai	in Upper 12 inches ks Deposits Patterns in Wetlands or more required): thizospheres in Upper 12 inches
(except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates tra Remarks (Describe disturbances, relevant local variation of the percent of dominant species that are hydrophytic is Athough the vegetation is very disturbed. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: Depth to Free Water in Pit: none (in.)	ace. ions, se	asonal effecter than	sland Hyd	Irology Indicated Saturated Water Mar Drift Lines Sediment I Drainage For Indicators (2 Oxidized For Water-Stail Local Soil	in Upper 12 inches ks Deposits Patterns in Wetlands or more required): thizospheres in Upper 12 inches ned Leaves
(except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates tra Remarks (Describe disturbances, relevant local variation of the percent of dominant species that are hydrophytic is Athough the vegetation is very disturbed. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: Depth to Free Water in Pit: none (in.)	ace. ions, se	assonal effecter than	sland Hyd Primary Ir	Irology Indicated andicators: Inundated Saturated Water Mar Drift Lines Sediment In Drainage Fory Indicators (2 Oxidized Foundation Water-Stail Local Soil Other (Exp.	in Upper 12 inches ks Deposits Patterns in Wetlands or more required): chizospheres in Upper 12 inches ned Leaves Survey Data clain in Remarks)
(except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates tra Remarks (Describe disturbances, relevant local variation of the percent of dominant species that are hydrophytic is Athough the vegetation is very disturbed. HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: Depth to Free Water in Pit: Depth to Saturated Soil: none (in.)	ace. ions, se s not gre	assonal effecter than Wet	Secondar cations, k	Irology Indicators: Inundated Saturated Water Mar Drift Lines Sediment I Drainage F ry Indicators (2 Oxidized F Water-Stai Local Soil Other (Expocal variations,	in Upper 12 inches ks Deposits Patterns in Wetlands or more required): chizospheres in Upper 12 inches ned Leaves Survey Data clain in Remarks) etc.):

Revisited 03-20-14 Project/Site: ELST Re-delineation Date: 11/2/2007 **SOIL** Soil Survey Data: Drainage Class: very poorly drained Map Unit Name: Shalcar Muck Field Observations Confirm Mapped Type? Taxonomy (Subgroup): Terric Medisaprists Yes No X NA **Profile Description:** Depth Horizon Matrix Color Mottle Color Mottle Texture, Concretions, (Inches) Designation (Munsell Moist) (Munsell Moist) Abundance/Contrast Rhizospheres, etc. 0-15 10YR 3/2 none none gravelly sandy loam 03-20-14 Observations - 0-15 10YR 2/1 none none gr. loam 15-19 В 2.5Y 4/3 none none sand **Hydric Soil Indicators:** Histosol Listed on Hydric Soils List Histic Epipedon Fe/Mn Concretions Organic Streaking in Sandy Soils Sulfidic Odor Aquic or Peraguic Moisture Regime Mottles (Redoximorphic Features) **Reducing Conditions** Other (Explain in Remarks) Gleyed or Low-Chroma Colors High Organic Content in Surface Layer Remarks (Describe soil disturbances, local variations, etc.): No hydric soil indicators are present. Hydric soil criterion is not satisfied. WETLAND DETERMINATION **Hydrophytic Vegetation Present?** No Is this Sampling Point Within a Wetland? **Hydric Soils Present?** Yes No Yes ____ No _X__ **Wetland Hydrology Present?** Yes No

Data Plot #:

Wetland:

26B-SP-2

Upland near 26B

Remarks

Wetland vegetation, hydrology, and soil criteria are not met. Therefore, the sample plot is not located in a wetland.

Data Plot #:	26C-SP1
Wetland:	26C

WETLAND DETERMINATION

(Modified from: 1987 AC		lianus Dei		
Project/Site: ELST Re-delineation		Date: 11/2	2/2007	Revisited 03-20-14
Applicant/Owner: King County			ing County	
Investigator: Linda Krippner/Rachel Hulscher		State: W		
☐ 1987 Method	/lethod	_	Comr	munity ID: PEM
Do Normal Circumstances exist on the site?	s X	No		Plot ID: 26C-SP1
Is the site significantly disturbed (Atypical Situation)? Yes	<u> </u>	No X		FIUL ID. 200-3F1
Is the area a potential Problem Area?		No X	_	
Remarks (Explain sample location, disturbances, problem a		NO	_	
This sample plot is located approximately 3 feet west of Flag	,			
VECETATION (ADeminant appaign are shocked)				03-20-14 Observations
VEGETATION (✓Dominant species are checked) Plant Species	% Cover	r Stratum	Indicator	Agrostis spp. 50%
T 17 P	30	Stratum	FAC*	Taraxacum officinale 10%
✓ 1. Trifolium repens ✓ 2. Agrostis spp.	50	Herb	FAC FAC	Phalaris arundinacea 30% Poa spp. 50%
3. dandelion	10	Herb	FACU	Ranunculus repens 40%
✓ 4. Phalaris arundinacea	30	Herb	FACW	
✓ 5. Poa spp.	50	Herb	UNK	_ _
B .		I I a ala		
✓ 6. Ranunculus repens Percent of Dominant Species that are OBL, FACW, or FA (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace.	.C 100	Herb 0	<u>FACW</u>	_
Percent of Dominant Species that are OBL, FACW, or FA (except FAC-). Include species noted (*) as showing	C 100 seasonal e	offects, etc.): Opercent. The	erefore, the l	– hydrophytic vegetation criterion is
Percent of Dominant Species that are OBL, FACW, or FA (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, so The percent of dominant species that are hydrophytic is great	C 100 seasonal e	offects, etc.): Opercent. The	erefore, the l	– hydrophytic vegetation criterion is
Percent of Dominant Species that are OBL, FACW, or FA (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, so The percent of dominant species that are hydrophytic is great satisfied. Most of wetland slope is lawn and apple orchard, ring HYDROLOGY	100 seasonal e er than 50 nmed with	offects, etc.): Opercent. The Phalaris aru	erefore, the indinacea.	hydrophytic vegetation criterion is tors (Describe in Remarks):
Percent of Dominant Species that are OBL, FACW, or FA (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, so The percent of dominant species that are hydrophytic is great satisfied. Most of wetland slope is lawn and apple orchard, ring HYDROLOGY	100 seasonal e er than 50 nmed with	offects, etc.): Opercent. The Phalaris aru	erefore, the indinacea.	
Percent of Dominant Species that are OBL, FACW, or FA (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, some percent of dominant species that are hydrophytic is great satisfied. Most of wetland slope is lawn and apple orchard, ring the transfer of the tran	100 seasonal e er than 50 nmed with	offects, etc.): Opercent. The Phalaris aru	erefore, the indinacea.	tors (Describe in Remarks):
Percent of Dominant Species that are OBL, FACW, or FA (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, so The percent of dominant species that are hydrophytic is great satisfied. Most of wetland slope is lawn and apple orchard, ring the total content of the to	100 seasonal e er than 50 nmed with	offects, etc.): Opercent. The Phalaris aru	erefore, the landinacea. Dlogy Indica icators: Inundated	tors (Describe in Remarks):
Percent of Dominant Species that are OBL, FACW, or FA (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, so The percent of dominant species that are hydrophytic is great satisfied. Most of wetland slope is lawn and apple orchard, ring HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph	100 seasonal e er than 50 nmed with	offects, etc.): Opercent. The Phalaris aru	erefore, the indinacea. Diogy Indicaticators: Inundated Saturated Water Mai	tors (Describe in Remarks): in Upper 12 inches
Percent of Dominant Species that are OBL, FACW, or FA (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, some percent of dominant species that are hydrophytic is great satisfied. Most of wetland slope is lawn and apple orchard, ring HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other	100 seasonal e er than 50 nmed with	offects, etc.): Opercent. The Phalaris aru	erefore, the indinacea. plogy Indicaticators: Inundated Saturated Water Mai	tors (Describe in Remarks): in Upper 12 inches
Percent of Dominant Species that are OBL, FACW, or FA (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, some percent of dominant species that are hydrophytic is great satisfied. Most of wetland slope is lawn and apple orchard, ring HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available	100 seasonal e er than 50 nmed with	offects, etc.): Opercent. The Phalaris aru	plogy Indicalicators: Inundated Saturated Water Mai Drift Lines Sediment	tors (Describe in Remarks): in Upper 12 inches rks Deposits
Percent of Dominant Species that are OBL, FACW, or FA (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, so The percent of dominant species that are hydrophytic is great satisfied. Most of wetland slope is lawn and apple orchard, ring HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations:	100 seasonal e er than 50 nmed with	offects, etc.): Opercent. The Phalaris aru	plogy Indicalicators: Inundated Saturated Water Mai Drift Lines Sediment	tors (Describe in Remarks): in Upper 12 inches
Percent of Dominant Species that are OBL, FACW, or FA (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, so The percent of dominant species that are hydrophytic is great satisfied. Most of wetland slope is lawn and apple orchard, ring HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.)	100 seasonal e er than 50 nmed with	offects, etc.): Opercent. The Phalaris aru	plogy Indicalicators: Inundated Saturated Water Mai Drift Lines Sediment Drainage I	tors (Describe in Remarks): in Upper 12 inches rks Deposits
Percent of Dominant Species that are OBL, FACW, or FA (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, so the percent of dominant species that are hydrophytic is great satisfied. Most of wetland slope is lawn and apple orchard, ring the transport of the satisfied. Most of wetland slope in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: Depth to Free Water in Pit: none (in.)	100 seasonal e er than 50 nmed with	offects, etc.): Opercent. The Phalaris aru	erefore, the indinacea. Plogy Indications: Inundated Saturated Water Mai Drift Lines Sediment Drainage I	tors (Describe in Remarks): in Upper 12 inches rks Deposits Patterns in Wetlands
Percent of Dominant Species that are OBL, FACW, or FA (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, so The percent of dominant species that are hydrophytic is great satisfied. Most of wetland slope is lawn and apple orchard, ring HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.)	100 seasonal e er than 50 nmed with	offects, etc.): Opercent. The Phalaris aru	erefore, the indinacea. Diogy Indicaticators: Inundated Saturated Water Mai Drift Lines Sediment Drainage I	tors (Describe in Remarks): in Upper 12 inches rks Deposits Patterns in Wetlands 2 or more required): Rhizospheres in Upper 12 inches ined Leaves
Percent of Dominant Species that are OBL, FACW, or FA (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, so the percent of dominant species that are hydrophytic is great satisfied. Most of wetland slope is lawn and apple orchard, ring the transport of the satisfied of the satisfied of the satisfied. Most of wetland slope is lawn and apple orchard, ring the satisfied of the sa	100 seasonal e er than 50 nmed with	offects, etc.): Opercent. The Phalaris aru	erefore, the indinacea. Diogy Indicaticators: Inundated Saturated Water Mai Drift Lines Sediment Drainage I Indicators (2 Oxidized F Water-Sta Local Soil	tors (Describe in Remarks): in Upper 12 inches rks Deposits Patterns in Wetlands 2 or more required): Rhizospheres in Upper 12 inches ined Leaves Survey Data
Percent of Dominant Species that are OBL, FACW, or FA (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, some percent of dominant species that are hydrophytic is great satisfied. Most of wetland slope is lawn and apple orchard, ring the percent of wetland slope is lawn and apple orchard, ring the percent of wetland slope is lawn and apple orchard, ring the percent of wetland slope is lawn and apple orchard, ring the percent of wetland slope is lawn and apple orchard, ring the percent of wetland slope is lawn and apple orchard, ring the percent of wetland slope is lawn and apple orchard, ring the percent of wetland slope is lawn and apple orchard, ring the percent of wetland slope is lawn and apple orchard, ring the percent of wetland slope is lawn and apple orchard, ring the percent of wetland slope is lawn and apple orchard, ring the percent of wetland slope is lawn and apple orchard, ring the percent of wetland slope is lawn and apple orchard, ring the percent of wetlands and apple orchard, ring	seasonal erer than 50 mmed with	effects, etc.): Defrecent. The Phalaris aru etland Hydro Primary Ind X Secondary	erefore, the indinacea. plogy Indica icators: Inundated Saturated Water Man Drift Lines Sediment Drainage I Indicators (2 Oxidized F Water-Sta Local Soil Other (Exp	in Upper 12 inches rks Deposits Patterns in Wetlands 2 or more required): Rhizospheres in Upper 12 inches ined Leaves Survey Data plain in Remarks)
Percent of Dominant Species that are OBL, FACW, or FA (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, so the percent of dominant species that are hydrophytic is great satisfied. Most of wetland slope is lawn and apple orchard, ring the transport of the satisfied of the satisfied of the satisfied. Most of wetland slope is lawn and apple orchard, ring the satisfied of the sa	seasonal erer than 50 mmed with	effects, etc.): Defrecent. The Phalaris aru etland Hydro Primary Ind X Secondary	erefore, the indinacea. plogy Indica icators: Inundated Saturated Water Man Drift Lines Sediment Drainage I Indicators (2 Oxidized F Water-Sta Local Soil Other (Exp	in Upper 12 inches rks Deposits Patterns in Wetlands 2 or more required): Rhizospheres in Upper 12 inches ined Leaves Survey Data plain in Remarks)

								Wetland:	26C	
								ı	Deviated 02 (20.44
² roject/Site	e: ELST Re-de	elineation				Date:	11/2/2007		Revisited 03-2	20-14
SOIL Soil Surv	ey Data:									
Map Unit	Name: Shalc	ar Muck					Drainage (Class: Moderate	ely well draine	d
							Field Obse	ervations Confir	m Mapped Typ	oe?
Taxonomy	y (Subgroup):	Terric Me	edisaprists				Yes	NoX	NA	
Profile De	escription:									
Depth (Inches)	Horizon Designation	Matrix C (Munsel		Mottle C (Munsell			Mottle Abundance	e/Contrast	Texture, Co Rhizosphere	
0-16	Α	10YR 3/1		10YR 3/6			many, mediu	m, distinct	gravelly sand	y loam
Uvdvia Ca	ail Indicators			Observations	6-12 12-18	1 1	0YR 3/1 0YR 3/1 0YR 2/1	10YR5/8 10YR5/8 none		si. loam lo. sand loam
•	oil Indicators:		Remarks -	Gravel in up	per 12 inc		d on Hydric (Soile Liet		
	istic Epipedon					_	n Concretion			
	ulfidic Odor					_		g in Sandy Soils	3	
	quic or Peragui	ic Moisture	Regime					orphic Features		
R	educing Condit	tions				Othe	r (Explain in	Remarks)		
X G	ileyed or Low-C	Chroma Co	lors							
н	igh Organic Co	ntent in Si	urface Laye	r						
	(Describe soil ma soil matrix o		•			lric soils	s.			
WETLA	ND DETER	MINATIO	ON							
Hydrophy	rtic Vegetation	Present?		Yes X	No		Is	this Sampling	g Point Within	n a Wetland?
	oils Present?			Yes X	No _					
-	Hydrology Pre	sent?		Yes X	No _			Yes X	No	

Data Plot #:

26C-SP1

Remarks

Wetland vegetation, hydrology, and soil criteria are met. Therefore, the sample plot is located in a wetland.

Data Plot #: 26C-SP2
Wetland: Upland near 26C

WETLAND DETERMINATION

(Modified from: 1987 ACOE Wetlands Delineation Manual)

Project/Site: ELST Re-delineation		Date:	11/2/2	2007	Revisited 03-20-14
Applicant/Owner: King County		County:	Kin	g County	
Investigator: Linda Krippner/Rachel Hulscher		State:	WA	١	
☐ 1987 Method	ethod			Commi	unity ID: Upland Herb
Do Normal Circumstances exist on the site? Yes	X	No		Field P	lot ID: 26C-SP2
Is the site significantly disturbed (Atypical Situation)? Yes		No	Χ	1 1010 1	100 01 1
Is the area a potential Problem Area?		No	Χ		
Remarks (Explain sample location, disturbances, problem and					
This upland plot is located on same elevation as trail and adjace	,	e trail ald	ong ar	n orchard and	planted tree hedge. The wetland plot
is at a lower elevation.	Г		_		et north of Abies amabilis row at
This sample plot is located approximately 7 feet south of Flag		toe of fill			et north of Abies amabilis fow at
VECETATION ((4 Deminerate asserted and phosphort))					03-20-14 Observations
VEGETATION (✓ Dominant species are checked) Plant Species	% Cove	r Stratu		Indicator	Agrostis spp. 30%
					Equisetum telmateia 20%
Agrostis spp.	30 20	Herb Herb		FACW	Phalaris arundinacea 40% Poa spp. 30%
2	40	Herb		FACW	Rubus armeniacus 10%
✓ 4. Poa spp.	30	Herb		UNK	Abies amabalis 15%
✓ 5. Rubus armeniacus	30	Herb		FACU	Malus sp. 40%
6. Abies amabilis	10	Tree		FACU	
✓ 7. Malus sp.	40	Tree/S	Shrub	NL	
Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, so	50		tc.):		
The percent of dominant species that are hydrophytic is not g	reater tha	an 50 pei	rcent.	Hydrophytic	vegetation criterion is not satisfied.
HYDROLOGY					
Recorded Data (Describe in Remarks):	We	etland H	ydrol	ogy Indicato	rs (Describe in Remarks):
Stream, Lake, or Tide Gage		Primary	/ Indic	ators:	
Aerial Photograph				Inundated	
Other				Saturated in	Upper 12 inches
X No Recorded Data Available				Water Marks	s
Field Observations:				Drift Lines	
11014 02001 141101101				Sediment D	•
				Drainage Pa	atterns in Wetlands
Depth of Surface Water: none (in.)		Second	dary I	ndicators (2	or more required):
Depth to Free Water in Pit: none (in.)				Oxidized Rh	izospheres in Upper 12 inches
Depth to Saturated Soil: none (in.)				Water-Stain	ed Leaves
				Local Soil S	urvey Data
				Other (Expla	ain in Remarks)
Remarks (As relevant, describe recent precipitation, hydrole	ogic modi	ifications	, loca	l variations, e	etc.):
Soils were not saturated. No primary or secondary indicators	-				•

Remarks

Project/Site	e: ELST Re-de	elineation		Date:	11/2/2007	Revisited 03-20-14
SOIL Soil Surve	ey Data:					
Map Unit N	Name: Shalca	ar Muck			Drainage Class: Moderat	
Taxonomy	(Subgroup):	Terric Medisaprists			Yes No _X	NA
Profile De	escription:					
Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)		Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-16	А	10YR 3/2	none		none	sandy loam
Hi Su Ad Re G	educing Condit leyed or Low-C			Fe/M Orga	d on Hydric Soils List in Concretions nic Streaking in Sandy Soils es (Redoximorphic Feature r (Explain in Remarks)	
No hydric	soil indicators	disturbances, local va are present. Hydric so		ied.		
	ND DETER		'es No	~	le this Samplin	g Point Within a Wetland?
Hydric So	ils Present? lydrology Pres	Υ	es No	<u>X</u> X	Yes	No _X

None of three of the wetland criteria are met. Therefore, the sample plot is not located in a wetland.

Data Plot #:

Wetland:

26C-SP2

Upland near 26C

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

Project Site:	ELST - South Sammamish Segn	<u>nent</u>		City/Coun	ty: <u>Sammamish/King</u> Sampling Da	te: <u>03</u>	-20-14	
Applicant/Owner:	King County				State: WA Sampling Po	int: <u>W</u> :	26C-SP3	<u>3</u>
Investigator(s):	C. Worsley; K. Seckel				Section, Township, Range: S32, T25	N, R06E		
Landform (hillslope, te	rrace, etc.): <u>flat, slight depress</u>	sion_	Loca	I relief (conc	ave, convex, none): <u>concave</u>	Slope (%)	: 0%	
Subregion (LRR):	<u>A</u>	Lat:	_		Long: D	atum:	_	
Soil Map Unit Name:	Mixed alluvial land				NWI classification:	<u>PSS</u>		
Are climatic / hydrolog	ic conditions on the site typical for	this time of y	year? Y	es 🛚	No			
Are Vegetation ☐,	Soil □, or Hydrology	□, signific	antly disturbed	? Are "	Normal Circumstances" present?	Yes 🛛	No	
Are Vegetation □,	Soil □, or Hydrology	□, natural	ly problematic	? (If ne	eded, explain any answers in Remarks.)			
SUMMARY OF FIN	DINGS – Attach site map sh	nowing san	npling point	locations,	transects, important features, etc.			
Hydrophytic Vegetation	n Present?	Yes 🛚	No 🗆					
Hydric Soil Present?		Yes 🛛	No 🗆	Is the Samp within a We		Yes 🛛	No	
Wetland Hydrology Pre	esent?	Yes 🛛	No 🗆					
Remarks: Sample pl	lot is located at north end of PSS.	approximate	lv 10 feet north	west of trail	edge, and approxmately 10 feet south of large	Salix lucida.		
	,		.,		g-,p-pg-			
VEGETATION – Us	se scientific names of plants			1 12 4				
Tree Stratum (Plot size	e: <u>30 feet</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:			
1. Salix lucida (overh	nanging from upland)	<u>30</u>	<u>n/a*</u>	FACW	Number of Dominant Species	24		(A)
2					That Are OBL, FACW, or FAC:	<u>34</u>		(A)
3					Total Number of Dominant	1		(B)
4					Species Across All Strata:	<u>4</u>	,	(D)
$50\% = \underline{15}, 20\% = \underline{6}$		<u>30</u>	= Total Cove	r	Percent of Dominant Species	<u>75</u>		(A/B)
Sapling/Shrub Stratum	<u>ı</u> (Plot size: <u>15 feet</u>)				That Are OBL, FACW, or FAC:	<u>15</u>		(٨७)
1. Cornus sericea		<u>50</u>	<u>yes</u>	<u>FACW</u>	Prevalence Index worksheet:			
2. Physocarpus capit	<u>tatus</u>	<u>40</u>	<u>yes</u>	<u>FACW</u>	Total % Cover of:	Multiply by:	<u>:</u>	
3					OBL species	x1 =		
4					FACW species	x2 =		
5					FAC species	x3 =		
50% = 45, 20% = 18		<u>90</u>	= Total Cove	r	FACU species	x4 =		
Herb Stratum (Plot siz	e: <u>3 feet</u>)				UPL species	x5 =		
1. Ranunculus repen	<u>1S</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>	Column Totals:(A)	_	(B))
2					Prevalence Index = B/A =			
3					Hydrophytic Vegetation Indicators:			
4					☐ 1 – Rapid Test for Hydrophytic Vegetat	ion		
5					☑ 2 - Dominance Test is >50%			
6					☐ 3 - Prevalence Index is <3.0¹			
7					4 - Morphological Adaptations¹ (Provide	e supporting		
8					data in Remarks or on a separate sl			
9					☐ 5 - Wetland Non-Vascular Plants¹			
10					☐ Problematic Hydrophytic Vegetation¹ (E	-xplain)		
11					(-			
50% = 10, 20% = 4		20	= Total Cove		¹Indicators of hydric soil and wetland hydrolo	gy must		
Woody Vine Stratum (Plot size: 15 feet)	_			be present, unless disturbed or problematic.			
Rubus armeniacus	<u></u>	<u>5</u>	<u>ves</u>	FACU				
2.		•		<u></u>	Hydrophytic			
50% = <u>2.5</u> , 20% = <u>1</u>		<u></u>	= Total Cove		Vegetation Yes ⊠	N	D	
% Bare Ground in Her	rh Stratum 80	_			Present?			
*ovolu	-	nter 2 auida	ance Species	with less the	an 5% cover are not considered dominant.			
Remarks:	aca nom calculations per ona	pici z guiud	arioo . opeules	with 1699 file	and the considered dominatil.			

Project Site: <u>ELST - South Sammamish</u>

Part Day Part Day							r or confi							3	
Color (moist)	rofile Description: (Descr	ibe to the	depth	needed t	o docu	ment the indicato	. 0. 001111	irm the absence	of indicat	ors.)					
Source S	Depth Ma	trix				Redox Feat	ures		_						
Type: Ce Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Tube Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Tube Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Tube Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Tube Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Tube Concentration, D=Depletion RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Tube Concentration, D=Depletion RM=Reduced Matrix (RS) This Coated Sand Matrix, CS=Covered or Coated Sand Grains. Tube Dark Surface (R12) Tube Dark Surface (R11) Sandy Mucby Mineral (S1) San	nches) Color (moist) (%	Color	(moist)		Type ¹	Loc ²	Texture	<u> </u>			Remark	(S	
Histoc Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils*: Histoc Spice (A1)	<u>0-18</u> <u>10YR 2/1</u>	<u>1</u>	00	=		Ξ	Ξ	Ξ	loamy s	and					
Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils*:										_					
Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils*:										_					
Histoc Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils*: Histoc Spice (A1)		_								_					
Histos (A1)		_		_						_					
Histos (A1) Sandy Redox (S5) 2 cm Muck (A10) Histos (A11) Sandy Redox (S5) 2 cm Muck (A10) Histos (A11) Sandy Redox (S5) 2 cm Muck (A10) Histos (A11) Sandy Redox (S5) 2 cm Muck (A10) Histos (A11) Sandy Redox (S5) Red Parent Meterial (TF2) Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) (except MLRA 1) Very Shallow Dark Surface (TF12) Hydrogen Sulfide (A4) Depleted Martix (F2) Other (Explain in Remarks) Depleted Bedwo Dark Surface (A12) Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Depleted Dark Surface (F6) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Sandy Mucky Matrix (S4) Redox Dark Surface (F7) Sandy Mucky Matrix (S4) Redox Dark Surface (F7) Sandy Gleyer Matrix (S4) Redox Depressions (F8) Bettictually Matrix (F2) Hydric Soils Present? Yes No Sandy Gleyer Matrix (S4) Redox Dark Surface (F7) Property Matrix (S4) Redox Depressions (F8) Bettictually Mydrology Indicators: Indicators (inhimitum of one required; check all that apply) Secondary Indicators (2 or more required) Surface Water (A1) Water-Stained Leaves (B9) Water-Stained Leaves (B9) Sufface Water (A1) Water-Stained Leaves (B9) Water-Stained Leaves (B9) Sufface Water (A1) Presents (B10) Diritage Patterns (B10) Sufface Water (A1) Aquatic Invertebrates (B13) Diritage Patterns (B10) Sediment Deposits (B2) Hydrogen Sulfide Odor (C1) Saturation Visible on Aerial Imagery (C9) Sufface Soil Cracks (B6) Sturied of Stresses Plants (D1) (LRR A) Raised Ant Mounds (D6) (LRR A) In Indicators (Problems) Prost-Heave Hurmmocks (D7) Sparsely Vegetated Concave Surface (B8) Depth (inches): Refer Table Present? Yes No Depth (inches): R										_					
Histoc Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils*: Histoc Spice (A1)										_					
Histos (A1)										_					
Histosol (A1)		-					ated Sand	Grains. ² Lo							
Histic Epipedon (A2)		plicable t	o all LF	_		-			_				Hydric	Soils ³ :	
Black Histic (A3)				_	_										
Hydrogen Sulfide (A4)	,								_						
Depleted Below Dark Surface (A11)	. ,				_			(cept MLRA 1)					,	F12)	
Thick Dark Surface (A12)					_					Othe	er (Expla	ain in Rer	marks)		
Sandy Mucky Mineral (S1)			(11)		_										
Sandy Gleyed Matrix (S4)							` '		3Ind	iontoro	of budro	nhytia ya	actation	and	
PARCILOGY The presence of hydrophytic vegetation and wetland hydrology, and a dark matrix indicate the hydric soil criterion is satisfied. Meets Dark Surface (S7). The presence of hydrophytic vegetation and wetland hydrology, and a dark matrix indicate the hydric soil criterion is satisfied. Meets Dark Surface (S7). PARCILOGY The presence of hydrophytic vegetation and wetland hydrology, and a dark matrix indicate the hydric soil criterion is satisfied. Meets Dark Surface (S7). PARCILOGY The presence of hydrophytic vegetation and wetland hydrology, and a dark matrix indicate the hydric soil criterion is satisfied. Meets Dark Surface (S7). PARCILOGY The presence of hydrophytic vegetation and wetland hydrology, and a dark matrix indicate the hydric soil criterion is satisfied. Meets Dark Surface (S7). PARCILOGY The presence of hydrophytic vegetation and wetland hydrology, and a dark matrix indicate the hydric soil criterion is satisfied. Meets Dark Surface (S7). PARCILOGY The presence of hydrophytic vegetation and wetland hydrology, and a dark matrix indicate the hydric soil criterion is satisfied. Meets Dark Surface (S7). PARCILOGY The present (S1) The present (A1) The present (A1) The present (A1) The present (A2) The present (A2) The present (A3) Th		. ,				•	. ,								
PYPROLOGY **The presence of hydrophytic vegetation and wetland hydrology, and a dark matrix indicate the hydric soil criterion is satisfied. Meets Dark Surface (S7). **Proceeding the presence of hydrophytic vegetation and wetland hydrology, and a dark matrix indicate the hydric soil criterion is satisfied. Meets Dark Surface (S7). **Proceeding the presence of hydrophytic vegetation and wetland hydrology, and a dark matrix indicate the hydric soil criterion is satisfied. Meets Dark Surface (S7). **Proceeding the presence of hydrophytic vegetation and wetland hydrology, and a dark matrix indicate the hydric soil criterion is satisfied. Meets Dark Surface (S7). **Proceeding the presence of hydrophytic vegetation and wetland hydrology, and a dark matrix indicate the hydric soil criterion is satisfied. Meets Dark Surface (S7). **Proceeding the hydrology Indicators:* **Image: All Andicators:* **Im	• • • • • • • • • • • • • • • • • • • •	-			J Re	edox Depressions	(F8) 		ι	ınless d	isturbed	or probl	ematic.		
PyDROLOGY ettand Hydrology Indicators: imary Indicators (minimum of one required; check all that apply) Secondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Saturation (A3) Salt Crust (B11) Water Marks (B1) Sediment Deposits (B2) Hydrogen Sulfide Odor (C1) Sediment Deposits (B3) Oxidized Rhizospheres along Living Roots (C3) Agal Mat or Crust (B4) Presence of Reduced Iron (C4) Sulface Soil Cracks (B6) Sulface Soil Cracks (B6) Sulface Soil Cracks (B6) Sulface Recent Iron Reduction in Tilled Soils (C6) Sparsely Vegetated Concave Surface (B8) Living Present? Ves. No. Depth (inches): Sulface No. Wetland Hydrology Present? Ves. No.		it):													
The presence of hydrophytic vegetation and wetland hydrology, and a dark matrix indicate the hydric soil criterion is satisfied. Meets Dark Surface (S7). YDROLOGY etland Hydrology Indicators: imary Indicators (minimum of one required; check all that apply) Secondary Indicators (2 or more required) Water-Stained Leaves (B9) High Water (A1) Saturation (A3) Salt Crust (B11) Water Marks (B1) Aquatic Invertebrates (B13) Presents (B2) Hydrogen Sulfide Odor (C1) Aquatic Invertebrates (B13) Oxidized Rhizospheres along Living Roots (C3) Algal Mat or Crust (B4) Frost-Heave Hummocks (D7) Surface Soil Cracks (B6) Surface Soil Cracks (B8) Prost-Heave Hummocks (D7) The peopth (inches): Surface Water Present? Water Stand Hydrology Present? Westand Hydrology Present?															
Secondary Indicators (minimum of one required; check all that apply) Secondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Saturation (A3) Saturation (A3) Saturation (A3) Aquatic Invertebrates (B13) Dry-Season Water Table (C2) Sediment Deposits (B2) Drift Deposits (B3) Oxidized Rhizospheres along Living Roots (C3) Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Surface Soil Cracks (B6) Surface Soil Cracks (B6) Stunted or Stresses Plants (D1) (LRR A) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8) Secondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Oprinage Patterns (B10) Driv-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) Frost-Heave Hummocks (D7) Sparsely Vegetated Concave Surface (B8) Seturation Present? Yes No Depth (inches): Surface Surface Water Present? Yes No Depth (inches): Surface Wetland Hydrology Present? Yes No Depth (inches): Surface	emarks: The presence	or nyaropi	hytic ve	egetation a	nd wetla	and hydrology, and	d a dark m	natrix indicate the	nyaric soii	criterio	in is sati	sileu. Me			. (57).
Surface Water (A1)	IYDROLOGY		hytic ve	getation a	nd wetla	and hydrology, and	d a dark m	atrix indicate the	nyaric soil	criterio	n is sati	sileu. Ivie			
High Water Table (A2)	IYDROLOGY Vetland Hydrology Indicat	ors:					d a dark m	atrix indicate the							÷ (51).
Saturation (A3)	YDROLOGY /etland Hydrology Indicat rimary Indicators (minimum	ors:		check all	that app	oly)		atrix indicate the	Secon	ndary Ir	dicators	: (2 or mo	ore requi		÷ (51).
Water Marks (B1)	YDROLOGY /etland Hydrology Indicat rimary Indicators (minimum Surface Water (A1)	ors:		check all	that app	oly) ater-Stained Leave	es (B9)		Secon	ndary In	dicators Stained	: (2 or mc Leaves (ore requi B9)		. (51).
Sediment Deposits (B2)	YDROLOGY etland Hydrology Indicatrimary Indicators (minimum Surface Water (A1) High Water Table (A2)	ors:		check all	that app	oly) ater-Stained Leave kcept MLRA 1, 2,	es (B9)		Secon	ndary Ir Water-:	dicators Stained	(2 or mo Leaves (ore requi B9) 3)		. (51).
Drift Deposits (B3)	YDROLOGY etland Hydrology Indicate imary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3)	ors:		check all	that app	oly) ater-Stained Leave kcept MLRA 1, 2, alt Crust (B11)	es (B9) 4A , and 4		Secon	ndary Ir Water- (MLRA Draina	dicators Stained 1, 2, 4A	(2 or mo Leaves (A, and 4E rns (B10)	ore requi B9) 3)		3 (51).
Algal Mat or Crust (B4)	YDROLOGY etland Hydrology Indicatorimary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1)	ors: of one re		check all	that app W: (e) Sa Aq	oly) ater-Stained Leave xcept MLRA 1, 2, alt Crust (B11) quatic Invertebrates	es (B9) 4A, and 4 s (B13)		Secon	ndary Ir Water- (MLRA Draina Dry-Se	ndicators Stained 1, 2, 4 <i>A</i> ge Patte ason Wa	(2 or mo Leaves (A, and 4E rns (B10)	pre requi B9) 3)) e (C2)	red)	
Iron Deposits (B5)	YDROLOGY etland Hydrology Indicat imary Indicators (minimum Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B	ors: of one re		check all	that app W: (e) Saa Aq	oly) ater-Stained Leave ccept MLRA 1, 2, alt Crust (B11) quatic Invertebrates rdrogen Sulfide Oc	es (B9) 4A, and 4 s (B13) lor (C1)	B)	Secon	ndary Ir Water- (MLRA Draina Dry-Se Saturat	dicators Stained 1, 2, 4A ge Patte ason Wa	(2 or mo Leaves (A, and 4E rns (B10) ater Tablo	ore requi B9) 3)) e (C2) erial Imag	red)	
Surface Soil Cracks (B6)	YDROLOGY etland Hydrology Indicat imary Indicators (minimum] Surface Water (A1)] High Water Table (A2] Saturation (A3)] Water Marks (B1)] Sediment Deposits (B] Drift Deposits (B3)	ors: of one re)		check all	that app W: (e) Sa Aq Hy	oly) ater-Stained Leave ccept MLRA 1, 2, alt Crust (B11) quatic Invertebrates drogen Sulfide Oc kidized Rhizospher	es (B9) 4A, and 4 s (B13) dor (C1) res along l	JB) Living Roots (C3	Secon	ndary Ir Water- (MLRA Draina Dry-Se Satural Geomo	odicators Stained 1, 2, 44 ge Patte ason Wa ion Visik	(2 or mo Leaves (A, and 4E rns (B10) ater Table ble on Ae osition (D	ore requi B9) 3)) e (C2) erial Imag	red)	
Inundation Visible on Aerial Imagery (B7)	YDROLOGY etland Hydrology Indicat imary Indicators (minimum Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B Drift Deposits (B3) Algal Mat or Crust (B4)	ors: of one re)		check all	that app (e) Sa Aq Hy Ox	ater-Stained Leave xcept MLRA 1, 2, alt Crust (B11) quatic Invertebrates rdrogen Sulfide Oct rdrogen Sulfide Oct	es (B9) 4A, and 4 s (B13) dor (C1) res along l d Iron (C4	BB) Living Roots (C3	Secon	ndary Ir Water- (MLRA Draina Dry-Se Saturat Geomo	dicators Stained 1, 2, 4A ge Patte ason Wa ion Visit urphic Po	(2 or mo Leaves (A, and 4E rns (B10) ater Table ole on Ae osition (D rd (D3)	ore requi B9) 3)) e (C2) erial Imag	red)	
Sparsely Vegetated Concave Surface (B8) eld Observations: urface Water Present? Yes No Depth (inches): fater Table Present? Yes No Depth (inches): 8 aturation Present? Yes No Depth (inches): surface Wetland Hydrology Present? Yes No	YDROLOGY Vetland Hydrology Indicate rimary Indicators (minimum) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5)	ors: of one re)		check all	that app Ware (e) Aq Hy Ox Pri	ater-Stained Leave ccept MLRA 1, 2, alt Crust (B11) quatic Invertebrates drogen Sulfide Oc didized Rhizospher esence of Reduce eccent Iron Reduction	es (B9) 4A, and 4 s (B13) dor (C1) res along I d Iron (C4 on in Tilleo	Living Roots (C3	Secon	ndary Ir Water- (MLRA Drainag Dry-Se Saturat Geomo Shallov FAC-N	odicators Stained 1, 2, 4A ge Patte ason Wa ion Visit orphic Po v Aquita eutral Te	Leaves (A, and 4E A, and 4E Trns (B10) ater Table ole on Ae osition (D ard (D3) est (D5)	pre requi B9) 3)) e (C2) erial Imag	red)	
eld Observations: urface Water Present? Yes No Depth (inches): /ater Table Present? Yes No Depth (inches): 8 aturation Present? Yes No Depth (inches): surface Wetland Hydrology Present? Yes No	YDROLOGY Tetland Hydrology Indicate rimary Indicators (minimum) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B5)	ors: of one re) 2)	equired;	check all	that app (example of the second of the seco	oly) ater-Stained Leave ccept MLRA 1, 2, alt Crust (B11) quatic Invertebrates rdrogen Sulfide Oc cidized Rhizospher esence of Reduce ecent Iron Reduction	es (B9) 4A, and 4 s (B13) dor (C1) res along I d Iron (C4 on in Tillec Plants (D1	Living Roots (C3	Secon	ndary Ir Water- (MLRA Drainag Dry-Se Saturat Geomo Shallow FAC-N Raised	dicators Stained 1, 2, 4A ge Patte ason Wa ion Visit orphic Po v Aquita eutral Te Ant Mo	Leaves (A, and 4E rns (B10) ater Table on Ae osition (D rd (D3) est (D5) unds (D6	Dre requi B9) 3)) e (C2) erial Image 2)	red)	
arface Water Present? Yes No Depth (inches): ater Table Present? Yes No Depth (inches): 8 aturation Present? Yes No Depth (inches): surface Wetland Hydrology Present? Yes No	YDROLOGY etland Hydrology Indicat imary Indicators (minimum] Surface Water (A1)] High Water Table (A2] Saturation (A3)] Water Marks (B1)] Sediment Deposits (B3)] Algal Mat or Crust (B4)] Iron Deposits (B5)] Surface Soil Cracks (B3)] Inundation Visible on A	ors: of one re) 2) 4) Aerial Ima	equired;	check all	that app (example of the second of the seco	oly) ater-Stained Leave ccept MLRA 1, 2, alt Crust (B11) quatic Invertebrates rdrogen Sulfide Oc cidized Rhizospher esence of Reduce ecent Iron Reduction	es (B9) 4A, and 4 s (B13) dor (C1) res along I d Iron (C4 on in Tillec Plants (D1	Living Roots (C3	Secon	ndary Ir Water- (MLRA Drainag Dry-Se Saturat Geomo Shallow FAC-N Raised	dicators Stained 1, 2, 4A ge Patte ason Wa ion Visit orphic Po v Aquita eutral Te Ant Mo	Leaves (A, and 4E rns (B10) ater Table on Ae osition (D rd (D3) est (D5) unds (D6	Dre requi B9) 3)) e (C2) erial Image 2)	red)	
/ater Table Present? Yes ⊠ No ☐ Depth (inches): 8/ aturation Present? Yes ⊠ No ☐ Depth (inches): surface Wetland Hydrology Present? Yes ⊠ No	YDROLOGY Tetland Hydrology Indicate imary Indicators (minimum) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B1) In Deposits (B3) Iron Deposits (B5) Surface Soil Cracks (E1) Inundation Visible on A1 Sparsely Vegetated C	ors: of one re) 2) 4) Aerial Ima	equired;	check all	that app (example of the second of the seco	oly) ater-Stained Leave ccept MLRA 1, 2, alt Crust (B11) quatic Invertebrates rdrogen Sulfide Oc cidized Rhizospher esence of Reduce ecent Iron Reduction	es (B9) 4A, and 4 s (B13) dor (C1) res along I d Iron (C4 on in Tillec Plants (D1	Living Roots (C3	Secon	ndary Ir Water- (MLRA Drainag Dry-Se Saturat Geomo Shallow FAC-N Raised	dicators Stained 1, 2, 4A ge Patte ason Wa ion Visit orphic Po v Aquita eutral Te Ant Mo	Leaves (A, and 4E rns (B10) ater Table on Ae osition (D rd (D3) est (D5) unds (D6	Dre requi B9) 3)) e (C2) erial Image 2)	red)	
aturation Present? Ves X No D Depth (inches): surface Wetland Hydrology Present? Yes X No	YDROLOGY Tetland Hydrology Indicate inimary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B1) Inundation Visible on a Sparsely Vegetated Colled Observations:	ors: of one re) 2) 4) Aerial Ima oncave S	equired; agery (B urface (check all	that app (e) Aq Hy Pri Re Sti	ater-Stained Leave xcept MLRA 1, 2, alt Crust (B11) quatic Invertebrates rdrogen Sulfide Oc didized Rhizospher esence of Reduce ecent Iron Reduction unted or Stresses her (Explain in Res	es (B9) 4A, and 4 s (B13) dor (C1) res along I d Iron (C4 on in Tillec Plants (D1	Living Roots (C3	Secon	ndary Ir Water- (MLRA Drainag Dry-Se Saturat Geomo Shallow FAC-N Raised	dicators Stained 1, 2, 4A ge Patte ason Wa ion Visit orphic Po v Aquita eutral Te Ant Mo	Leaves (A, and 4E rns (B10) ater Table on Ae osition (D rd (D3) est (D5) unds (D6	Dre requi B9) 3)) e (C2) erial Image 2)	red)	
	YDROLOGY Vetland Hydrology Indicate firmary Indicators (minimum) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B1) Inundation Visible on A Sparsely Vegetated Coeld Observations:	ors: of one re) 2) 4) Aerial Ima oncave S	equired;	check all	that app Ware (e) Aq Hy Pro Re Sto	poly) ater-Stained Leave xcept MLRA 1, 2, alt Crust (B11) quatic Invertebrates rdrogen Sulfide Oc didized Rhizospher esence of Reduce ecent Iron Reduction unted or Stresses her (Explain in Red Depth (inches):	es (B9) 4A, and 4 s (B13) dor (C1) res along I d Iron (C4 on in Tillec Plants (D1 marks)	Living Roots (C3	Secon	ndary Ir Water- (MLRA Drainag Dry-Se Saturat Geomo Shallow FAC-N Raised	dicators Stained 1, 2, 4A ge Patte ason Wa ion Visit orphic Po v Aquita eutral Te Ant Mo	Leaves (A, and 4E rns (B10) ater Table on Ae osition (D rd (D3) est (D5) unds (D6	Dre requi B9) 3)) e (C2) erial Image 2)	red)	
	IYDROLOGY Vetland Hydrology Indicators (minimum Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B4 Iron Deposits (B5) Surface Soil Cracks (E1) Inundation Visible on Sparsely Vegetated Cotel (B4) Vater Table Present? Vater Table Present? Includes capillary fringe)	ors: of one re) 2) 4) Aerial Ima oncave S Yes Yes Yes	equired;	check all	that app Ware Gen Aq Hy Con Re Con Con Con Con Con Con Con Co	poly) ater-Stained Leave coept MLRA 1, 2, alt Crust (B11) quatic Invertebrates rdrogen Sulfide Oc didized Rhizospher esence of Reduce excent Iron Reduction unted or Stresses her (Explain in Ref Depth (inches): Depth (inches):	es (B9) 4A, and 4 s (B13) dor (C1) res along I d Iron (C4 on in Tillec Plants (D1 marks) 8 surface	Living Roots (C3) d Soils (C6) 1) (LRR A)	Secon	ndary Ir Water- (MLRA Drainag Dry-Se Saturat Geomo Shallov FAC-N Raised Frost-F	dicators Stained 1, 2, 44 ge Patte ason Wa ion Visit ion Visit ion Visit ion Visit arphic Po v Aquita eutral Te Ant Mod	c (2 or mo Leaves (A, and 4E rns (B10) ater Table ble on Ae osition (D rd (D3) est (D5) unds (D6	ore requi B9) 3)) e (C2) erial Image (2) 5) (LRR A	red)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	HYDROLOGY Vetland Hydrology Indicate Primary Indicators (minimum Surface Water (A1) High Water Table (A2 Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B4 Iron Deposits (B5) Surface Soil Cracks (B1 Inundation Visible on Sparsely Vegetated Cottle Observations: Surface Water Present? Vater Table Present? Saturation Present? Saturation Present? Includes capillary fringe)	ors: of one re) 2) 4) Aerial Ima oncave S Yes Yes Yes	equired;	check all	that app Ware Gen Aq Hy Con Re Con Con Con Con Con Con Con Co	poly) ater-Stained Leave coept MLRA 1, 2, alt Crust (B11) quatic Invertebrates rdrogen Sulfide Oc didized Rhizospher esence of Reduce excent Iron Reduction unted or Stresses her (Explain in Ref Depth (inches): Depth (inches):	es (B9) 4A, and 4 s (B13) dor (C1) res along I d Iron (C4 on in Tillec Plants (D1 marks) 8 surface	Living Roots (C3) d Soils (C6) 1) (LRR A)	Secon	ndary Ir Water- (MLRA Drainag Dry-Se Saturat Geomo Shallov FAC-N Raised Frost-F	dicators Stained 1, 2, 44 ge Patte ason Wa ion Visit ion Visit ion Visit ion Visit arphic Po v Aquita eutral Te Ant Mod	c (2 or mo Leaves (A, and 4E rns (B10) ater Table ble on Ae osition (D rd (D3) est (D5) unds (D6	ore requi B9) 3)) e (C2) erial Image (2) 5) (LRR A	red)	

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

Project Site:	ELST - South Sammamish Seg	ment		City/Cour	nty: <u>Sammamish/King</u> Sampling Date:	03-19-14
Applicant/Owner:	King County				State: WA Sampling Point:	W26D-SP1
Investigator(s):	C. Worsley; K. Seckel				Section, Township, Range: S33, T25N, R0	<u>8E</u>
Landform (hillslope, te	errace, etc.): <u>flat</u>		Loca	al relief (conc	eave, convex, none): <u>none</u> Slo	ppe (%): 1%
Subregion (LRR):	<u>A</u>	Lat:			Long: Datum:	
Soil Map Unit Name:	Mixed alluvial land				NWI classification: PEM	
Are climatic / hydrolog	ic conditions on the site typical for	or this time of	year? Y	′es ⊠	No 🔲 (If no, explain in Remarks.)	
Are Vegetation ☐,	, Soil □, or Hydrology	☐, signific	cantly disturbed	d? Are '	'Normal Circumstances" present? Yes	s 🛛 No 🗌
Are Vegetation ,	, Soil □, or Hydrology	☐, natura	Illy problematic	? (If ne	eeded, explain any answers in Remarks.)	
SUMMARY OF FIN	IDINGS – Attach site map s	howing sa	mpling poin	locations	, transects, important features, etc.	
Hydrophytic Vegetatio	n Present?	Yes 🗵	No □	1. (1. 0	d. I A	
Hydric Soil Present?		Yes 🗵	No □	Is the Samp within a We		s 🛛 No 🗌
Wetland Hydrology Pr	esent?	Yes 🗵	No 🗆			
Remarks: Sample p	lot is located at southeast corner	of wetland, o	n northwest sid	de of stream i	in bend. Approximately 8 feet west of clump of Alnus	rubra (5 trunks)
growing ir	n adjacent upland. This wetland is	s a mitigation	restoration site	e with planting	gs, LWD, and irrigation.	
VEGETATION - Us	se scientific names of plant	s				
Tree Stratum (Plot siz	e: 30 feet)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:	
Alnus rubra (overl	haning from upland)	<u> 50</u>	<u>n/a*</u>	FAC	Number of Dominant Species	
2	<u></u>	_			That Are OBL, FACW, or FAC:	(A)
3.				' <u></u>	Total Number of Dominant	
4.					Species Across All Strata:	(B)
50% =, 20% =			= Total Cove	er	Percent of Dominant Species	
Sapling/Shrub Stratun					That Are OBL, FACW, or FAC:	(A/B)
1					Prevalence Index worksheet:	
2.					Total % Cover of: Mult	tiply by:
3					OBL species x1 =	·
4					FACW species x2 =	:
5					FAC species x3 =	:
50% =, 20% =			= Total Cove	er	FACU species x4 =	·
Herb Stratum (Plot siz	ze: 3 feet)				UPL species x5 =	
Eleocharis obtusa		30	<u>yes</u>	OBL	Column Totals: (A)	(B)
Scirpus microcarp		10	no no	OBL	Prevalence Index = B/A =	(-/
Phalaris arundinad		<u>2</u>	no no	FACW	Hydrophytic Vegetation Indicators:	-
Nasturium officina		<u> 5</u>	no	OBL	☐ 1 – Rapid Test for Hydrophytic Vegetation	
Veronica americai		<u>10</u>	no no	OBL OBL	 ✓ 2 - Dominance Test is >50% 	
6.	<u>.</u>	<u></u>	<u></u>	<u> </u>		
7.						
8					4 - Morphological Adaptations ¹ (Provide supplementation of the data in Remarks or on a separate sheet)	orting
9						
10					Problematic Hydrophytic Vegetation¹ (Explain	1)
11	1.4		Total Cava		¹ Indicators of hydric soil and wetland hydrology mu	st
50% = <u>28.5</u> , 20% = <u>11</u>		<u>57</u>	= Total Cove	? Γ	be present, unless disturbed or problematic.	
Woody Vine Stratum ((Plot size: 15 feet)					
1					Hydrophytic	
2					Vegetation Yes ⊠	No 🗆
50% =, 20% =			= Total Cove	ei.	Present?	
% Bare Ground in Her						
Remarks: *exclu	ded from calculations per cha	apter 2 guid	ance .			

Project Site: <u>ELST - South Sammamish</u>

9-6 10YR 2/1 100 : : : : : : : : : : : : : : : : :	<u>-</u> <u>M</u> 	si. loam lo. sand	high organic co	<u>ntent</u>		
ype: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand ydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	<u>M</u>	lo. sand				
dric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)			<u> </u>			
dric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		<u> </u>	<u> </u>			
rdric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)						
rdric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	_					
dric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)						
ydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)						
ydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Grains 21 oc:	ation: PI =Po	re Lining, M=Matrix			
	Oranio. 2000		ors for Problematic		ioils³:	
Histosol (A1) Sandy Redox (S5)			cm Muck (A10)	,		
Histic Epipedon (A2) Stripped Matrix (S6)		_	Red Parent Material	I (TF2)		
Black Histic (A3) Loamy Mucky Mineral (F1) (exc	cept MLRA 1)		ery Shallow Dark S	Surface (TF	- 12)	
Hydrogen Sulfide (A4) □ Loamy Gleyed Matrix (F2)			Other (Explain in Re	emarks)		
Depleted Below Dark Surface (A11)						
Thick Dark Surface (A12) ☐ Redox Dark Surface (F6)						
Sandy Mucky Mineral (S1) Depleted Dark Surface (F7)			ors of hydrophytic vand hydrology must			
Sandy Gleyed Matrix (S4) Redox Depressions (F8)			s disturbed or prob		ι,	
estrictive Layer (if present):						
pe:						
pth (inches):	Hydric Soils Pre	sent?	Yes	\boxtimes	No	
YDROLOGY						
etland Hydrology Indicators:						
imary Indicators (minimum of one required; check all that apply)					ed)	
		Secondar	y Indicators (2 or m	iore require	,	
Surface Water (A1) Water-Stained Leaves (B9)			y Indicators (2 or mer- er-Stained Leaves		,	
	В)	☐ Wat	-	(B9)	,	
High Water Table (A2) Saturation (A3) (except MLRA 1, 2, 4A, and 4) Salt Crust (B11)	В)	☐ Wat	er-Stained Leaves	(B9) B)		
High Water Table (A2) Saturation (A3) Salt Crust (B11) Water Marks (B1) Aquatic Invertebrates (B13)	В)	☐ Wat (ML ☐ Drai	er-Stained Leaves RA 1, 2, 4A, and 4 inage Patterns (B10 Season Water Tab	(B9) B) O)	•	
High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) (except MLRA 1, 2, 4A, and 4) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1)	,	Wate (ML Drain Dry) Satu	er-Stained Leaves RA 1, 2, 4A, and 4 nage Patterns (B10 Season Water Tab uration Visible on A	(B9) B) O) Ile (C2) erial Image	•	
High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) (except MLRA 1, 2, 4A, and 4) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along L	Living Roots (C3)	Wat (ML Drai Dry- Satu Geo	er-Stained Leaves RA 1, 2, 4A, and 4 nage Patterns (B10 Season Water Tab uration Visible on A proorphic Position (I	(B9) B) O) Ile (C2) erial Image	•	
High Water Table (A2) (except MLRA 1, 2, 4A, and 4) Saturation (A3) Salt Crust (B11) Water Marks (B1) Aquatic Invertebrates (B13) Sediment Deposits (B2) Hydrogen Sulfide Odor (C1) Drift Deposits (B3) Oxidized Rhizospheres along L Algal Mat or Crust (B4) Presence of Reduced Iron (C4)	.iving Roots (C3)	Wat (ML Dra Dry Satu Gec	er-Stained Leaves RA 1, 2, 4A, and 4 nage Patterns (B10 Season Water Tab arration Visible on A amorphic Position (I Illow Aquitard (D3)	(B9) B) O) Ile (C2) erial Image	•	
High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) (except MLRA 1, 2, 4A, and 4) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along L Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled	.iving Roots (C3)) Soils (C6)	Wat (ML Dra Dry Satt Gec Sha	er-Stained Leaves RA 1, 2, 4A, and 4 nage Patterns (B10 Season Water Tab uration Visible on A pmorphic Position (I Illow Aquitard (D3) C-Neutral Test (D5)	(B9) B) O) erial Image D2)	ery (C9)	
High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Sufface Soil Cracks (B6) (except MLRA 1, 2, 4A, and 4) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along L Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled	.iving Roots (C3)) Soils (C6)	Wat (ML Drai Dry- Satt Gec Sha FAC	er-Stained Leaves RA 1, 2, 4A, and 4 inage Patterns (B10 Season Water Tab uration Visible on A promorphic Position (I Illow Aquitard (D3) C-Neutral Test (D5) sed Ant Mounds (D	(B9) B) O) ele (C2) erial Image C2)	ery (C9)	
High Water Table (A2)	.iving Roots (C3)) Soils (C6)	Wat (ML Drai Dry- Satt Gec Sha FAC	er-Stained Leaves RA 1, 2, 4A, and 4 nage Patterns (B10 Season Water Tab uration Visible on A pmorphic Position (I Illow Aquitard (D3) C-Neutral Test (D5)	(B9) B) O) ele (C2) erial Image C2)	ery (C9)	
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) Satt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along L Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Stunted or Stresses Plants (D1) Other (Explain in Remarks) Sparsely Vegetated Concave Surface (B8)	.iving Roots (C3)) Soils (C6)	Wat (ML Drai Dry- Satt Gec Sha FAC	er-Stained Leaves RA 1, 2, 4A, and 4 inage Patterns (B10 Season Water Tab uration Visible on A proorphic Position (I Illow Aquitard (D3) C-Neutral Test (D5) sed Ant Mounds (D	(B9) B) O) ele (C2) erial Image C2)	ery (C9)	
High Water Table (A2)	.iving Roots (C3)) Soils (C6)	Wat (ML Drai Dry- Satt Gec Sha FAC	er-Stained Leaves RA 1, 2, 4A, and 4 inage Patterns (B10 Season Water Tab uration Visible on A proorphic Position (I Illow Aquitard (D3) C-Neutral Test (D5) sed Ant Mounds (D	(B9) B) O) ele (C2) erial Image C2)	ery (C9)	
High Water Table (A2)	Living Roots (C3)) Soils (C6)) (LRR A)	Wat (ML Drai Dry- Satt Gec Sha FAC	er-Stained Leaves RA 1, 2, 4A, and 4 inage Patterns (B10 Season Water Tab uration Visible on A proorphic Position (I Illow Aquitard (D3) C-Neutral Test (D5) sed Ant Mounds (D	(B9) B) O) ele (C2) erial Image C2)	ery (C9)	
High Water Table (A2)	Living Roots (C3)) Soils (C6)) (LRR A)	Wat (ML Drai Dry- Satt Gec Sha FAC	er-Stained Leaves RA 1, 2, 4A, and 4 nage Patterns (B10 Season Water Tab uration Visible on A morphic Position (I Illow Aquitard (D3) C-Neutral Test (D5) sed Ant Mounds (D st-Heave Hummock	(B9) B) O) ele (C2) erial Image C2)	ery (C9)	0
High Water Table (A2)	Living Roots (C3) Soils (C6) (LRR A) Wetla	☐ Wat (ML ☐ Dra ☐ Dry: ☐ Satu ☐ Gec ☐ Sha ☐ FAC ☐ Rais	er-Stained Leaves RA 1, 2, 4A, and 4 nage Patterns (B10 Season Water Tab uration Visible on A morphic Position (I Illow Aquitard (D3) C-Neutral Test (D5) sed Ant Mounds (D st-Heave Hummock	(B9) B) O) Sele (C2) Serial Image (C2) Serial Image (C2) Serial Image (C2) Serial Image (C2)	ery (C9)	0
High Water Table (A2)	Living Roots (C3) Soils (C6) (LRR A) Wetla	☐ Wat (ML ☐ Dra ☐ Dry: ☐ Satu ☐ Gec ☐ Sha ☐ FAC ☐ Rais	er-Stained Leaves RA 1, 2, 4A, and 4 nage Patterns (B10 Season Water Tab uration Visible on A morphic Position (I Illow Aquitard (D3) C-Neutral Test (D5) sed Ant Mounds (D st-Heave Hummock	(B9) B) O) Sele (C2) Serial Image (C2) Serial Image (C2) Serial Image (C2) Serial Image (C2)	ery (C9)	0

Data Plot #:	28A-SP1
Wetland:	28A

WETLAND DETERMINATION

(Modified from: 1987 ACOE Wetlands Delineation Manual)

Project/Site: ELST Re-delineation		Date: 11	13/2007	Revisited 09-27-13
Applicant/Owner: King County			King	
Investigator: Chip Maney, Erik Christensen		٠.	VA	
☐ 1987 Method	Method	-	Comi	munity ID: PFO
Do Normal Circumstances exist on the site?	es X	No		Plot ID: 28A-SP1
Is the site significantly disturbed (Atypical Situation)?	es	No X		1101 15. 207 01 1
Is the area a potential Problem Area?	es	No X		
Remarks (Explain sample location, disturbances, problem	areas):		_	
This sample plot is located approximately 10 feet south of F	lag 28A-11	١.		
VEGETATION (✓Dominant species are checked)				09-27-13 Observations
Plant Species	% Cove	er Stratum	Indicator	Equisetum telmateia 50% Rubus armeniacus 50%
✓ 1. Equisetum telmateia	50	Herb	FACW	Alnus rubra 60%
2 Rubus armeniacus Rubus parviflorus	50 5	Shrub Shrub	FACU FAC-	_
3. Rubus parvitlorus 4. Alnus rubra	- 5	Tree	FAC	_
Percent of Dominant Species that are OBL, FACW, or F	AC			_
(except FAC-). Include species noted (*) as showing	67	7		
morphological adaptations to wetlands. "T" indicates trace.				
Remarks (Describe disturbances, relevant local variations, The percent of dominant species that are hydrophytic is gre-		,		agestation eritorion is catiafied
	ater triair 5	o percent. H	yuropriyiic ve	getation chienom's satisfied.
HYDROLOGY				
Recorded Data (Describe in Remarks):	W	-		itors (Describe in Remarks):
Stream, Lake, or Tide Gage		Primary In		
Aerial Photograph		X	_ Inundated	in Upper 12 inches
Other		^	Water Ma	• • • • • • • • • • • • • • • • • • • •
X No Recorded Data Available			Drift Lines	
Field Observations:			Sediment	Deposits
			Drainage	Patterns in Wetlands
Depth of Surface Water: none (in.)		Secondary	/ Indicators (2 or more required):
Depth to Free Water in Pit: 10 (in.)		·	Oxidized F	Rhizospheres in Upper 12 inches
Depth to Saturated Soil: 5 (in.)				ained Leaves
			Local Soil	Survey Data
			Other (Exp	plain in Remarks)
Remarks (As relevant, describe recent precipitation, hydro	ologic mod	difications, lo	cal variations	, etc.):
Saturation in the upper 12 inches satisfies wetland hydrolog	gy criterion	1.		

Project/Site	e: ELST Re-de	elineation				Date:	11/13/20	07	[Revisited 09-27-13
SOIL Soil Surv	vey Data:									
Map Unit	Name: Alderv	vood and Kitsap Soi	ls				Drainage	Class: Va	arious	
							Field Obs	servations	Confir	m Mapped Type?
Taxonom	y (Subgroup):	N/A					Yes	No	Χ	NA
Profile De	escription:									
Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)		Mottle (Munse	Color ell Moist)		Mottle Abundan	ce/Contras	st	Texture, Concretions, Rhizospheres, etc.
0-10	А	10YR 3/1		none			none			loam
10-12	B1	10YR 3/1		none			none			loamy sand
12-18	B2	10YR 2/1		none			none			sandy loam
H H H S S A A B A B A B A B A B A B A B A B A	Reducing Condit Releyed or Low-C ligh Organic Co (Describe soil			ons, etc	 c.):	Fe/M Orga Mottl	d on Hydric n Concretic nic Streaki es (Redoxi r (Explain i	ons ng in Sand morphic Fe	eatures	
WETLA	AND DETER	MINATION	.,					la dhia Oar		Point Wilking Welley 10
	ytic Vegetation	Present?	Yes	X	. No _			is this Sai	mpling	g Point Within a Wetland?
•	oils Present?		Yes	<u>X</u>	No _			Yes	s <u>X</u>	No
Wetland	Hydrology Pre	sent?	Yes	X	No _					

Data Plot #:

Wetland:

28A-SP1

28A

Remarks

Wetland vegetation, hydrology, and soil criteria are met. Therefore, the sample plot is located in a wetland.

Data Plot #: 28A-SP2
Wetland: Upland near 28A

WETLAND DETERMINATION

(Modified from: 1987 ACOE Wetlands Delineation Manual)

Investigator: Chip Maney, Erik Christensen 1987 Method Do Normal Circumstances exist on the site? Is the site significantly disturbed (Atypical Situation)? Is the area a potential Problem Area? Remarks (Explain sample location, disturbances, problem are This sample plot is located approximately 7 feet east of Flag 2	lethod X eas):	Date: 11/1 County: Ki State: W No No X No X	Comn - Field	nunity ID: Upland Forest Plot ID: 28A-SP2
VEGETATION (✓Dominant species are checked) Plant Species 1. Equisetum telmateia ✓ 2. Polystichum munitum Rubus armeniacus	% Cover trace 60	Stratum Herb Herb Shrub	Indicator FACW FACU FACU	09-27-13 Observations Equisetum telmateia trace Rubus armeniacus 90% Alnus rubra 70% Acer macrophyllum 25%
Percent of Dominant Species that are OBL, FACW, or FA (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, some percent of dominant species that are hydrophytic is not given.	33 easonal ef		FAC Hydrophytic	vegetation criterion is not satisfied.
HYDROLOGY			, , ,	ŭ
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations:		tland Hydro Primary Indi	cators: Inundated Saturated Water Mar Drift Lines Sediment I	

Revisited 09-27-13 Project/Site: ELST Re-delineation Date: 11/13/2007 SOIL Soil Survey Data: Drainage Class: Varies Map Unit Name: Alderwood and Kitsap Soils Field Observations Confirm Mapped Type? Yes ____ No _X_ NA Taxonomy (Subgroup): **Profile Description:** Depth Horizon Matrix Color Mottle Color Mottle Texture, Concretions, (Inches) Designation (Munsell Moist) (Munsell Moist) Abundance/Contrast Rhizospheres, etc. 0-12 10YR 3/2 Α none none loam 12-18 В 10YR 4/2 10YR 4/6 few, fine silt loam **Hydric Soil Indicators:** Histosol Listed on Hydric Soils List Histic Epipedon Fe/Mn Concretions Organic Streaking in Sandy Soils Sulfidic Odor Mottles (Redoximorphic Features) Aquic or Peraguic Moisture Regime **Reducing Conditions** Other (Explain in Remarks) Gleyed or Low-Chroma Colors High Organic Content in Surface Layer Remarks (Describe soil disturbances, local variations, etc.): No hydric soil indicators are present. Hydric soil criterion is not satisfied. WETLAND DETERMINATION Is this Sampling Point Within a Wetland? **Hydrophytic Vegetation Present?** No **Hydric Soils Present?** Yes No Yes ____ No _X__ **Wetland Hydrology Present?** No

Data Plot #:

Wetland:

28A-SP2

Upland near 28A

Remarks

None of the wetland criteria are met. Therefore, the sample plot is not located in a wetland.

Data Plot #:	28B-SP1
Wetland:	28B

WETLAND DETERMINATION (Modified from: 1987 ACOE Wetlands Delineation Manual)

Project/Site: ELST Re-delineation		Date:	11/9/2007	Revisited 09-27-13
Applicant/Owner: King County	County:	King		
Investigator: Chip Maney, Erik Christensen		State:	WA	
☐ 1987 Method	Method		Communi	ty ID: PSS
Do Normal Circumstances exist on the site?	es X	No	Field Plot	ID: 28B-SP1
Is the site significantly disturbed (Atypical Situation)? Yes	es	No	X	
Is the area a potential Problem Area?	es	No	X	
Remarks (Explain sample location, disturbances, problem a This sample plot is located in the center of the wetland appro-	,	5 feet up:	slope.	
VEGETATION (✓Dominant species are checked) Plant Species	% Cove	r Stratu	m Indicator	
√ 1. Phalaris arundinacea	20	Herb	FACW	
2 . Rosa pisocarpa	10	Shrub	FAC	
✓ 3. Rubus armeniacus	40	Shrub	FACU	
✓ 4. Spiraea douglasii	40	Shrub	FACW	
Remarks (Describe disturbances, relevant local variations, The percent of dominant species that are hydrophytic is great			•	tion criterion is satisfied.
HYDROLOGY				
Recorded Data (Describe in Remarks):	W			(Describe in Remarks):
Stream, Lake, or Tide Gage		Primary	Indicators:	
Aerial Photograph		-	Inundated	
Other		X		pper 12 inches
X No Recorded Data Available		-	Water Marks Drift Lines	
Field Observations:			Sediment Depo	neite
			<u> </u>	erns in Wetlands
Depth of Surface Water: none (in.) Depth to Free Water in Pit: none (in.)		Second	ary Indicators (2 or i	more required):
Depth to Free Water in Pit: none (in.) Depth to Saturated Soil: 4 (in.)		,		spheres in Upper 12 inches
Depth to Saturated Soli. 4 (III.)			Water-Stained	
			Local Soil Surv	•
			Other (Explain	in Remarks)
Remarks (As relevant, describe recent precipitation, hydro	•		local variations, etc.):
Saturation in the upper 12 inches satisfies wetland hydrolog	y criterion.			

						Wetland:	28B
Project/Site	: ELST Re-de	elineation		Date:	11/9/2007	[Revisited 09-27-13
SOIL Soil Surve	ey Data:						
Map Unit I	Name: Mixed	Alluvial Land			Drainage Class	s: Well drai	ined to very poorly drained
					Field Observat	ions Confir	m Mapped Type?
Taxonomy	(Subgroup):	N/A			Yes N	lo <u>X</u>	NA
Profile De	scription:						
Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Control (Munsell		Mottle Abundance/Co	ntrast	Texture, Concretions, Rhizospheres, etc.
0-12	Α	10YR 3/1	none		none		silt loam
12-18	В	10YR 3/1	2.5YR 4/6	i	coarse, common		silt loam
Hydric So	il Indicators:						
	stosol				d on Hydric Soils	List	
	stic Epipedon				n Concretions	Caralii Calla	
	ulfidic Odor	c Moisture Regime			nic Streaking in S es (Redoximorph	-	
	educing Condit				r (Explain in Rem		>)
	leyed or Low-C				(Explain in rion	ιαικο	
	•	ntent in Surface Laye	er				
	•	disturbances, local v	. ,				
Soils are o	disturbed. Trasi	h and roof shingles a	re present and	d are the source of	of the mottles. Lo	w chroma i	ndicates hydric soil.
WETLA	ND DETERI	MINATION					
Hydrophy	tic Vegetation	Present?	Yes X	No	Is thi	s Sampling	g Point Within a Wetland?
Hydric So	ils Present?		Yes X	No		Voc V	No
Wetland H	lydrology Pres	sent?	Yes X	No		Yes X	No

Data Plot #:

28B-SP1

Remarks

Wetland vegetation, hydrology, and soil criteria are met. Therefore, the sample plot is located in a wetland.

Data Plot #: 28B-SP2

Wetland: U

Upland near 28B

WETLAND DETERMINATION (Modified from: 1987 ACOE Wetlands Delineation Manual)

	Date:	11/5	11/9/2007		
Applicant/Owner: King County					
Investigator: Chip Maney, Erik Christensen					
St. Method	b		Community ID: Upland Sh	rub	
Yes>	No No		Field Plot ID: 28B-SP2		
Yes	No	Χ			
Yes	No	Χ	_		
em areas):			_		
% 0	over Stra	tum	Indicator		
5	Hert)	FACW		
10	Herk)	FACW		
90	Shru	ıb	FACU		
50	Tree)	<u>FACU</u>		
or FAC					
•		,			
	than 50 pe	ercent.	Hydrophytic vegetation criterion is	not satisfied	
			Hydrophytic vegetation criterion is logy Indicators (Describe in Rer		
<u> </u>	Wetland	Hydro			
	Wetland	Hydro	logy Indicators (Describe in Rer		
	Wetland	Hydro	logy Indicators (Describe in Rericators:		
	Wetland	Hydro	logy Indicators (Describe in Rericators: Inundated		
	Wetland	Hydro	logy Indicators (Describe in Rericators: Inundated Saturated in Upper 12 inches Water Marks Drift Lines		
<u> </u>	Wetland	Hydro	logy Indicators (Describe in Rericators: Inundated Saturated in Upper 12 inches Water Marks Drift Lines Sediment Deposits		
<u> </u>	Wetland	Hydro	logy Indicators (Describe in Rericators: Inundated Saturated in Upper 12 inches Water Marks Drift Lines		
5	Wetland Prima	Hydro iry Indi	logy Indicators (Describe in Rericators: Inundated Saturated in Upper 12 inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands		
<u> </u>	Wetland Prima	Hydro iry Indi	logy Indicators (Describe in Rericators: Inundated Saturated in Upper 12 inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands Indicators (2 or more required):	narks):	
<u> </u>	Wetland Prima	Hydro iry Indi	logy Indicators (Describe in Rericators: Inundated Saturated in Upper 12 inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands	narks):	
<u> </u>	Wetland Prima	Hydro iry Indi	logy Indicators (Describe in Rericators: Inundated Saturated in Upper 12 inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands Indicators (2 or more required): Oxidized Rhizospheres in Upper	narks):	
9	Wetland Prima	Hydro iry Indi	logy Indicators (Describe in Rericators: Inundated Saturated in Upper 12 inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands Indicators (2 or more required): Oxidized Rhizospheres in Upper Water-Stained Leaves	narks):	
	Wetland Prima	Hydro Iry Indi	logy Indicators (Describe in Rericators: Inundated Saturated in Upper 12 inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands Indicators (2 or more required): Oxidized Rhizospheres in Upper Water-Stained Leaves Local Soil Survey Data Other (Explain in Remarks)	narks):	
nydrologic r	Wetland Prima	Hydro ary Indi	logy Indicators (Describe in Rericators: Inundated Saturated in Upper 12 inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands Indicators (2 or more required): Oxidized Rhizospheres in Upper Water-Stained Leaves Local Soil Survey Data	narks):	
	Yes Yes Yes Yes Yes To The Yes Yes Yes Yes Yes To The Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye	Yes No Yes No Yes No No em areas): **Cover Stra **5 Hert 10 Hert 90 Shru 50 Tree or FAC ce. Ons, seasonal effects,	St. Method Yes	St. Method Community ID: Upland Sh	

Project/Site	e: ELST Re-de	elineation			Date:	11/9/2007			
SOIL Soil Surve	ey Data:								
Map Unit N	Name: Alderv	vood gravelly sandy l	oam 15 to 3	0% slopes	3	Drainage Class: Moderat	ely well drained		
						Field Observations Confir	m Mapped Type?		
Taxonomy	(Subgroup):	Entic Durochrepts				Yes No _X	NA		
Profile De	escription:								
Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle (Muns	Color ell Moist)		Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.		
0-15	А	10YR 3/2	none			none	loam		
Histic Epipedon F Sulfidic Odor C Aquic or Peraguic Moisture Regime M					Fe/M Orga Mottle	d on Hydric Soils List in Concretions nic Streaking in Sandy Soils es (Redoximorphic Feature: r (Explain in Remarks)			
No hydric	`	are present. Hydric s	-	,	fied.				
	tic Vegetation		Yes	No	X	Is this Sampling	g Point Within a Wetland?		
,,	J					is this sampling Point within a w			
Hydric So	ils Present?		Yes	No	X	Yes	No X		

Data Plot #:

Wetland:

28B-SP2

Upland near 28B

Remarks

Hydrophytic vegetation, hydric soil, and wetland hydrology criteria are not satisfied. Therefore, the sample plot is not located in a wetland.

Data Plot #:	28C-SP1				
Wetland:	28C				

WETLAND DETERMINATION

(Modified from: 1987 ACOE Wetlands Delineation Manual)

(Modified Hoffi, 1987	ACO	L WEL	iaiius	Deli	ilication mai	iuai	
Project/Site: ELST Re-delineation			Date:	11/13	3/2007	F	Revisited 09-27-13
Applicant/Owner: King County			County:	Kir	ng		
Investigator: Chip Maney			State:	WA	A		
☐ 1987 Method	St. Met	thod			Communi	ty ID:	PEM
Do Normal Circumstances exist on the site?	Yes	Χ	No		- Field Plot	ID:	28C-SP1
Is the site significantly disturbed (Atypical Situation)?	Yes		No	Χ			
Is the area a potential Problem Area?	Yes		No	Χ			
Remarks (Explain sample location, disturbances, proble This sample plot is located 15 feet from the north edge of northern edge of the wetland bounded by a small shed an upland plot was available for this wetland.	the we	etland, le					
VEGETATION (✓Dominant species are checked) Plant Species		% Cover	Stratu	m	Indicator		
 ✓ 1. Unkown ornamental ✓ 2. Athyrium filix-femina 		25 40	Herb		FAC		
✓ 3. Cardamine oligosperma		30	Herb		FAC		
✓ 4. Equisetum telmateia		20	Herb		FACW		
5. Rubus armeniacus		5	Shrub		FACU		
6. Sorbus aucuparia		10	Tree		NL		
(except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace Remarks (Describe disturbances, relevant local variation. The percent of dominant species that are hydrophytic is go	ns, sea		fects, e	,	Irophytic vegeta	tion c	riterion is satisfied.
HYDROLOGY							
Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.) Depth to Free Water in Pit: 9 (in.) Depth to Saturated Soil: surface (in.)			Primary	India	cators: Inundated Saturated in U Water Marks Drift Lines Sediment Deporainage Patte	osits erns ir more osphe Leav	n Wetlands required): res in Upper 12 inches es
Remarks (As relevant, describe recent precipitation, hy Saturation in the upper 12 inches satisfies wetland hydro			ications	, loca	Other (Explain	in Re	

					Wet	land:	28C		
Project/Site	e: ELST Re-de	elineation		Date:	11/13/2007	Re	evisited 09-27-13		
SOIL Soil Surv	ey Data:								
Map Unit	Name: Mixed	Alluvial Land			Drainage Class: We	ell draine	ed to very poorly drained		
					Field Observations C	Confirm	Mapped Type?		
Taxonomy	y (Subgroup):	N/A			Yes No	Χ	NA		
Profile De	escription:								
Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)		Mottle Abundance/Contrast		Texture, Concretions, Rhizospheres, etc.		
0-12	А	10YR 3/1	none		none		silt loam		
12-18	A2	10YR 3/1	none		none		gravelly loam		
Hydric Sc	oil Indicators:								
н	istosol			Liste	d on Hydric Soils List				
	istic Epipedon				In Concretions				
	ulfidic Odor				ganic Streaking in Sandy Soils				
	-	ic Moisture Regime			tles (Redoximorphic Features) er (Explain in Remarks)				
	educing Condit			Othe	r (Explain in Remarks)				
	-	intent in Surface Layer							
		disturbances, local vari	ations, etc.):						
Low chroi	ma soil matrix ii	ndicates hydric soils. Hy	dric soil criterion is	satisfied.					
WETLA	ND DETER	MINATION							
Hydrophy	tic Vegetation	Present? Ye	es X No		Is this San	npling F	Point Within a Wetland?		
	oils Present?	Ye	es X No		Vaa	~	No		
Wetland I	Hydrology Pres	sent? Ye	es X No		Yes	X			

Data Plot #:

28C-SP1

Remarks

Wetland vegetation, hydrology, and soil criteria are met. Therefore, the sample plot is located in a wetland.

Data Plot #:	28D-SP1				
Wetland:	28D				

WETLAND DETERMINATION

	Comm Field F O to avoid we This sample Indicator NL	Revisited 09-27-13 nunity ID: PSS Plot ID: 28D-SP1 etland name duplication. This wetlar plot is located approximately 8 fee 09-27-13 Observations Convolvulus arvensis 30% Epilobium ciliatum 15%
inty: Kin e: WA X X X 28B to 28E wetland. 7	Comm Field F O to avoid we This sample Indicator NL	etland name duplication. This wetland plot is located approximately 8 fee. 09-27-13 Observations Convolvulus arvensis 30%
e: WA X X 28B to 28E wetland. 1	Comm Field F O to avoid w. This sample Indicator NL	etland name duplication. This wetland plot is located approximately 8 fee. 09-27-13 Observations Convolvulus arvensis 30%
X X X 28B to 28E wetland. 7 tratum lerb	Field F To avoid we This sample Indicator NL	etland name duplication. This wetland plot is located approximately 8 fee. 09-27-13 Observations Convolvulus arvensis 30%
X X X 28B to 28E wetland. 7 tratum lerb	Field F To avoid we This sample Indicator NL	etland name duplication. This wetland plot is located approximately 8 fee. 09-27-13 Observations Convolvulus arvensis 30%
X 28B to 28E wetland. 7 tratum lerb	O to avoid w This sample Indicator	etland name duplication. This wetland is located approximately 8 fee 09-27-13 Observations Convolvulus arvensis 30%
28B to 28E wetland. 1 tratum lerb	Indicator	plot is located approximately 8 fee 09-27-13 Observations Convolvulus arvensis 30%
28B to 28E wetland. 1 tratum lerb	Indicator	plot is located approximately 8 fee 09-27-13 Observations Convolvulus arvensis 30%
lerb lerb	NL	Convolvulus arvensis 30%
	FACW-	Equisetum telmateia 20% Rubus armeniacus 20% Phalaris arundinacea 40%
ts, etc.): phytically. 2 inches.	Rubus arm	eniacus is believed to be growing
-		ors (Describe in Remarks):
mary maic		
X	Saturated i Water Mark Drift Lines Sediment D	
condary I	Oxidized R Water-Stair Local Soil S	or more required): hizospheres in Upper 12 inches ned Leaves Gurvey Data lain in Remarks)
pl 2	Hydroliary Indica	Hydrology Indicate ary Indicators: Inundated X Saturated i Water Mark Drift Lines Sediment I Drainage Pondary Indicators (2 Oxidized R Water-Stail Local Soil S

				·		Data Plot #	#: 28D-SP1
						Wetland:	28D
Project/S	ite: ELST Re-de	elineation		_ Date:	11/13/2007	R	Revisited 09-27-13
SOIL Soil Sui	rvey Data:						
Map Uni	it Name: Mixed	Alluvial Land			Drainage Cla	ass: Well drain	ed to very poorly drained
					Field Observ	ations Confirm	Mapped Type?
Taxonor	my (Subgroup):	N/A			Yes	No X	NA
Profile I	Description:						
Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Mois	st)	Mottle Abundance/0	Contrast	Texture, Concretions, Rhizospheres, etc.
0-18	Α	10YR 2/1	none		none		gravelly loam
X	Reducing Condit Gleyed or Low-C High Organic Co	Chroma Colors ontent in Surface Layer		Fe/M Orga Mottl	d on Hydric So In Concretions nic Streaking i es (Redoximor r (Explain in Re	n Sandy Soils phic Features)	
	`	disturbances, local va atisfies the hydric soil c	. ,				
WETL Hydropl	AND DETER hytic Vegetation Soils Present?	MINATION Present?	'es X No	_	ls t		Point Within a Wetland?
-	l Hydrology Pre		'es X No	_		Yes X	No

Remarks

Wetland vegetation, hydrology, and soil criteria are met. Therefore, the sample plot is located in a wetland.

Data Plot #: 28D-SP2
Wetland: Upland near 28D

WETLAND DETERMINATION

(Modified from: 1987 ACOE Wetlands Delineation Manual)

Project/Site: ELST Re-delineation		Date: 11/	13/2007	Revisited 09-27-13			
Applicant/Owner: King County		King					
Investigator: Chipper Maney, Erik Christensen		-	VA	_			
☐ 1987 Method	Method	-	Comn	nunity ID: Upland Shrub			
Do Normal Circumstances exist on the site?	es X	No		Plot ID: 28D-SP2			
Is the site significantly disturbed (Atypical Situation)?	es =	No X		FIOL ID. 28D-3F2			
Is the area a potential Problem Area?		No X					
Remarks (Explain sample location, disturbances, problem a		110	_				
Two wetlands were named 28B. This sample plot is has been is located at station 452+00. This sample plot is located approximately approximatel	n change						
VEGETATION (✓Dominant species are checked)				09-27-13 Observations			
Plant Species	% Cov	er Stratum	Indicator	Equisetum telmateia 20%			
✓ 1. Equisetum telmateia	20	Herb	FACW	Hedera helix 60% Lotus corniculatus 40%			
2 . Hedera helix	15	Herb	NL	Rubus armeniacus 30%			
✓ 3. Holcus lanatus	20	Herb	FAC	_			
4 . Juncus spp.	10	Herb	Unk	_			
5 . Lotus corniculatus	10	Herb	FAC	_			
✓ 6. Rubus armeniacus	40	Shrub	<u>FACU</u>	_			
The percent of dominant species that are hydrophytic is greated HYDROLOGY	ater than s	50 percent. Hy	vdrophytic veg	getation criterion is satisfied.			
	v	Votland Hydr	ology Indica	tors (Describe in Remarks):			
Recorded Data (Describe in Remarks):	V	Primary Inc		(Describe in Remarks).			
Stream, Lake, or Tide Gage		i iiiiaiy iik					
Aerial Photograph		Inundated Saturated in Upper 12 inches					
Other		Water Marks					
X No Recorded Data Available		Drift Lines					
Field Observations:		Sediment Deposits					
			_ Drainage F	Patterns in Wetlands			
Depth of Surface Water: none (in.)		Secondary	Indicators (2	2 or more required):			
Depth to Free Water in Pit: none (in.)		•	,	Rhizospheres in Upper 12 inches			
Depth to Saturated Soil: none (in.)		-	_	ined Leaves			
		-	Local Soil	Survey Data			
				olain in Remarks)			
Remarks (As relevant, describe recent precipitation, hydro	ologic mo	difications. lo	al variations.	etc.):			
No indicators of wetland hyrdology are present. Wetland hyd	_			,			
09-27-13 Observations - No indicators of wetland hydrology	present.						

Revisited 09-27-13 Project/Site: ELST Re-delineation Date: 11/13/2007 **SOIL** Soil Survey Data: Drainage Class: Well drained to very poorly drained Map Unit Name: Mixed Alluvial Land Field Observations Confirm Mapped Type? Taxonomy (Subgroup): N/A X NA No **Profile Description:** Depth Horizon Mottle Color Matrix Color Mottle Texture, Concretions, (Inches) Designation (Munsell Moist) (Munsell Moist) Abundance/Contrast Rhizospheres, etc. 0-4 fill 4-18 10YR 2/1 gravelly loam none none **Hydric Soil Indicators:** Histosol Listed on Hydric Soils List Histic Epipedon Fe/Mn Concretions Organic Streaking in Sandy Soils Sulfidic Odor Mottles (Redoximorphic Features) Aquic or Peraguic Moisture Regime **Reducing Conditions** Other (Explain in Remarks) Gleyed or Low-Chroma Colors High Organic Content in Surface Layer Remarks (Describe soil disturbances, local variations, etc.): Concrete, gravel, and fill were found in the top 4 inches of the soil profile. No indicators of hydric soil are present. Hydric soil criterion is not satisfied. WETLAND DETERMINATION Is this Sampling Point Within a Wetland? **Hydrophytic Vegetation Present?** Yes No **Hydric Soils Present?** No Yes **Wetland Hydrology Present?** Yes

Data Plot #:

Wetland:

28D-SP2

Upland near 28D

Remarks

Hydric soil and wetland hydrology criteria are not satisfied. Therefore, the sample plot is not located in a wetland.

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

Project Site:	ELST - South Sam	nmamish Segm	<u>ent</u>			City/Co	unty:	Sam	mamish/l	King	Sampli	ng Date:	11-0	01-13	
Applicant/Owner:	King County								Sta	ate: WA	Sampli	ng Point:	W2	8E-SF	21
Investigator(s):	C. Worsley; M. Ma	<u>aynard</u>						Se	ection, To	wnship, Rai	nge: <u>S29</u>	9, T25N, R06I	Ē		
Landform (hillslope, te	errace, etc.): <u>dep</u>	ression			Lo	cal relief (co	ncave	, conve	x, none):	concave	<u> </u>	Slop	e (%):	25	
Subregion (LRR):	<u>A</u>		Lat:					Long:				Datum:			
Soil Map Unit Name:	Alderwood and K	Kitsap soils, ver	<u>y steep</u>							NWI cla	ssification	n: <u>PEM</u>			
Are climatic / hydrolog	ic conditions on the	site typical for	this time	of yea	r?	Yes	\boxtimes	No	☐ (If	no, explain	in Remai	rks.)			
Are Vegetation	, Soil □, oı	r Hydrology	□, sigr	nificant	ly disturbe	ed? Are	e "Nor	mal Cir	rcumstan	ces" present	t?	Yes	\boxtimes	No	
Are Vegetation	, Soil □, oı	r Hydrology	□, nat	urally p	roblemati	c? (If	neede	ed, expl	lain any a	nswers in R	emarks.)				
SUMMARY OF FIN	IDINGS - Attach	site man sh	owing	camni	ina noir	nt location	e tra	neact	e impo	rtant foat	uros ot	c			
Hydrophytic Vegetation		site iliap sii	Yes		No 🗆	li location	15, 116	anseci	is, iiipu	rtant reat	ures, en	<u>. </u>			
Hydric Soil Present?			Yes		No 🗆	Is the Sar						Yes	\boxtimes	No	
Wetland Hydrology Pr	esent?		Yes	_	No 🗆	within a V	Netlar	nd?				100			
Remarks: Sample p		et side of ditch i				6 feet east	of trail	20 foc	at west of	Jarge Acer	macronhy	/llum			
Kemarks. Sample p	iot is located off eas	st side of dittorri	ii wellalii	и, аррг	Uxiiiialeiy	o reer easi	UI II ali	1, 20 166	et west of	large Acei	macroping	yllulli.			
VEGETATION – U	se scientific nam	nes of plants	Absolute	n D	ominant	Indicator									
Tree Stratum (Plot siz	e: <u>NA</u>)		% Cove		ominant oecies?	Indicator Status	D	ominar	nce Test	Worksheet	:				
1				_	_					ant Species		2			(A)
2				_	_		''	nat Are	OBL, FA	CW, or FAC	<i>;</i> :	_			
3				_	_				mber of D			<u>2</u>			(B)
4				_			٦	pecies	Across A	ii Stiata.					
50% =, 20% = Sapling/Shrub Stratur				=	Total Cov	er				ant Species .CW, or FAC		<u>100</u>			(A/B)
1	ii (1 lot size. <u>iva</u>)						-			workshee					
2				_						% Cover of		Multip	olv bv:		
3.							0	BL spe		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	=	x1 =	., ., .		
4						· <u></u>		ACW s			'	x2 =			
5.								AC spe				x3 =			
50% =, 20% =				=	Total Cov	er	F	ACU sp	ecies			x4 =			
Herb Stratum (Plot siz		to wetland					U	PL spe	cies			x5 =			
<u>boundary</u>) 1. <i>Phalaris arundina</i>	000		75	VC	ie.	FACW					(A)				Β/
			<u>75</u>	<u>ye</u>		<u> </u>	C	olumn ⁻	l otals:	Dravalana	_ (A)	D/A		(E	D)
Veronica america Calvataria canium			<u>45</u>	<u>ye</u>		OBL FAC	-			etation Ind		B/A =			
3. <u>Calystegia sepiun</u>	<u>1</u>		<u>20</u>	nc	<u>)</u>	FAC	_ I		, ,			agatation			
4 5.				_						est for Hydro nce Test is >		egetation			
				_				_							
6				_				-		ice Index is	<u> </u>				
7				_	_					ogical Adapt emarks or c		Provide suppo	rting		
8				_	_		1_	_							
9				_				-		Non-Vascul					
10				_				J Pro	oblematic	Hydrophytic	c Vegetat	ion¹ (Explain)			
11				_			111	ndicato	rs of hvdi	ric soil and v	vetland h	ydrology mus	t		
50% = <u>70</u> , 20% = <u>28</u>	(5)		<u>140</u>	=	Total Cov	er				s disturbed of			-		
Woody Vine Stratum	(Plot size:)						-								
1				_	_		Н	ydroph	ovtic						
2				_				egetati	-	,	Yes		No		
50% =, 20% =				=	Total Cov	er		resent							-
% Bare Ground in He		===													
Remarks:	Species with less that	an 5% cover ar	e not cor	nsidere	d domina	nt.									

Project Site: <u>ELST - South Sammamish</u>

Profile Description: (Describe to the depth needed to document the indicator or confired bepth Matrix Redox Features	Loc²	Texture Remarks sa. loam gr. sa. loam with cobbles cocation: PL=Pore Lining, M=Matrix Indicators for Problematic Hydric Soils3: Compared Parent Material (TF2) Compared Pother (Explain in Remarks)	:
Color (moist)	- M M 	sa. loam gr. sa. loam with cobbles coation: PL=Pore Lining, M=Matrix Indicators for Problematic Hydric Soils3: 2 cm Muck (A10) Red Parent Material (TF2) Very Shallow Dark Surface (TF12)	:
O-6 10YR 2/1 100	- M M 	sa. loam gr. sa. loam with cobbles coation: PL=Pore Lining, M=Matrix Indicators for Problematic Hydric Soils3: 2 cm Muck (A10) Red Parent Material (TF2) Very Shallow Dark Surface (TF12)	:
6-18 10YR 3/1 95 10YR 3/6 5 C Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Advance Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) Sandy Redox (S5) Histic Epipedon (A2) Stripped Matrix (S6) Black Histic (A3) Loamy Mucky Mineral (F1) (excended Below Dark Surface (A11) Depleted Matrix (F2) Depleted Below Dark Surface (A11) Depleted Matrix (F3) Thick Dark Surface (A12) Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Sandy Gleyed Matrix (S4) Redox Depressions (F8)	M ————————————————————————————————————	gr. sa. loam with cobbles bocation: PL=Pore Lining, M=Matrix Indicators for Problematic Hydric Soils3:	:
Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Addric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) Sandy Redox (S5) Histic Epipedon (A2) Stripped Matrix (S6) Black Histic (A3) Loamy Mucky Mineral (F1) (excelled Below Dark Surface (A11) Depleted Matrix (F2) Depleted Below Dark Surface (A11) Depleted Matrix (F3) Thick Dark Surface (A12) Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Sandy Gleyed Matrix (S4) Redox Depressions (F8) Restrictive Layer (if present):	Grains. ² Loo	bocation: PL=Pore Lining, M=Matrix Indicators for Problematic Hydric Soils³: 2 cm Muck (A10) Red Parent Material (TF2) Very Shallow Dark Surface (TF12)	:
Histosol (A1)		Indicators for Problematic Hydric Soils³: 2 cm Muck (A10) Red Parent Material (TF2) Very Shallow Dark Surface (TF12)	:
Histosol (A1)		Indicators for Problematic Hydric Soils³: 2 cm Muck (A10) Red Parent Material (TF2) Very Shallow Dark Surface (TF12)	:
Histosol (A1)		Indicators for Problematic Hydric Soils³: 2 cm Muck (A10) Red Parent Material (TF2) Very Shallow Dark Surface (TF12)	<u> </u>
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) Sandy Redox (S5) Histic Epipedon (A2) Stripped Matrix (S6) Black Histic (A3) Loamy Mucky Mineral (F1) (excelled Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Depleted Below Dark Surface (A11) Depleted Matrix (F3) Thick Dark Surface (A12) Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Sandy Gleyed Matrix (S4) Redox Depressions (F8)		Indicators for Problematic Hydric Soils³: 2 cm Muck (A10) Red Parent Material (TF2) Very Shallow Dark Surface (TF12)	:
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Histosol (A1) Sandy Redox (S5) Histic Epipedon (A2) Stripped Matrix (S6) Black Histic (A3) Loamy Mucky Mineral (F1) (excelled Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Depleted Below Dark Surface (A11) Depleted Matrix (F3) Thick Dark Surface (A12) Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Sandy Gleyed Matrix (S4) Redox Depressions (F8) Restrictive Layer (if present):		Indicators for Problematic Hydric Soils³: 2 cm Muck (A10) Red Parent Material (TF2) Very Shallow Dark Surface (TF12)	:
Histosol (A1)		Indicators for Problematic Hydric Soils³: 2 cm Muck (A10) Red Parent Material (TF2) Very Shallow Dark Surface (TF12)	:
Histosol (A1)		Indicators for Problematic Hydric Soils³: 2 cm Muck (A10) Red Parent Material (TF2) Very Shallow Dark Surface (TF12)	:
Histosol (A1) Sandy Redox (S5) Histic Epipedon (A2) Stripped Matrix (S6) Black Histic (A3) Loamy Mucky Mineral (F1) (excelled F1) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Depleted Below Dark Surface (A11) Depleted Matrix (F3) Thick Dark Surface (A12) Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Sandy Gleyed Matrix (S4) Redox Depressions (F8)	cept MLRA 1)	□ 2 cm Muck (A10) □ Red Parent Material (TF2) □ Very Shallow Dark Surface (TF12)	:
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 (S6) Loamy Mucky Mineral (F1) (exc Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Sandy Gleyed Matrix (S4) Redox Depressions (F8)	cept MLRA 1)	☐ Red Parent Material (TF2)☐ Very Shallow Dark Surface (TF12)	
Black Histic (A3)	cept MLRA 1)	☐ Very Shallow Dark Surface (TF12)	
Hydrogen Sulfide (A4) □ Loamy Gleyed Matrix (F2) □ Depleted Below Dark Surface (A11) □ Depleted Matrix (F3) □ Thick Dark Surface (A12) □ Sandy Mucky Mineral (S1) □ Depleted Dark Surface (F6) □ Depleted Dark Surface (F7) □ Sandy Gleyed Matrix (S4) □ Redox Depressions (F8)	cept MLKA 1)		
□ Depleted Below Dark Surface (A11) □ Depleted Matrix (F3) □ Thick Dark Surface (A12) □ Redox Dark Surface (F6) □ Sandy Mucky Mineral (S1) □ Depleted Dark Surface (F7) □ Sandy Gleyed Matrix (S4) □ Redox Depressions (F8)		☐ Other (Explain in Remarks)	
Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) □ Redox Dark Surface (F6) □ Depleted Dark Surface (F7) Redox Depressions (F8)			
Sandy Mucky Mineral (S1) □ Depleted Dark Surface (F7) Sandy Gleyed Matrix (S4) □ Redox Depressions (F8) estrictive Layer (if present):			
Sandy Gleyed Matrix (S4) Redox Depressions (F8) Restrictive Layer (if present):		³ Indicators of hydrophytic vegetation and	
estrictive Layer (if present):		wetland hydrology must be present,	
		unless disturbed or problematic.	
epth (inches):	Hydric Soils Pr	resent? Yes ⊠ No	. .
IYDROLOGY			
Vetland Hydrology Indicators:		0 1 1 1 1 (0	
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
Surface Water (A1) Water-Stained Leaves (B9)	D)	Water-Stained Leaves (B9)	
High Water Table (A2) (except MLRA 1, 2, 4A, and 4E	в)	(MLRA 1, 2, 4A, and 4B)	
Saturation (A3) Salt Crust (B11)		☐ Drainage Patterns (B10)	
Water Marks (B1) ☐ Aquatic Invertebrates (B13) Sediment Deposits (B2) ☐ Hydrogen Sulfide Odor (C1)		□ Dry-Season Water Table (C2)□ Saturation Visible on Aerial Imagery (C	20)
Sediment Deposits (B2) ☐ Hydrogen Sulfide Odor (C1) Drift Deposits (B3) ☐ Oxidized Rhizospheres along Li	iving Poots (C3)	• , ,	,9)
Algal Mat or Crust (B4) Presence of Reduced Iron (C4)		Shallow Aguitard (D3)	
Iron Deposits (B5) Recent Iron Reduction in Tilled		FAC-Neutral Test (D5)	
☐ Surface Soil Cracks (B6) ☐ Stunted or Stresses Plants (D1)	. ,	Raised Ant Mounds (D6) (LRR A)	
☐ Inundation Visible on Aerial Imagery (B7) ☐ Other (Explain in Remarks)	(Little A)	Frost-Heave Hummocks (D7)	
Sparsely Vegetated Concave Surface (B8)		Treat ready riaminesite (21)	
ield Observations:			
urface Water Present? Yes \(\Boxed{\square} \) No \(\Boxed{\square} \) Depth (inches): \(\lefta \)			
Vater Table Present? Yes ⊠ No ☐ Depth (inches): 15			
aturation Present?	Wet	tland Hydrology Present? Yes ⊠	No [
includes capillary fringe) Yes No Depth (inches): surface			
ARE IXI NO 11 DENTE (INCHES). SURFACE	s), if available:		
ncludes capillary fringe) Yes 🗵 No 📋 Depth (inches): surface	s), if available:		

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

Project Site:	ELST - South S	Sammamish Segr	<u>nent</u>				City/Cour	nty:	Samm	namish/K	ing	San	npling [Date:	11-0	<u>01-13</u>	
Applicant/Owner:	King County									Sta	te: WA	San	npling F	Point:	W2	8E-SF	22
Investigator(s):	C. Worsley; M.	Maynard							Sec	tion, Tov	wnship, Ra	inge:	S29, T2	25N, R06E	Ē		
Landform (hillslope, te	errace, etc.):	<u>nillslope</u>				Loca	al relief (conc	ave, c	onvex	, none):	convex			Slope	e (%):	<u>15</u>	
Subregion (LRR):	<u>A</u>		Lat:		-			Lo	ong:					Datum:		.	
Soil Map Unit Name:	Alderwood an	nd Kitsap soils, ve	ry steep								NWI cla	assifica	tion:	<u>NA</u>			
Are climatic / hydrolog	ic conditions on	the site typical for	this time	e of ye	ar?	Y	′es ⊠	N	10	☐ (If	no, explair	n in Rer	marks.)				
Are Vegetation	, Soil □,	or Hydrology	□, sig		-			Norma	al Circ	umstand	es" presen	nt?		Yes	\boxtimes	No	
Are Vegetation	, Soil □,	or Hydrology	□, na	turally	probl	ematic	? (If ne	eded,	expla	in any ar	nswers in F	Remark	(s.)				
SUMMARY OF FIN		ch site map sl				•	t locations	tran	sects	, impo	rtant feat	tures,	etc.				
Hydrophytic Vegetatio	n Present?		Yes		No		Is the Sam	aled Δ	rea								_
Hydric Soil Present?			Yes		No	\boxtimes	within a We							Yes		No	
Wetland Hydrology Pr	esent?		Yes		No	\boxtimes											
Remarks: Sample p	lot is located ups	slope (east) of dite	ch and ap	pproxi	mately	/ 20 fe	et northwest	of large	e Acer	macrop	hyllum.						
VEGETATION – U	se scientific n	ames of plant															
Tree Stratum (Plot siz	e: 30 feet)		Absolut % Cove		Domin Specie		Indicator Status	Don	ninan	ce Test \	Workshee	t:					
Acer macrophyllus	<u>m</u>		<u>40</u>		<u>ves</u>		FACU	Nun	nber of	f Domina	ant Species	S		4			(4)
2. <u>Alnus rubra</u>			<u>15</u>	<u>,</u>	<u>ves</u>		<u>FAC</u>	Tha	t Are C	DBL, FAC	CW, or FA	C:		<u>4</u>			(A)
3				-				Tota	al Num	ber of D	ominant			0			(D)
4				-				Spe	cies A	cross All	Strata:			<u>8</u>			(B)
50% = <u>28</u> , 20% = <u>11</u>			<u>55</u>	:	= Tota	al Cove	er	Perd	cent of	Domina	nt Species	6		5 0			(A/B)
Sapling/Shrub Stratur	n (Plot size: 10 fe	eet)						Tha	t Are C	OBL, FAG	CW, or FA	C:		<u>50</u>			(AVD)
1. Rosa pisocarpa			<u>15</u>	2	<u>yes</u>		FAC	Pre	valend	e Index	workshee	et:					
2. Rubus parviflorus			<u>15</u>	2	<u>yes</u>		<u>FACU</u>			Total	% Cover o	of:		Multip	ly by:		
3. Corylus cornuta			<u>8</u>	2	<u>ves</u>		<u>FACU</u>	OBL	spec	ies		_		x1 =			
4				-				FAC	CW spe	ecies		_		x2 =			
5								FAC	spec	ies	-	-		x3 =	_		
50% = <u>19</u> , 20% = <u>8</u>			<u>38</u>	:	= Tota	al Cove	er	FAC	CU spe	cies		_		x4 =			
Herb Stratum (Plot siz	ze: <u>3 feet</u>)							UPL	_ speci	es	-	_		x5 =	_		
Equisetum telmate	<u>eia</u>		<u>5</u>	2	<u>ves</u>		<u>FACW</u>	Colu	umn To	otals:		(A)				(E	3)
2. Calystegia sepiun	<u>1</u>		<u>5</u>	2	yes		FAC				Prevalenc	e Inde	x = B/A	=			
3				-				Hyd	lrophy	tic Vege	etation Inc	dicator	s:				
4				_					1 – F	Rapid Te	st for Hydi	rophytic	c Veget	tation			
5									2 - [ominan	ce Test is :	>50%					
6									3 - F	revalend	ce Index is	<3.0 ¹					
7								_			gical Adap	_	1 (Provi	ide sunno	rtina		
8.											emarks or				itilig		
9									5 - V	Vetland I	Non-Vascu	ılar Pla	nts ¹				
10									Proh	lematic	Hydrophyti	ic Vege	etation ¹	(Explain)			
11				-					1 102	nomano	i iyai opiiya	io voge	olution.	(Explain)			
50% = <u>5</u> , 20% = <u>2</u>			10		= Tota	al Cove					c soil and						
Woody Vine Stratum	(Plot size: 10 fee	t)	_					be p	oresen	t, unless	disturbed	or prob	olematio	C.			
Rubus armeniacu			<u>75</u>	,	<u>ves</u>		FACU										
2	_			•				Hyd	lrophy	rtic							
50% =, 20% =			75	-	= Tota	al Cove		_	etatio	n		Yes	[No		\boxtimes
% Bare Ground in He			<u></u>		. 010	0010	•	Pres	sent?								
		than EO/ cover o		مماما م	ما مام												
Remarks:	species with less	than 5% cover a	re not co	nsidei	ea ao	mman	l.										

Project Site: <u>ELST - South Sammamish</u>

nches) Color (moist)	%	, o	Color (m	oist) %	Type ¹	Loc ²	Texture		Rema	ırks		
0-5 10YR 2/1	10	00	=		Ξ.	=	gr. sa. loam	with cobbles				
<u>5-18</u> <u>10YR 3/2</u>	10	00	=	Ξ.	Ξ	Ξ	gr. sa. loam	with cobbles				
				. <u>——</u>								
				. <u>—</u>								
	_	_		· —								
				·								
		_		· —								
pe: C= Concentration, D=	 Depletion	 RM=Red	ıced Mat	rix CS=Covered or Coa	ated Sand G	rains ² l o	cation: PI =Pore	e Lining, M=Ma	trix			
dric Soil Indicators: (App				•	atou ounu oi	ranio. Lo		rs for Problema		Soils	3:	
Histosol (A1)				Sandy Redox (S5)			□ 2	cm Muck (A10))			
Histic Epipedon (A2)				Stripped Matrix (S6)			☐ R	ed Parent Mate	erial (TF2)			
Black Histic (A3)				Loamy Mucky Minera	al (F1) (exce	pt MLRA 1)	□ V	ery Shallow Dar	rk Surface	(TF12)		
Hydrogen Sulfide (A4)				Loamy Gleyed Matrix	(F2)		□ 0	ther (Explain in	Remarks)			
Depleted Below Dark S	urface (A1	11)		Depleted Matrix (F3)								
Thick Dark Surface (A1	2)			Redox Dark Surface	(F6)							
Sandy Mucky Mineral (S1)			Depleted Dark Surface	ce (F7)			rs of hydrophytic				
Sandy Gleyed Matrix (S	4)			Redox Depressions (F8)			nd hydrology mu s disturbed or pi				
strictive Layer (if present):											
De:												
								V.		N	lo	⊳
					Н	lydric Soils Pr	esent ?	10	es 🗆			
epth (inches): emarks: YDROLOGY					Н	lydric Soils Pr	esent ?	Te	es 🔟			
YDROLOGY etland Hydrology Indicato		ujrod obo	nak all tha	t apply)	Н	lydric Soils Pr						
Marks: DROLOGY Stland Hydrology Indicato mary Indicators (minimum		quired; che				lydric Soils Pr	Secondary	v Indicators (2 o	r more requ			
Marks: MDROLOGY Setland Hydrology Indicate mary Indicators (minimum Surface Water (A1)		quired; che	eck all tha	Water-Stained Leave	es (B9)		Secondary □ Wate	v Indicators (2 or er-Stained Leave	ır more requ			
Marks: MOROLOGY Stland Hydrology Indicator mary Indicators (minimum Surface Water (A1) High Water Table (A2)		quired; che		Water-Stained Leave (except MLRA 1, 2, 4	es (B9)		Secondary Wate	/ Indicators (2 or er-Stained Leave RA 1, 2, 4A, and	r more reques (B9)			
/DROLOGY tiland Hydrology Indicator mary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3)		quired; che		Water-Stained Leave (except MLRA 1, 2, 4 Salt Crust (B11)	s (B9) 4 A, and 4B)		Secondary Wate (MLF	/ Indicators (2 or er-Stained Leav RA 1, 2, 4A, and nage Patterns (E	or more requ res (B9) d 4B) B10)			
"DROLOGY Itland Hydrology Indicator mary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1)	of one req	quired; che		Water-Stained Leave (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates	es (B9) 4A, and 4B) s (B13)		Secondary Wate (MLF	/ Indicators (2 or er-Stained Leave RA 1, 2, 4A, and mage Patterns (E Season Water T	or more requires (B9) d 4B) B10) Fable (C2)	uired)		
TDROLOGY Itland Hydrology Indicate mary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2)	of one req	quired; che		Water-Stained Leave (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Od	es (B9) 4A, and 4B) 6 (B13) or (C1)		Secondary Wate (MLF Drain Dry-8	r Indicators (2 or er-Stained Leave RA 1, 2, 4A, and nage Patterns (E Season Water T ration Visible or	r more reques (B9) d 4B) B10) Γable (C2) n Aerial Ima	uired)		
Marks: of one req	quired; che		Water-Stained Leave (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Od Oxidized Rhizosphere	es (B9) 4A, and 4B) s (B13) or (C1) es along Livi		Secondary Wate (MLF Drain Dry-S	r Indicators (2 or er-Stained Leave RA 1, 2, 4A, and nage Patterns (E Season Water T rration Visible or morphic Position	or more requires (B9) d 4B) B10) Fable (C2) on Aerial Ima	uired)			
Marks: of one req	quired; che		Water-Stained Leave (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Od Oxidized Rhizosphere Presence of Reduced	es (B9) 4A, and 4B) s (B13) or (C1) es along Livi d Iron (C4)	ing Roots (C3)	Secondary Wate (MLF Drair Dry-5 Satu Geor	v Indicators (2 or er-Stained Leave RA 1, 2, 4A, and nage Patterns (E Season Water T ration Visible or morphic Position low Aquitard (D:	er more requires (B9) d 4B) B10) Fable (C2) n Aerial Ima n (D2)	uired)			
Marks: Marks: Marks: Marks: Marks: Marks: Marks: Marks: Marks (Marks (M	of one req	quired; che		Water-Stained Leave (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Od Oxidized Rhizosphere Presence of Reduced Recent Iron Reduction	es (B9) 4A, and 4B) s (B13) or (C1) es along Livi d Iron (C4) on in Tilled So	ing Roots (C3)	Secondary Wate (MLF Drain Dry-5 Satu Geor	r Indicators (2 or er-Stained Leave RA 1, 2, 4A, and nage Patterns (E Season Water T ration Visible or morphic Position low Aquitard (Di -Neutral Test (D	res (B9) d 4B) B10) Fable (C2) n Aerial Ima n (D2) 3)	uired)		
POROLOGY Interest and Hydrology Indicator Mary Indicators (minimum) 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 (B	of one req			Water-Stained Leave (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Od Oxidized Rhizosphere Presence of Reduced Recent Iron Reductio Stunted or Stresses F	es (B9) 4A, and 4B) 5 (B13) or (C1) es along Livi d Iron (C4) on in Tilled So Plants (D1) (I	ing Roots (C3)	Secondary Wate (MLF Drain Dry-5 Satu Geor Shall FAC-	r Indicators (2 or er-Stained Leave RA 1, 2, 4A, and nage Patterns (E Season Water T ration Visible or morphic Position low Aquitard (D: -Neutral Test (D: ed Ant Mounds	r more reques (B9) d 4B) B10) Fable (C2) n Aerial Ima n (D2) 3) D5) (D6) (LRR	uired)		
Marks: Marks: Marks: Marks: Marks: Marks: Marks: Marks (Marks (Ma	of one req)) 6) erial Imag	gery (B7)		Water-Stained Leave (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Od Oxidized Rhizosphere Presence of Reduced Recent Iron Reduction	es (B9) 4A, and 4B) 5 (B13) or (C1) es along Livi d Iron (C4) on in Tilled So Plants (D1) (I	ing Roots (C3)	Secondary Wate (MLF Drain Dry-5 Satu Geor Shall FAC-	r Indicators (2 or er-Stained Leave RA 1, 2, 4A, and nage Patterns (E Season Water T ration Visible or morphic Position low Aquitard (Di -Neutral Test (D	r more reques (B9) d 4B) B10) Fable (C2) n Aerial Ima n (D2) 3) D5) (D6) (LRR	uired)		
Marks: Marks: Marks: Marks: Mary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B Inundation Visible on A Sparsely Vegetated Co	of one req)) 6) erial Imag	gery (B7)		Water-Stained Leave (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Od Oxidized Rhizosphere Presence of Reduced Recent Iron Reductio Stunted or Stresses F	es (B9) 4A, and 4B) 5 (B13) or (C1) es along Livi d Iron (C4) on in Tilled So Plants (D1) (I	ing Roots (C3)	Secondary Wate (MLF Drain Dry-5 Satu Geor Shall FAC-	r Indicators (2 or er-Stained Leave RA 1, 2, 4A, and nage Patterns (E Season Water T ration Visible or morphic Position low Aquitard (D: -Neutral Test (D: ed Ant Mounds	r more reques (B9) d 4B) B10) Fable (C2) n Aerial Ima n (D2) 3) D5) (D6) (LRR	uired)		
Marks: Marks: Marks: Marks: Marks: Marks: Mary Indicators (minimum of mary Indicators (Marks (of one req)) 6) erial Imag	gery (B7)		Water-Stained Leave (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Od Oxidized Rhizosphere Presence of Reduced Recent Iron Reductio Stunted or Stresses F	es (B9) 4A, and 4B) 5 (B13) or (C1) es along Livi d Iron (C4) on in Tilled So Plants (D1) (I	ing Roots (C3)	Secondary Wate (MLF Drain Dry-5 Satu Geor Shall FAC-	r Indicators (2 or er-Stained Leave RA 1, 2, 4A, and nage Patterns (E Season Water T ration Visible or morphic Position low Aquitard (D: -Neutral Test (D: ed Ant Mounds	r more reques (B9) d 4B) B10) Fable (C2) n Aerial Ima n (D2) 3) D5) (D6) (LRR	uired)		
POROLOGY Estland Hydrology Indicator mary Indicators (minimum 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 (B Inundation Visible on A Sparsely Vegetated Co	of one req) 6) erial Imag incave Su	gery (B7)		Water-Stained Leave (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Od Oxidized Rhizosphere Presence of Reduced Recent Iron Reductio Stunted or Stresses F Other (Explain in Ren	es (B9) 4A, and 4B) 5 (B13) or (C1) es along Livi d Iron (C4) on in Tilled So Plants (D1) (I	ing Roots (C3)	Secondary Wate (MLF Drain Dry-5 Satu Geor Shall FAC-	r Indicators (2 or er-Stained Leave RA 1, 2, 4A, and nage Patterns (E Season Water T ration Visible or morphic Position low Aquitard (D: -Neutral Test (D: ed Ant Mounds	r more reques (B9) d 4B) B10) Fable (C2) n Aerial Ima n (D2) 3) D5) (D6) (LRR	uired)		
Procession of the control of the con	of one req) 6) erial Imag incave Su Yes	gery (B7) irface (B8)		Water-Stained Leave (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Od Oxidized Rhizosphere Presence of Reduced Recent Iron Reductio Stunted or Stresses F Other (Explain in Rer Depth (inches):	es (B9) 4A, and 4B) 5 (B13) or (C1) es along Livi d Iron (C4) on in Tilled So Plants (D1) (I	ing Roots (C3)	Secondary Wate (MLF Drain Dry-5 Satu Geor Shall FAC-	r Indicators (2 or er-Stained Leave RA 1, 2, 4A, and nage Patterns (E Season Water T ration Visible or morphic Position low Aquitard (Di -Neutral Test (Di ed Ant Mounds t-Heave Hummo	r more reques (B9) d 4B) B10) Fable (C2) n Aerial Ima n (D2) 3) D5) (D6) (LRR	uired)	C9)	
POROLOGY etland Hydrology Indicator imary Indicators (minimum) 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 (B Inundation Visible on A	of one required one required of one required of one required one re	gery (B7) Irface (B8)		Water-Stained Leave (except MLRA 1, 2, 4 Salt Crust (B11) Aquatic Invertebrates Hydrogen Sulfide Od Oxidized Rhizosphere Presence of Reduced Recent Iron Reductio Stunted or Stresses F Other (Explain in Rer Depth (inches): Depth (inches):	es (B9) 4A, and 4B) or (C1) es along Livi d Iron (C4) on in Tilled Sc Plants (D1) (I	ing Roots (C3) oils (C6) LRR A)	Secondary Wate (MLF Drair Dry-S Satu Shall FAC: Frost	r Indicators (2 or er-Stained Leave RA 1, 2, 4A, and nage Patterns (E Season Water T ration Visible or morphic Position low Aquitard (Di -Neutral Test (Di ed Ant Mounds t-Heave Hummo	or more requires (B9) d 4B) B10) Fable (C2) n Aerial Ima n (D2) (3) (D5) (D6) (LRR ocks (D7)	uired)	C9)	

Data Plot #:	29B-SP1				
Wetland:	29B				

WETLAND DETERMINATION

Project/Site: ELST Re-delineation	า			11/8/2007 Revisited 03-20-14			
Applicant/Owner: King County				•	King County		
Investigator: Linda Krippner/Rachel Hulscher				State:	WA		
1987 Method	✓ 1997 WA	St. Me	ethod		Comr	munity ID: PEM	
Do Normal Circumstances exist on	n the site?	Yes	X	No	Field	Plot ID: 29B-SP1	
Is the site significantly disturbed (A	Atypical Situation)?	Yes	X	No			
Is the area a potential Problem Are	ea?	Yes		No X			
Remarks (Explain sample location This sample plot is located approxi			,				
VEGETATION (✓Dominant s Plant Species 1. crabgrass	species are checked)		% Cover	Stratum Herb	Indicator FACU	03-20-14 Observations Equisetum telmateia 2% Trifolium repens 8% Plantago majora 2%	
2. Juncus ensifolius		trace	Herb	FACW	Scirpus microcarpus 2%		
3. moss			trace	Herb	NL	Holcus lanatus 2%	
4. Poa sp.			trace	Herb	UNK	Juncus ensifolius 2% various lawn grass 90%	
5. Ranunculus repens			10	Herb	FACW	moss 2%	
 6 various lawn grass 				Llorb	N II		
7 velvetgrass Percent of Dominant Species to (except FAC-). Include species no	oted (*) as showing		90 trace	Herb Herb	NL FAC	- -	
Percent of Dominant Species to (except FAC-). Include species no morphological adaptations to wetlan Remarks (Describe disturbances the percent of dominant species the	oted (*) as showing ands. "T" indicates tra s, relevant local variation that are hydrophytic is	ace. ons, se <i>not gre</i>	trace 0 easonal effecter than	Herb fects, etc.	FAC): nt. Hydrophytic	c vegetation criterion is not satisfied	
7. velvetgrass Percent of Dominant Species to except FAC-). Include species no morphological adaptations to wetlances Remarks (Describe disturbances to the percent of dominant species to the vegetation meets wetland criterion	oted (*) as showing ands. "T" indicates tra s, relevant local variation that are hydrophytic is	ace. ons, se <i>not gre</i>	trace 0 easonal effecter than	Herb fects, etc.	FAC): nt. Hydrophytic		
7. velvetgrass Percent of Dominant Species to (except FAC-). Include species no morphological adaptations to wetland Remarks (Describe disturbances) The percent of dominant species the Vegetation meets wetland criterion (HYDROLOGY)	oted (*) as showing ands. "T" indicates tra s, relevant local variation that are hydrophytic is a based on best profession."	ace. ons, se <i>not gre</i>	easonal eficator than judgment	Herb iffects, etc., 50 percer t due to lav	FAC): nt. Hydrophytic wn maintenanc rology Indica		
Percent of Dominant Species to (except FAC-). Include species no morphological adaptations to wetland Remarks (Describe disturbances The percent of dominant species to Vegetation meets wetland criterion HYDROLOGY Recorded Data (Describe in Rerorder)	oted (*) as showing ands. "T" indicates tra s, relevant local variation that are hydrophytic is a based on best profession."	ace. ons, se <i>not gre</i>	easonal eficator than judgment	Herb ifects, etc.) i 50 percert due to lav tland Hyd Primary In	FAC int. Hydrophytic wn maintenanc rology Indica indicators: Inundated	tors (Describe in Remarks):	
Percent of Dominant Species to except FAC-). Include species no morphological adaptations to wetland Remarks (Describe disturbances The percent of dominant species the Vegetation meets wetland criterion HYDROLOGY Recorded Data (Describe in Rename Stream, Lake, or Time Percent of Dominant Species the Vegetation Meets wetland criterion Company Stream, Lake, or Time Percent of Dominant Species the Vegetation Meets wetland criterion Company Species (Describe in Rename Percent Stream, Lake, or Time Percent of Dominant Species 10 (Describe in Rename Percent Open	oted (*) as showing ands. "T" indicates tra s, relevant local variation that are hydrophytic is a based on best profession."	ace. ons, se <i>not gre</i>	easonal eficator than judgment	Herb ifects, etc.; a 50 percer t due to law	FAC it. Hydrophytic wn maintenanc rology Indica idicators: Inundated Saturated	tors (Describe in Remarks): in Upper 12 inches	
7. velvetgrass Percent of Dominant Species to (except FAC-). Include species no morphological adaptations to wetlate (except FAC-). Include species no morphological adaptations to wetlate (except for a species of the percent of dominant species of the Vegetation meets wetland criterion (except for a species of the percent of dominant species of the Vegetation meets wetland criterion (except for a species of the percent of	oted (*) as showing ands. "T" indicates trains, relevant local variation that are hydrophytic is a based on best professionals."	ace. ons, se <i>not gre</i>	easonal eficator than judgment	Herb ifects, etc.) i 50 percert due to lav tland Hyd Primary In	rology Indica dicators: Inundated Saturated Water Mai	tors (Describe in Remarks): in Upper 12 inches	
Percent of Dominant Species to (except FAC-). Include species no morphological adaptations to wetland Remarks (Describe disturbances The percent of dominant species to Vegetation meets wetland criterion HYDROLOGY Recorded Data (Describe in Rerostream, Lake, or Tick Aerial Photograph Other X No Recorded Data	oted (*) as showing ands. "T" indicates trains, relevant local variation that are hydrophytic is a based on best professionals."	ace. ons, se <i>not gre</i>	easonal eficator than judgment	Herb ifects, etc.) i 50 percert due to lav tland Hyd Primary In	FAC it. Hydrophytic wn maintenanc rology Indica idicators: Inundated Saturated	tors (Describe in Remarks): in Upper 12 inches	
Percent of Dominant Species to except FAC-). Include species no morphological adaptations to wetlate Remarks (Describe disturbances The percent of dominant species to Vegetation meets wetland criterion HYDROLOGY Recorded Data (Describe in Rerestand, Lake, or Tick, Aerial Photograph Other X No Recorded Data	oted (*) as showing ands. "T" indicates trains, relevant local variation that are hydrophytic is a based on best professionals."	ace. ons, se <i>not gre</i>	easonal eficator than judgment	Herb ifects, etc.) i 50 percert due to lav tland Hyd Primary In	rology Indicandicators: Inundated Saturated Water Mai Drift Lines Sediment	tors (Describe in Remarks): in Upper 12 inches	
Percent of Dominant Species to (except FAC-). Include species no morphological adaptations to wetlate Remarks (Describe disturbances The percent of dominant species to the Vegetation meets wetland criterion (Describe in Remarks). Stream, Lake, or Time Aerial Photograph Other X No Recorded Data (Field Observations:	oted (*) as showing ands. "T" indicates trans, relevant local variation that are hydrophytic is a based on best profession. marks): ide Gage Available	ace. ons, se <i>not gre</i>	easonal efficient than judgment	Herb ifects, etc., a 50 percert due to law tland Hyd Primary In	rology Indicandicators: Inundated Saturated Water Mai Drift Lines Sediment Drainage I	tors (Describe in Remarks): in Upper 12 inches rks Deposits Patterns in Wetlands	
Percent of Dominant Species to (except FAC-). Include species no morphological adaptations to wetland Remarks (Describe disturbances The percent of dominant species to Vegetation meets wetland criterion HYDROLOGY Recorded Data (Describe in Rerestream, Lake, or Tightand Aerial Photograph Other X No Recorded Data Stream St	nted (*) as showing ands. "T" indicates trais, relevant local variation that are hydrophytic is a based on best profession." marks): ide Gage Available	ace. ons, se <i>not gre</i>	easonal efficient than judgment	Herb ifects, etc., a 50 percert due to law tland Hyd Primary In	rology Indicated Saturated Water Mai Drift Lines Sediment Drainage I	tors (Describe in Remarks): in Upper 12 inches rks Deposits Patterns in Wetlands 2 or more required):	
Percent of Dominant Species to (except FAC-). Include species no morphological adaptations to wetlate Remarks (Describe disturbances) The percent of dominant species to the Vegetation meets wetland criterion (Pythology) Recorded Data (Describe in Remarks, Carial Photograph Other X No Recorded Data (Stream, Lake, or Time Aerial Photograph Other) X No Recorded Data (Stream) Depth of Surface Water: Depth to Free Water in Pit:	nted (*) as showing ands. "T" indicates trais, relevant local variation that are hydrophytic is a based on best profession." marks): ide Gage Available	ace. ons, se <i>not gre</i>	easonal efficient than judgment	Herb ifects, etc., a 50 percert due to law tland Hyd Primary In	rology Indicators: Inundated Saturated Water Mai Drift Lines Sediment Drainage I y Indicators (2 Oxidized F	tors (Describe in Remarks): in Upper 12 inches rks Deposits Patterns in Wetlands 2 or more required): Rhizospheres in Upper 12 inches	
Percent of Dominant Species to (except FAC-). Include species no morphological adaptations to wetlate Remarks (Describe disturbances The percent of dominant species to the Vegetation meets wetland criterion (Describe in Remarks). Stream, Lake, or Time Aerial Photograph Other X No Recorded Data (Field Observations: Depth of Surface Water: Depth to Free Water in Pit:	none (in.)	ace. ons, se <i>not gre</i>	easonal efficient than judgment	Herb ifects, etc., a 50 percert due to law tland Hyd Primary In	rology Indicators: Inundated Saturated Water Mai Drift Lines Sediment Drainage I y Indicators: Oxidized F Water-Sta	tors (Describe in Remarks): in Upper 12 inches rks Deposits Patterns in Wetlands 2 or more required): Rhizospheres in Upper 12 inches ined Leaves	
Percent of Dominant Species to (except FAC-). Include species no morphological adaptations to wetlate Remarks (Describe disturbances The percent of dominant species to the Vegetation meets wetland criterion (Describe in Remarks). Stream, Lake, or Time Aerial Photograph Other X No Recorded Data (Field Observations: Depth of Surface Water: Depth to Free Water in Pit:	none (in.)	ace. ons, se <i>not gre</i>	easonal efficient than judgment	Herb ifects, etc., a 50 percert due to law tland Hyd Primary In	rology Indicators: Inundated Saturated Water Mai Drift Lines Sediment Drainage I y Indicators (2 Oxidized F Water-Sta Local Soil	tors (Describe in Remarks): in Upper 12 inches rks Deposits Patterns in Wetlands 2 or more required): Rhizospheres in Upper 12 inches ined Leaves Survey Data	
Percent of Dominant Species to (except FAC-). Include species no morphological adaptations to wetlate Remarks (Describe disturbances The percent of dominant species to the Vegetation meets wetland criterion (Describe in Remarks). Stream, Lake, or Time Aerial Photograph Other X No Recorded Data (Field Observations: Depth of Surface Water: Depth to Free Water in Pit:	none (in.) none (in.) none (in.) none (in.)	ace. ons, se not gre ssional	trace 0 easonal effecter than judgment	Herb ifects, etc.; a 50 percent due to lav tland Hyd Primary In X Secondar	rology Indicators: Inundated Saturated Water Mai Drift Lines Sediment Drainage I Oxidized F Water-Sta Local Soil Other (Exp	tors (Describe in Remarks): in Upper 12 inches rks Deposits Patterns in Wetlands 2 or more required): Rhizospheres in Upper 12 inches ined Leaves Survey Data plain in Remarks)	

Project/Site	: ELST Re-de	elineation				Date:	11/8/2007	[Revisited 03	-20-14
SOIL Soil Surve	ey Data:									
Map Unit N	Name: Alderv	vood grave	elly sandy loam	, 15 to 30	% slopes		Drainage Clas	ss: Moderate	ely well drair	ned
							Field Observa	ations Confirm	m Mapped T	ype?
Taxonomy	(Subgroup):	Entic Dur	ochrepts				Yes	No X	NA	_
Profile De	scription:									
Depth (Inches)	Horizon Designation	Matrix C (Munsell		Mottle ((Munse			Mottle Abundance/C	ontrast	Texture, C Rhizosphe	oncretions, eres, etc.
0-9	Α	10YR 2/1		none			none		loam	
9-16	В	2.5Y 4/1		none			none		fill material and loam	
•	il Indicators:		03-20-14 Obs	ervations	s - 0-6 6-16	10	YR 2/1 YR 3/2 (85%)	none 10YR 6/4 10YR 5/8	none 12% 3%	loam gr. sa. loam w. small cobbles
	stosol	'				_	a on Hyanc Soi	IS LIST		
	stic Epipedon					_	n Concretions	Canalii Calla		
	ılfidic Odor quic or Peragui	o Moioturo	Pogimo				nic Streaking in es (Redoximorr	-		
	educing Condit		negime		-	_	r (Explain in Re		>)	
	eyed or Low-C		Inre			_	i (Explain in rie	iliains)		
	gh Organic Co									
	(Describe soil		•	ions, etc	.):					
Soils are o	listurbed below	the topso	il, fill below. Lo	w chrom	a soil satis	fies hyd	dric soil criterion).		
WETLA	ND DETERI	MINATIO	ON							
Hydrophy	tic Vegetation	Present?	Yes	Χ	No		Is th	nis Sampling	Point With	nin a Wetland?
Hydric So	ils Present?		Yes	X	No			Voo V	No	
Wetland H	lydrology Pres	sent?	Yes	Χ	No			Yes X	No _	

Data Plot #:

Wetland:

29B-SP1

29B

Remarks

Maintained grasses meet hydrophytic vegetation criterion based on best professional judgment. Therefore all wetland criteria are met and this area is a wetland.

Data Plot #: 29B-SP2
Wetland: Upland near 29B

WETLAND DETERMINATION

(Modified from: 1987 ACOE Wetlands Delineation Manual)

Project/Site: ELST Re-delineation	Date: 11/8/2007 Revisited 03-20-14
Applicant/Owner: King County	County: King County
Investigator: Linda Krippner/Laura Brock	State: WA
☐ 1987 Method ☑ 1997 WA St. Method	Community ID: Upland Shrub
Do Normal Circumstances exist on the site? Yes X	No Field Plot ID: 29B-SP2
Is the site significantly disturbed (Atypical Situation)? Yes X	
Is the area a potential Problem Area? Yes	No X
Remarks (Explain sample location, disturbances, problem areas):	-
This sample plot is located approximately 3 feet northwest of Flag 29	B-2.
VEGETATION (✓Dominant species are checked)	03-20-14 Observations
Plant Species % Co	ver Stratum Indicator Hypochaeris radicata 2% various lawn grasses 40%
1. Hypochaeris radicata spotted car's ear trace	Herb FACU Illex aquifolium 2%
✓ 2. various lawn grasses 40	Herb NL arbor vitae 10%
3 . <u>holly</u> <u>2</u>	Shrub NL ornamental shrub (unknown) 50% Rubus armeniacus 2%
4 ornamental cedar 5	Siliub NL
5. ornamental shrub - unknown 50 Rubus armeniacus 5	Shrub NL Shrub FACU
·	Siliub 1 ACC
Percent of Dominant Species that are OBL, FACW, or FAC (except FAC-). Include species noted (*) as showing	0
morphological adaptations to wetlands. "T" indicates trace.	
Remarks (Describe disturbances, relevant local variations, seasons	al effects, etc.):
Area is landscaped. Vegetation does not meet wetland vegetation cr	iterion.
HYDROLOGY	
Recorded Data (Describe in Remarks):	Wetland Hydrology Indicators (Describe in Remarks):
Stream, Lake, or Tide Gage	Primary Indicators:
Aerial Photograph	Inundated
Other	Saturated in Upper 12 inches
X No Recorded Data Available	Water Marks
Field Observations:	Drift Lines
	Sediment Deposits
	Drainage Patterns in Wetlands
Depth of Surface Water: none (in.)	Secondary Indicators (2 or more required):
Depth to Free Water in Pit: none (in.)	Oxidized Rhizospheres in Upper 12 inches
Depth to Saturated Soil: none (in.)	Water-Stained Leaves
	Local Soil Survey Data
	Other (Explain in Remarks)
Remarks (As relevant, describe recent precipitation, hydrologic m	odifications, local variations, etc.):
No primary or secondary indicators of hydrology are present. Wetlar	•

Remarks

Project/Site	e: <u>ELST Re-de</u>	elineation			Date:	11/8/2007	Revisited 03-20-14
SOIL Soil Surv	ey Data:						
Map Unit	Name: Alder	vood gravelly sandy l	oam, 15 t	o 30 % slope	s	Drainage Class: Mod	derately well drained
						Field Observations C	Confirm Mapped Type?
Taxonomy	y (Subgroup):	Entic Durochrepts				Yes No _	X NA
Profile De	escription:					•	
Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)		le Color nsell Moist)		Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-7	А	10YR 2/1	none	1		none	gravelly sandy loam
7-16	A2	10YR 2/2	none	!		none	gravelly sandy loam
H H S A A R G H Remarks	leducing Conditional Conditions of Low-Conditional Conditions of the Conditional Conditions of the Conditions of t	Chroma Colors intent in Surface Laye disturbances, local v		etc.):	Fe/M Orga Mott	ed on Hydric Soils List In Concretions anic Streaking in Sandy les (Redoximorphic Fea er (Explain in Remarks)	
Solis do n	ot meet hydric	son criterion.					
WETLA	ND DETER	MINATION					
Hydrophy	tic Vegetation	Present?	Yes	No	Χ	Is this Sam	pling Point Within a Wetland?
Hydric Sc	ils Present?		Yes	No	Χ	Yes	No X
Wetland I	Hydrology Pre	sent?	Yes	No	Χ	100	

None of the wetland criteria are met. Therefore, the sample plot is not located in a wetland.

Data Plot #:

Wetland:

29B-SP2

Upland near 29B

Data Plot #:	29C-SP1				
Wetland:	29C				

WETLAND DETERMINATION

(Modified from: 1987 A	COE	E Wetl	ands l	Deli	neation I	Manual)
Project/Site: ELST Re-delineation			Date: 1	11/8/	2007	Revisited 03-20-14
Applicant/Owner: King County		County:	Kir	ng County		
Investigator: Linda Krippner/Laura Brock	_ s	State:	W	A		
☐ 1987 Method	nod			Comn	nunity ID: PFO	
Do Normal Circumstances exist on the site? Yes X						Plot ID: 29C-SP1
Is the site significantly disturbed (Atypical Situation)?		No	Х		230 01 1	
Is the site significantly disturbed (Atypical Situation)? Yes Is the area a potential Problem Area? Yes				Х	•	
Remarks (Explain sample location, disturbances, problem <i>This sample plot is located approximately 7 feet west of the 29C.</i>	areas	s):			-	f the southern boundary of Wetland
VEGETATION (✓ Dominant species are checked) Plant Species ✓ 1. Equisetum telmateia	9	% Cover	Stratur	n	Indicator	03-20-14 Observations Equisetum hyemale 20% Equisetum telmateia 45% Hedera helix 35%
2. Hedera helix		5 80	Shrub Shrub		NL	llex aquifolium 5% Physocarpus capitatus 30%
3. Physocarpus capitatus4. Rubus armeniacus		5	Shrub		FACW- FACU	Physocarpus capitatus 30% Rubus armeniacus 5%
✓ 5. Rubus spectabilis		'5	Shrub		FAC+	Rubus spectabilis 75%
✓ 6. Populus balsamifera	8	30	Tree		FAC	- Salix lucida 15% - Populus balsamifera 80%
Remarks (Describe disturbances, relevant local variations The percent of dominant species that are hydrophytic is gresatisfied.				,	refore, the h	nydrophytic vegetation criterion is
HYDROLOGY						
Recorded Data (Describe in Remarks):		Wet	land Hy	drol	ogy Indicat	ors (Describe in Remarks):
X Stream, Lake, or Tide Gage		I	Primary	Indi	cators:	
Aerial Photograph					Inundated	
Other			Χ		Saturated i	in Upper 12 inches
X No Recorded Data Available					Water Mar	ks
Field Observations:					Drift Lines Sediment I	Donosits
						Patterns in Wetlands
Depth of Surface Water: none (in.) Depth to Free Water in Pit: 10 (in.)		;	Seconda	ary	Indicators (2	or more required):
, ,						hizospheres in Upper 12 inches
Depth to Saturated Soli.	Depth to Saturated Soil: 5 (in.)					ned Leaves
						Survey Data
						lain in Remarks)
Remarks (As relevant, describe recent precipitation, hyd	_			loca	I variations,	etc.):
Soil saturation in the upper 12 inches satisfies wetland hyd	drology	y criterio	on.			
03-20-14 Observations - Soil saturated at surface. Free wa	ater in	pit at 9 i	inches.			

Project/Site	: ELST Re-de	elineation				Date:	11/8/200	7	Revisite	ed 03-20-14
SOIL Soil Surve	ey Data:									
Map Unit Name: Kitsap Silt Loam 2 to 8% slopes							Drainage	Class: Mode	erately well	drained
							Field Obs	servations Co	nfirm Mapp	ped Type?
Taxonomy	(Subgroup):	Dystric X	erochrepts				Yes	No _>	NA NA	
Profile De	scription:									
Depth (Inches)	Horizon Designation	Matrix C (Munsel		Mottle ((Munse	Color II Moist)		Mottle Abundan	ce/Contrast		ure, Concretions, ospheres, etc.
0-12	A	10YR 2/1		none			none		peat	
12-16	В								sand (gravel
Hydric So	il Indicators:		03-20-14 Obse	rvations	s - 0-12 12-16	10Y	'R 2/1 -	none -	none -	peaty mineral (loam) sand gravel
X Hi Su Acc	stosol stic Epipedon ulfidic Odor quic or Peragui educing Condit eyed or Low-C gh Organic Co	ions hroma Co	lors			Fe/M Orga	n Concretionic Streaki es (Redoxi	e Soils List ons ng in Sandy S morphic Featu n Remarks)		
	`		ces, local variat unic matter. Low		,	and high	organic c	ontent indicate	e hydric so	oil.
WETLA	ND DETERI	MINATIO	NC							
Hydrophy	tic Vegetation	Present?	Yes	Х	No			Is this Samp	ling Point	Within a Wetland?
Hydric So	ils Present?		Yes	Х	No			Yes	X No	0
Wetland H	lydrology Pres	sent?	Yes	Χ	No			103	77 110	
Remarks										

Wetland vegetation, hydrology, and soil criteria are met. Therefore, the sample plot is located in a wetland.

Data Plot #:

Wetland:

29C-SP1

29C

Data Plot #: 29C-SP2
Wetland: Upland near 29C

WETLAND DETERMINATION

(Modified from: 1987 ACOE Wetlands Delineation Manual)

Project/Site: ELST Re-delineation		Date: 11/8	3/2007	Revisited 03-20-14
Applicant/Owner: King County		County: K	ing County	
Investigator: Laura Brock/Linda Krippner		State: W	/A	
☐ 1987 Method	t. Method	_	Comn	nunity ID: Upland Forest
Do Normal Circumstances exist on the site?	Yes X	No		Plot ID: 29C-SP2
Is the site significantly disturbed (Atypical Situation)?	Yes	No X		1 lot 18. 200 of 2
Is the area a potential Problem Area?	Yes	No X	_	
Remarks (Explain sample location, disturbances, problem				
SP-2 is located on a slope approximately 20' north of Flag				ll slope approximately 5 feet hwest of gate. North of bamboo.
VEGETATION (✓Dominant species are checked)				03-20-14 Observations
Plant Species	% Cove	r Stratum	Indicator	Equisetum hyemale 2%
1 . Equisetum hyemale	trace	Herb	FACW	Equisetum telmateia 75% Hedera helix 10%
✓ 2. Equisetum telmateia	75	Herb	FACW	Bambusa vulgaris 30%
3. Bambusa vulgaris	15	Shrub	NL	Rubus armeniacus 2%
4. Rubus spectabilis	15	Shrub	FAC+	Rubus spectabilis 35% Acer macrophyllum 40%
✓ 5. Alnus rubra	30	Trace	FAC	Salix lucida (rooted in WL) 20%
Remarks (Describe disturbances, relevant local variation. The percent of dominant species that are hydrophytic is gr		,		getation criterion is satisfied.
The percent of dominant species that are hydrophytic is gr HYDROLOGY	eater than 50	0 percent. Hy	drophytic veg	
The percent of dominant species that are hydrophytic is gr HYDROLOGY Recorded Data (Describe in Remarks):	eater than 50	0 percent. Hy	drophytic veg	getation criterion is satisfied. ors (Describe in Remarks):
The percent of dominant species that are hydrophytic is gr HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage	eater than 50	0 percent. Hy	ology Indicat	
The percent of dominant species that are hydrophytic is gr HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph	eater than 50	0 percent. Hy	blogy Indicat licators:	ors (Describe in Remarks):
The percent of dominant species that are hydrophytic is gr HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other	eater than 50	0 percent. Hy	blogy Indicat licators: Inundated Saturated	ors (Describe in Remarks): in Upper 12 inches
The percent of dominant species that are hydrophytic is gr HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available	eater than 50	0 percent. Hy	blogy Indicat licators:	ors (Describe in Remarks): in Upper 12 inches
The percent of dominant species that are hydrophytic is gr HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other	eater than 50	0 percent. Hy	plogy Indicat licators: Inundated Saturated Water Mar	in Upper 12 inches
The percent of dominant species that are hydrophytic is gr HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available	eater than 50	0 percent. Hy	blogy Indicat dicators: Inundated Saturated Water Mar Drift Lines Sediment	in Upper 12 inches
The percent of dominant species that are hydrophytic is gr HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations:	eater than 50	etland Hydro Primary Ind	blogy Indicat dicators: Inundated Saturated Water Mar Drift Lines Sediment I Drainage F	in Upper 12 inches ks Deposits Patterns in Wetlands
The percent of dominant species that are hydrophytic is gr HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available	eater than 50	etland Hydro Primary Ind	Dlogy Indicated Saturated Water Mar Drift Lines Sediment Drainage F	in Upper 12 inches ks Deposits Patterns in Wetlands or more required):
The percent of dominant species that are hydrophytic is gr HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.)	eater than 50	etland Hydro Primary Ind	Dlogy Indicat licators: Inundated Saturated Water Mar Drift Lines Sediment I Drainage F Indicators (2	in Upper 12 inches ks Deposits Patterns in Wetlands or more required): chizospheres in Upper 12 inches
The percent of dominant species that are hydrophytic is gr HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.) Depth to Free Water in Pit: none (in.)	eater than 50	etland Hydro Primary Ind	Dlogy Indicated Saturated Water Mar Drift Lines Sediment I Drainage F Indicators (2 Oxidized F Water-Stai	in Upper 12 inches ks Deposits Patterns in Wetlands or more required): thizospheres in Upper 12 inches ned Leaves
The percent of dominant species that are hydrophytic is gr HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.) Depth to Free Water in Pit: none (in.)	eater than 50	etland Hydro Primary Ind	plogy Indicated idicators: Inundated Saturated Water Mar Drift Lines Sediment I Drainage F Indicators (2 Oxidized F Water-Stai Local Soil	in Upper 12 inches ks Deposits Patterns in Wetlands or more required): chizospheres in Upper 12 inches ned Leaves Survey Data
HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.) Depth to Free Water in Pit: none (in.) Depth to Saturated Soil: none (in.)	eater than 50	etland Hydro Primary Ind Secondary	blogy Indicat licators: Inundated Saturated Water Mar Drift Lines Sediment I Drainage F Indicators (2 Oxidized F Water-Stai	in Upper 12 inches ks Deposits Patterns in Wetlands or more required): chizospheres in Upper 12 inches ned Leaves Survey Data clain in Remarks)
The percent of dominant species that are hydrophytic is gr HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.) Depth to Free Water in Pit: none (in.)	wdrologic mod	etland Hydro Primary Ind Secondary	blogy Indicat licators: Inundated Saturated Water Mar Drift Lines Sediment I Drainage F Indicators (2 Oxidized F Water-Stai Local Soil Other (Exp	in Upper 12 inches ks Deposits Patterns in Wetlands or more required): chizospheres in Upper 12 inches ned Leaves Survey Data clain in Remarks) etc.):

Revisited 03-20-14 Project/Site: ELST Re-delineation Date: 11/8/2007 SOIL Soil Survey Data: Drainage Class: Moderately well drained Map Unit Name: Alderwood gravelly sandy loam, 15 to 30 % slopes Field Observations Confirm Mapped Type? Taxonomy (Subgroup): Entic Durochrepts Yes No X NA **Profile Description:** Depth Horizon Mottle Color Matrix Color Mottle Texture, Concretions, (Munsell Moist) Abundance/Contrast (Inches) Designation (Munsell Moist) Rhizospheres, etc. 0-16+ gravel fill **Hydric Soil Indicators:** Histosol Listed on Hydric Soils List Histic Epipedon Fe/Mn Concretions Organic Streaking in Sandy Soils Sulfidic Odor Mottles (Redoximorphic Features) Aquic or Peraguic Moisture Regime **Reducing Conditions** Other (Explain in Remarks) Gleyed or Low-Chroma Colors High Organic Content in Surface Layer Remarks (Describe soil disturbances, local variations, etc.): Gravel fill from trail bed. No hydric soil indicators are present. WETLAND DETERMINATION Is this Sampling Point Within a Wetland? **Hydrophytic Vegetation Present? Hydric Soils Present?** No Yes ____ No _X__ **Wetland Hydrology Present?** No

Data Plot #:

Wetland:

29C-SP2

Upland near 29C

Remarks

Hydric soil and hydrology criteria are not satisfied. Therefore, the sample plot is not in a wetland.

Data Plot #:	29D-SP1				
Wetland:	29D				

WETLAND DETERMINATION

(Modified from: 1987 A	COE We	etlands	Deli	ineation Ma	anual)
Project/Site: ELST Re-delineation	Date:	11/13/2007		Revisited 09-27-13	
Applicant/Owner: King County	County:				
Investigator: Chip Maney, Erik Christensen	State:	W			
☐ 1987 Method			Commu	ınity ID: PEM	
Do Normal Circumstances exist on the site?	No			ot ID: 29D-SP1	
Is the site significantly disturbed (Atypical Situation)?	es	No	Χ		
Is the area a potential Problem Area?	es	No	Χ	_	
Remarks (Explain sample location, disturbances, problem a This sample plot is located between flags 2 and 3 at the toe menziesii leans out over the trail 30 feet to the north.	,	oe. Populi	ıs bal	lsamifera are c	directly upslope and a Arbutus
VEGETATION (✓Dominant species are checked)					
Plant Species	% Cov	er Stratu	ım	Indicator	
1 . Arbutus mensiesii*	15			NL	
✓ 2. Equisetum telmateia	70	Herb		FACW	
✓ 3. Hedera helix	25	Herb		NL	
✓ 4. Scirpus microcarpus ✓ 5. Corylus cornuta*	50 60	Herb Shrub		OBL FACU	
Corylus cornuta* Populus balsamifera*	50	Tree		FAC	
morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, *Corylus cornuta, Populus balsamifera, and Arbutus mensions cover. Hydrophytic vegetation is dominate. Hydrophytic vegetation	sii were ro	oted outs	ide ot		but were hanging over to provide
HYDROLOGY					
Recorded Data (Describe in Remarks):	W	/etland H	vdrol	logy Indicator	rs (Describe in Remarks):
Stream, Lake, or Tide Gage		Primary			(Boombo III Homano).
Aerial Photograph				Inundated	
Other		>	<	Saturated in	Upper 12 inches
X No Recorded Data Available				Water Marks	3
Field Observations:			Drift Lines		
				Sediment De	•
				Drainage Pa	tterns in Wetlands
Depth of Surface Water: none (in.)		Second	dary	Indicators (2 o	or more required):
Depth to Free Water in Pit: 9 (in.)				Oxidized Rhi	zospheres in Upper 12 inches
Depth to Saturated Soil: surface (in.)				Water-Staine	
				Local Soil Su	urvey Data
				Other (Expla	in in Remarks)
Remarks (As relevant, describe recent precipitation, hydro	ologic mod	difications	, loca	al variations, et	tc.):
Saturation in the upper 12 inches satisfies wetland hydrolog	y criterion	7			
09-27-13 Observations - Shallow inundation in ditch and ad	ctive seeps	S.			

					Wetland	: 29D
Project/Site	e: ELST Re-de	elineation		Date:	11/13/2007	Revisited 09-27-13
SOIL Soil Surv	ey Data:					
Map Unit	Name: Shalc	ar Muck			Drainage Class: very poo	orly drained
				_	Field Observations Confi	rm Mapped Type?
Taxonomy	y (Subgroup):	Terric Medisaprists			Yes No _X	NA
Profile De	escription:					
Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)		Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-12	А	10YR 2/1	none		none	gravelly loam
12-16	A2	10YR 3/1	none		none	loamy sand
-	oil Indicators:					
	listosol				d on Hydric Soils List In Concretions	
	listic Epipedon sulfidic Odor				เก Concretions .nic Streaking in Sandy Soil	de.
		ic Moisture Regime			es (Redoximorphic Feature	
	Reducing Condit	•			r (Explain in Remarks)	-,
X G	Gleyed or Low-C	Chroma Colors				
н	ligh Organic Co	ntent in Surface Layer				
		disturbances, local var ndicate hydric soils	riations, etc.):			
WETLA	ND DETER	MINATION				
Hydrophy	tic Vegetation	Present? Y	es X No		Is this Samplin	g Point Within a Wetland?
Hydric Sc	oils Present?	Υ	es X No		Vaa	/ No
-	Hydrology Pre	sent? Y	es X No		Yes _>	<u> </u>

Data Plot #:

29D-SP1

Remarks

Wetland vegetation, hydrology, and soil criteria are met. Therefore, the sample plot is located in a wetland.

Data Plot #: 29D-SP2
Wetland: Upland near 29D

WETLAND DETERMINATION

(Modified from: 1987 ACOE Wetlands Delineation Manual)

Project/Site: ELST Re-delineation	1	Date: 11/13	3/2007 Revisited 09-27-13
Applicant/Owner: King County		County: Kir	ng
Investigator: Chip Maney		State: W	Α
☐ 1987 Method	ethod		Community ID: Upland Forest
Do Normal Circumstances exist on the site?	X	No	Field Plot ID: 29D-SP2
Is the site significantly disturbed (Atypical Situation)? Yes	·	No X	
Is the area a potential Problem Area?		No X	-
Remarks (Explain sample location, disturbances, problem are This sample plot is located directly upslope from sample plot 1	,	flags 2 and 3	- 3.
VEGETATION (✓Dominant species are checked) Plant Species	% Cover	Stratum	Indicator
Equisetum telmateia	40	Herb	FACW
Hedera helix Conductor accounts	90 50	Herb	NL FACIL
✓ 3. Corylus cornuta✓ 4. Populus balsamifera	75	Shrub Tree	FACU FAC
morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations, see The percent of dominant species that are hydrophytic is greate			drophytic vegetation criterion is satisfied.
HYDROLOGY			
Recorded Data (Describe in Remarks):	We	tland Hydro	logy Indicators (Describe in Remarks):
Stream, Lake, or Tide Gage		Primary India	cators:
Aerial Photograph			Inundated
Other			Saturated in Upper 12 inches
X No Recorded Data Available			Water Marks
Field Observations:			Drift Lines Sediment Deposits
			Drainage Patterns in Wetlands
Depth of Surface Water: none (in.)		Secondary	Indicators (2 or more required):
Depth to Free Water in Pit: none (in.)			Oxidized Rhizospheres in Upper 12 inches
Depth to Saturated Soil: none (in.)			Water-Stained Leaves
			Local Soil Survey Data
			Other (Explain in Remarks)
Remarks (As relevant, describe recent precipitation, hydrolo <i>No indicators of wetland hydrology are present. Wetland hydrology</i>	•	· ·	•

Project/Site	e: <u>ELST Re-de</u>	elineation		Date:	11/13/2007	·	Revisited 09-27-13
SOIL Soil Surv	ey Data:						
Map Unit	Name: Shalca	ar Muck			Drainage C	lass: very poor	rly drained
					Field Obser	vations Confire	m Mapped Type?
Taxonomy	y (Subgroup):	Terric Medisaprists			Yes	No X	NA
Profile De	escription:						
Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)		Mottle Abundance	/Contrast	Texture, Concretions, Rhizospheres, etc.
0-18	А	10YR 2/2	none		none		gravelly sandy loam
Hydric Soil Indicators: Histosol Histic Epipedon Sulfidic Odor Aquic or Peraguic Moisture Regime Reducing Conditions Gleyed or Low-Chroma Colors High Organic Content in Surface Layer					_	s in Sandy Soils orphic Features	
	•	disturbances, local va pils are present. Hydrid	riations, etc.): c soil criterion is not sa	atisfied.			
WETLA	ND DETER	MINATION					
Hydrophy	tic Vegetation	Present?	res X No		ls	this Sampling	Point Within a Wetland?
•	oils Present?			X		Yes	No X
Wetland I	Hydrology Pre	sent?	/es No _	X			

Data Plot #:

Wetland:

29D-SP2

Upland near 29D

Remarks

Hydric soil and wetland hydrology criteria are not satisfied. Therefore, the sample plot is not located in a wetland.

Data Plot #:	29D-SP3
Wetland:	29D

WETLAND DETERMINATION

(Modified from: 1987	ACOE W	etlands	Delineation Mar	nual)
Project/Site: ELST Re-delineation		Date:	11/13/2007	Revisited 09-27-13
Applicant/Owner: King County		County:	King	
Investigator: Chip Maney, Erik Christensen			WA	
☐ 1987 Method	St. Method		Communi	ty ID: PSS
Do Normal Circumstances exist on the site?	Yes X	No		ID: 29D-SP3
Is the site significantly disturbed (Atypical Situation)?	Yes	No	X	<u> </u>
Is the area a potential Problem Area?	Yes	No	X	
Remarks (Explain sample location, disturbances, problet This sample plot is located 20 feed downslope (south/sour rotted trunk.	,	ags 10 and	l 11, and 10 feet east	northeast of an Alnus rubra with
VEGETATION (✓Dominant species are checked) Plant Species	% Cov	ver Stratu	m Indicator	_
All to CP Co. to	5	Herb	FAC	
1. Athyrium tilix-remina 2. Ribes lacustre	15	Shrub	FAC+	
3 . Rubus armeniacus	15	Shrub	FACU	
✓ 4. Rubus spectabilis	50	Shrub	FAC+	
✓ 5. Alnus rubra	50	Tree	FAC	
morphological adaptations to wetlands. "T" indicates trace Remarks (Describe disturbances, relevant local variation The percent of dominant species that are hydrophytic is g	ns, seasonal		•	tion criterion is satisfied.
HYDROLOGY				
Recorded Data (Describe in Remarks):	V	Vetland H	vdrology Indicators	(Describe in Remarks):
Stream, Lake, or Tide Gage			Indicators:	
Aerial Photograph			Inundated	
Other		>	Saturated in U	pper 12 inches
X No Recorded Data Available			Water Marks	
Field Observations:			Drift Lines	
1.000 0000110.00001			Sediment Dep	
			Drainage Patte	erns in Wetlands
Depth of Surface Water: none (in.)		Second	lary Indicators (2 or i	more required):
Depth to Free Water in Pit: 10 (in.)			Oxidized Rhizo	ospheres in Upper 12 inches
Depth to Saturated Soil: <u>surface</u> (in.)		-	Water-Stained	
			Local Soil Surv	vey Data
			Other (Explain	in Remarks)
Remarks (As relevant, describe recent precipitation, hy	drologic mo	difications	, local variations, etc.):
Saturation in the upper 12 inches satisfies wetland hydro	ŭ		,	,

					Wetland	i: 29D
						D
Project/Site	: ELST Re-de	elineation		Date:	11/13/2007	Revisited 09-27-13
SOIL Soil Surve	SOIL Soil Survey Data: Map Unit Name: Shalcar Muck					
Map Unit N					Drainage Class: very po	orly drained
					Field Observations Confi	irm Mapped Type?
Taxonomy	(Subgroup):	Terric Medisaprists			Yes No _X	NA
Profile De	scription:					
Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)		Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-18	А	10YR 2/1	none		none	mucky loam
Hi Hi St At At X G Hi Remarks	educing Condit leyed or Low-C gh Organic Co	Chroma Colors intent in Surface Layer disturbances, local va		Fe/M Orga Mottle	d on Hydric Soils List in Concretions nic Streaking in Sandy Soi es (Redoximorphic Feature r (Explain in Remarks)	
Hydrophy Hydric So	ND DETER tic Vegetation ils Present? Hydrology Pre	Present?	/es <u>X</u> No /es <u>X</u> No /es X No			ng Point Within a Wetland?

Data Plot #:

29D-SP3

Remarks

Wetland vegetation, hydrology, and soil criteria are met. Therefore, the sample plot is located in a wetland.

Data Plot #:	30B-SP1
Wetland:	30B

WETLAND DETERMINATION

(Modified from: 1987 ACOE Wetlands Delineation Manual)

(modified from: 1507 Ac	, O = 111	otianao bo	oution i	- Indiana
Project/Site: ELST Re-delineation	Date: 1/1	1/2008	Revisited 09-27-13	
Applicant/Owner: King County	County: K	(ing		
Investigator: Matt Maynard, Erik Christensen		State: W	/A	
☐ 1987 Method	/lethod		Comn	munity ID: PSS 09-27-13 - PFO
Do Normal Circumstances exist on the site?	s <u>X</u>	No	Field	Plot ID: 30B-SP1
Is the site significantly disturbed (Atypical Situation)? Yes	3	No X		1 101 151 161 161 1
Is the area a potential Problem Area?		No X		
Remarks (Explain sample location, disturbances, problem as		110 <u>X</u>	_	
This sample plot is located 12 feet northwest of the boardwalk	,	rth of the large	e woody debri	is.
VEGETATION (✓Dominant species are checked)				09-27-13 Observations
Plant Species	% Cov	er Stratum	Indicator	Athyrium filix-femina 5% Phalaris arundinacea 5%
1 . Athyrium filix-femina	5	Herb	FAC	Solanum dulcamara trace
✓ 2. Equisetum telmateia	25	Herb	FACW	Cornus sericea 20%
3 . Oenanthe sarmentosa	5	Herb	OBL	Rubus armeniacus trace
 4 . Phalaris arundinacea 	70	Herb	FACW	Alnus rubra 70% Physocarpus capitatus 55%
✓ 5. Solanum dulcamara	40	<u>Herb</u>	FAC+	- Rubus spectabilis 10%
6. Cornus sericea	15	Shrub	FACW	Lonicera involucrata 15%
7. Rubus armeniacus	trace	Shrub	FACU	-
8 Salix spp.	15	Shrub		_
✓ 9 Alnus rubra	35	Tree	FAC	-
Percent of Dominant Species that are OBL, FACW, or FA (except FAC-). Include species noted (*) as showing		00		
morphological adaptations to wetlands. "T" indicates trace.				
Remarks (Describe disturbances, relevant local variations, s	easonal	effects, etc.):		
The percent of dominant species that are hydrophytic is great	er than 5	50 percent. Hy	drophytic veg	getation criterion is satisfied.
HYDROLOGY				
Recorded Data (Describe in Remarks):	W	Vetland Hydro	ology Indicat	tors (Describe in Remarks):
· · · · · · · · · · · · · · · · · · ·	•	Primary Inc		(Beschbe in Hemania).
Stream, Lake, or Tide Gage			Inundated	
Aerial Photograph		X	_	in Upper 12 inches
Other			Water Mar	
X No Recorded Data Available		-	Drift Lines	
Field Observations:		-	Sediment	
			_	Patterns in Wetlands
Depth of Surface Water: none (in.)		Secondary	Indicators (2	2 or more required):
Depth to Free Water in Pit: 15 (in.)		Occordary		
Depth to Saturated Soil: surface (in.)				Rhizospheres in Upper 12 inches
		•		ined Leaves
			_	Survey Data
			_	olain in Remarks)
Remarks (As relevant, describe recent precipitation, hydrol	•	-	cal variations,	etc.):
Saturation in the upper 12 inches satisfies wetland hydrology	criterior	1.		
09-27-13 Observations - Soil saturation to the surface. Drain	age char	nnel with flowi	ng water (flow	wing north) near sample plot.

Project/Site: ELST Re-delineation			Da	ate:	1/11/2008		[Revisited 09-27-13	
SOIL Soil Surv	vey Data:								
Map Unit	Name: Alderv	vood gravelly sandy lo	am 15 to 30%	% slopes		Drainage	Class: M	oderat	ely well drained
						Field Obs	ervations	Confir	m Mapped Type?
Taxonomy	y (Subgroup):	Dystic Durochrepts				Yes	No	Χ	NA
Profile De	escription:								
Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)		Mottle Color (Munsell Moist)		Mottle Abundance/Contrast		st	Texture, Concretions, Rhizospheres, etc.
0-5	A1	10YR 2/1	none			none			silt loam
5-10	A2	10YR 3/1	none			none			sandy gravelly loam
10-17	A2	7.5YR 2.5	none			none			muck
Hydric Soil Indicators: Histosol Histic Epipedon Sulfidic Odor Aquic or Peraguic Moisture Regime Reducing Conditions X Gleyed or Low-Chroma Colors High Organic Content in Surface Layer Remarks (Describe soil disturbances, local variations, etc.): Low-chroma soil matrix colors indicates hydric soils.					Fe/Mr Orgar Mottle	d on Hydric n Concretio nic Streakin es (Redoxin r (Explain in	ns g in Sand norphic F	ly Soils	
Hydrophy	AND DETER ytic Vegetation pils Present?	Present?	res X	No	_	I	s this Sa Ye	•	g Point Within a Wetland?

Data Plot #:

Wetland:

30B-SP1

30B

Remarks

Wetland vegetation, hydrology, and soil criteria are met. Therefore, the sample plot is located in a wetland.

Data Plot #: 30B-SP2
Wetland: Upland near 30B

WETLAND DETERMINATION

(Modified from: 1987 ACOE Wetlands Delineation Manual)

Is the site significantly disturbed (Atypical Situation)?	t. Method /es X /es	County: State: No No X		Revisited 09-27-13 munity ID: Upland Shrubs 09-27-13 - Forest Plot ID: 30B-SP2
VEGETATION (✓Dominant species are checked) Plant Species 1. Equisetum telmateia 2. Polystichum munitum 3. Rubus armeniacus ✓ 4. Rubus spectabilis 5. Rubus ursinus 6. Acer macrophyllum Percent of Dominant Species that are OBL, FACW, or (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. "T" indicates trace. Remarks (Describe disturbances, relevant local variations	100 s, seasonal e	Herb Herb Shrub Shrub Shrub Tree	,	09-27-13 Observations Equisetum telmateia 10% Polystichum munitum 5% Rubus armeniacus 50% Rubus spectabilis 60% Rubus ursinus 5% Acer macrophyllum 70% Fraxnius latifolia 5%
HYDROLOGY Recorded Data (Describe in Remarks): Stream, Lake, or Tide Gage Aerial Photograph Other X No Recorded Data Available Field Observations: Depth of Surface Water: none (in.) Depth to Free Water in Pit: none (in.) Depth to Saturated Soil: none (in.) Remarks (As relevant, describe recent precipitation, hydrology are present. Wetland in the street of the	W e	Primary Ir Secondar	rology Indicators: Inundated Saturated Water Mar Drift Lines Sediment Drainage F y Indicators (2 Oxidized F Water-Sta Local Soil Other (Expocal variations,	in Upper 12 inches rks Deposits Patterns in Wetlands 2 or more required): Rhizospheres in Upper 12 inches ined Leaves Survey Data plain in Remarks)

Project/Site	: ELST Re-de	elineation		Date:	1/11/2008	[Revisited 09-27-13
SOIL Soil Surve	ey Data:						
Map Unit N	Name: Alderv	vood gravelly sandy loa	m, 15 to 30 % slopes		Drainage Class: N	1oderate	ely well drained
					Field Observations	Confir	m Mapped Type?
Taxonomy	(Subgroup):	Dystic Durochrepts			Yes No	Х	NA
Profile De	scription:						
Depth (Inches)	Horizon Designation	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)		Mottle Abundance/Contra	ıst	Texture, Concretions, Rhizospheres, etc.
0-16	Α	7.5YR 2.5/2	none		none		gravelly sandy loam
Hydric Soil Indicators: Histosol Histic Epipedon Sulfidic Odor Aquic or Peraguic Moisture Regime Reducing Conditions Gleyed or Low-Chroma Colors High Organic Content in Surface Layer				Fe/M Orga	d on Hydric Soils Lis n Concretions nic Streaking in San es (Redoximorphic F r (Explain in Remark	dy Soils eatures	
No indicate	`	disturbances, local var bil are present. Hydric s	. ,	sfied.			
	tic Vegetation		es X No		Is this Sa	amplino	g Point Within a Wetland?
Hydric Soi	ils Present? lydrology Pres	Υ	es No	<u>(</u>	Υє		NoX

Data Plot #:

Wetland:

30B-SP2

Upland near 30B

Remarks

Wetland vegetation, hydrology, and soil criteria are not met. Therefore, the sample plot is not located in a wetland.

APPENDIX B

Wetland Rating Forms

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 wo	etland (if known):	15A			Date of	f site visit	: 05-05-09	(rev: 03-11	<u>l-14)</u>
Rated by:_	Colin Worsley / Ma	att Maynard Ti	rained by I	Ecology? Yes_	<u>X</u> No D	ate of trai	ining: <u>11</u> -	2005 / 04-2	2006
SEC:	07 TOWN	SHIP: <u>24N</u>	RANGE:	06E I	s S/T/R in App	endix D?	Yes	NoX	<u> </u>
	Map of	wetland unit: Fig	gure	Est	timated size_~	0.50 acre			
			SUMMAI	RY OF RATIN	G				
Category b	pased on FUNCTIO	NS provided by v	wetland:]	[ш	_ III	X	IV	
	Category I = So	core > 70		Score for Wate	er Quality Func	tions	1	8	
	Category II = So	core 51 - 69		Score for H	ydrologic Func	tions	8	3	
	Category III = So	core 30 – 50		Score fo	or Habitat Func	tions	1	6	
	Category IV = So	core < 30	TOTAL Score for Functions 42						
Category b	ased on SPECIAL C	HARACTERIST	CS of Wetl	and I	II	Do	oes not ap	ply X	
	F	inal Categor	y (choose	the "highest" c	ategory from al	oove")	11	Ί	
	Sum	mary of basic inf	ormation :	about the wetla	and unit.				
		Init has Special			HGM Class				
		acteristics			r Rating				
	Estuarine			Depressional Riverine					
	Bog	ritage Wetland		Lake-fringe		X			
	Mature For	est		Slope Slope		(x)			
	Old Growth			Flats		(A)			
	Coastal Lag			Freshwater T	idal				
	Interdunal	, • • • •							
	None of the	above	X	Check if unit h		X			
Does the w	etland being rated	meet any of the c	riteria hel	ow? If you ans	wer YES to any	of the au	iestions be	elow vou wi	11

Does the wetland 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 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 1 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.

Classification of Vegetated Wetlands for 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 a Saltwater Tidal Fringe it
	is rated as an Estuarine wetland. Wetlands that were call 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 only source (>90%) of water to it. Groundwater and surface water
۷.	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.	
٥.	Does the entire wetland 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) where at least 20 acres (8ha) in size;
	At least 30% of the open water area is deeper than 6.6 (2 m)?
	NO – go to 4 YES – The wetland class is Lake-fringe (Lacustrine Fringe)
4	
4.	Does the entire wetland meet all of the following criteria? The wetland is on a slope (slope can be very gradual).
	The wettand is on a slope (stope 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 types of wetlands except occasionally in very small and
	shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).
	NO – go to 5 YES – The wetland class is Slope
5.	Does the entire wetland 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 of
	the year. This means that any outlet, if present is higher than the interior of the wetland.
	$\frac{1}{NO - go}$ to $\frac{1}{VES}$ – The wetland class is Depressional
7.	Is the entire wetland 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 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

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	Treat as ESTUARINE under wetlands with special
freshwater wetland	characteristics

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

than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

L	Lake-fringe Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that the wetland unit functions to improve water quality.	only 1 score
L 1	Does the wetland unit have the <u>potential</u> to improve water quality? (see p.59)	per box)
	L 1.1 Average width of vegetation along the lakeshore (use polygons of Cowardin classes): • Vegetation is more than 33 ft. (10m) wide	Figure
	L 1.2 Characteristics of the vegetation in the wetland: Choose the appropriate description that results in the highest points, and do not include any open water in your estimate of coverage. The herbaceous plants can be either the dominant form or as an understory in a shrub or forest community. These are not Cowardin classes. Area of Cover is total cover in the unit, but it can be in patches. NOTE: Herbaceous does not include aquatic bed. • Cover of herbaceous plants is > 90% of the vegetated area	Figure
	 Other vegetation that is not aquatic bed or herbaceous covers > 2/3 of the unit points = 3 Other vegetation that is not aquatic bed in > 1/3 vegetated area points = 1 Aquatic bed cover and open water > 2/3 of the unit points = 0 Map with polygons of different vegetation types Add the points in the boxes above	9
L 2	Does the wetland have the opportunity to improve water quality?	(see p.61)
L 2	Answer YES if you know or believe there are pollutants in the lake water, or polluted surface water flowing through the unit to the lake. 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. Wetland is along the shores of a lake or reservoir that does not meet water quality standards Grazing in the wetland or within 150 ft Polluted water discharges to wetland along upland edge Tilled fields or orchards within 150 ft. of wetland	(see p.01)
	Residential or urban areas are within 150 ft. of wetland Parks with grassy areas that are maintained, ballfields, golf courses (all within 150 ft. of lake shore)	Multiplier X2
	TOTAL – Water Quality Functions Multiply the score from L1 by L2; then add score to table on p. 1	18
	HYDROLOGIC FUNCTIONS – Indicators that wetland functions to reduce shoreline erosion.	10
L 3	Does the wetland have the potential to reduce shoreline erosion?	(see p.62)
	L 3 Average width and characteristics of vegetation along the lakeshore (do not include aquatic bed): (choose the highest scoring description that matches conditions in the wetland) • 3/4 of distance is shrubs or forest at least 33 ft. (10m) wide	Figure
	 1/4 of distance is shrubs or forest at least 33 ft. (10m) wide. Vegetation is at least 6 ft. (2m) wide (any type except aquatic bed). Vegetation is less than 6 ft. (2m) wide (any type except aquatic bed). Aerial photo or map with Cowardin vegetation classes 	4
	Record the points in the boxes above	4
L 4	Does the wetland have the opportunity to reduce erosion? Are there features along the shore that will be impacted if the shoreline erodes? <i>Note which of the following conditions apply.</i> X There are human structures and activities along the upland edge of the wetland (buildings, fields) that can be damaged by erosion.	(see p. 64) Multiplier
	There are undisturbed natural resources along the upland edge of the wetland (e.g. mature forests, other wetlands) that can be damaged by shoreline erosion. Other YES multiplier is 2 NO multiplier is 1	X2
		Q
•	<u>TOTAL</u> – Hydrologic Functions Multiply the score from L3 by L4; then <i>add score to table on p. 1</i>	8

Comments: Majority of herbaceous vegetation is maintained lawn.

Thes	e questions apply to wetlands of all HGM classes.	Points
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	(only 1 scor per box)
H 1	Does the wetland have the <u>potential</u> 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 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres. Aquatic Bed	Figure
	Emergent plants Scrub/shrub (areas where shrubs have > 30% cover) X Forested (areas where trees have > 30% cover) If the unit has a forested class check if: X The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. Add the number of vegetation types that qualify. If you have: 4 structures or more points = 4 2 structures	= 2
	2 structures	
	Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods). Permanently flooded or inundated Seasonally flooded or inundated Occasionally flooded or inundated Saturated only Permanently flowing stream or river in, or adjacent to, the wetland Lake-fringe wetland Lake-fringe wetland	3 2 1 0
	Freshwater tidal wetland = 2 points Map of hydroperio	ds
	H 1.3 Richness of Plant Species (see p. 75): Count the number of plant species in the wetland that cover at least 10 ft² (different patches of the sa 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	ne 1
	H 1.4 Interspersion of Habitats (see p. 76): Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.	or
	Note: If you have 4 or more classes and open water, the rating is always "high".	
	Use map of Cowardin class [riparian braided channels]	ses. 2
	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 polynou put into the next column. Large, downed, woody debris within the wetland (> 4 in. 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 le 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 (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have	ast 0
	not yet turned grey/brown) At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas are permanently or seasonally inundated (structures for egg-laying by amphibians)	
	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.	

Н 2	Does t	he wetland have the opportunity to provide habitat for many species?	(only 1 score per box)
	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". 100m (330 ft) 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)	Figure
	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 a 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 50 ft. 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 Lakefringe wetland, if it does not have an undisturbed corridor as in the question above? YES = 2 points (go to H 2.3) NO = go to 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 miles of a large field or pasture (> 40 acres) OR • Within 1 mile of a lake greater than 20 acres? NO = 0 points	2

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): (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/habp/hslist.htm) Which of the following priority habitats are within 330 ft. (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 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: 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). X. 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). X. Instream: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. Nearshore: Relatively undisturbed nearshore habitats. These in	3
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)	
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 1/2 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 developmentpoints = 5 • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile	3
H 2 TOTAL Score – opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4	9
TOTAL for H 1 from page 8	7
◆ Total Score for Habitat Functions Add the points for H 1 and H 2; then record the result on p. 1	16

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.	
SC1	Estuarine wetlands? (see p.86)]
BCI	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.	
	Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC	Cat. 1
	332-30-151? YES = Category I NO = go to SC 1.2	Cat. 1
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions?	
	YES = Category I NO = Category II	Cat. I
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has	Cat. 1
	less than 10% cover of non-native plant species. If the non-native Spartina spp, are only species	Cat. II
	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	0 22
	with native species would be a Category 1. Do not, however, exclude the area of Spartina in	
	determining the size threshold of 1 acre. At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	Dual
	or un-mowed grassland	Rating
	The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	I/II
SC2	Natural Heritage Wetlands (see p. 87)	
SCZ	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 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 X	
	SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species?	Cat I
	YES = Category 1 NO not a Heritage Wetland	Cat 1
SC3	Bogs (see p. 87)	
SCS	Does the wetland (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 function.	
	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 soil profile? (See Appendix B for a field key to	
	identify organic soils)? YES = go to question 3 NO = go to question 2 2. Does the wetland 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 question 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 question 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. 4. 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)?	Cat. I
	YES = Category I NO = Is not a bog for purpose of rating	

SC4	Forested Wetlands (see p. 90)	
	Does the wetland 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 function.	
	Old-growth forests: (west of Cascade Crest) Stands of at least two three 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 an average diameters (dbh) exceeding 21 inches (53 cm); 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.	Cat. I
	YES = Category I NO = \underline{X} not a forested wetland with special characteristics	Cut. 1
COF	Wetlands in Coastal Lagoons (see p. 91)	
SC5	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 \underline{X} not a wetland in a coastal lagoon	
	SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has	
	less than 20% cover of invasive plant species (see list of invasive species on p. 74). At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	
		G . T
	or un-mowed grassland.	Cat. I
	The wetland is larger than 1/10 acre (4350 square ft.)	G . TT
	YES = Category I NO = Category II	Cat. II
SC6	Interdunal Wetlands (see p. 93)	
	Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or	
	WBUO)?	
	YES = Go to SC 6.1 NO \underline{X} 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 103 • 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 one acre or larger?	
	YES = Category II $\frac{1}{100}$ NO = go to SC 6.2	Cat. II
	SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?	Cat. 11
	YES = Category III	Cat. III
	Category of wetland based on Special Characteristics	Cut. 111
	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	NA
	if you allowed to for all types effect. Not repried to b. 1	INA

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): 15BC			_ Date of	site visit: 03	-11-14
Rated by: Colin Worsley / Matt Maynard Train	ned by Ecolo	gy? Yes <u>X</u> No D	ate of trai	ning: <u>11-2005</u>	/ 04-2006
SEC: 07 TOWNSHIP: 24N	RANGE:	<u>06E</u> Is S/T/R in App	pendix D?	Yes	NoX _
Map of wetland unit: I	Figure	Estimated size	-0.15 acre		
		<u> </u>			
		RY OF RATING			
Category based on FUNCTIONS provided by	y wetland: I	II	III	IV_	X
Category I = Score > 70		Score for Water Quality Fun	ctions	4	
Category II = Score 51 - 69		Score for Hydrologic Fun		10	
Category III = Score 30 – 50		Score for Habitat Fun		13	
Category IV = Score < 30		TOTAL Score for Fun	ctions	27	
Category based on SPECIAL CHARACTERIS	TICS of Wet	land I II	D	oes not apply_	X
Final Catego	Ory (choose	the "highest" category from a	ıbove")	IV	
Summary of basic in	nformation a	about the wetland unit.			
Wetland Unit has Special		Wetland HGM Class			
Characteristics		used for Rating			
Estuarine		Depressional	X		
Natural Heritage Wetland		Riverine	(x)		
Bog		Lake-fringe			
Mature Forest		Slope	(x)		
Old Growth Forest		Flats			
Coastal Lagoon		Freshwater Tidal			
Interdunal					
None of the above	X	Check if unit has multiple HGM classes present	X		
Does the wetland being rated meet any of the	criteria bel	ow? If you answer YES to ar	ny of the q	uestions 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 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 1 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.

Classification of Vegetated Wetlands for 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.	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 a Saltwater Tidal Fringe it
	is rated as an Estuarine wetland. Wetlands that were call 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).
<u> </u>	
۷.	The entire wetland unit is flat and precipitation is 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 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) where at least 20 acres (8ha) in size;
	At least 30% of the open water area is deeper than 6.6 (2 m)? NO – go to 4 YES – The wetland class is Lake-fringe (Lacustrine Fringe)
4	
4.	Does the entire wetland 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 types of wetlands except occasionally in very small and
	shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep). NO – go to 5 YES – The wetland class is Slope
5	Does the entire wetland meet all of the following criteria?
٠.	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 of 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 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 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	Treat as ESTUARINE under wetlands with special
freshwater wetland	characteristics

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

	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
D 1	Does the wetland have the <u>potential</u> to improve water quality?	(see p.38)
υı	D 1.1 Characteristics of surface water flows out of the wetland:	
	• Unit is a depression with no surface water leaving it (no outlet)points = 3	Figure
	• Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet points = 2	1
	 Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 1 Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface 	1
	outflow and no obvious natural outlet and/or outlet is a man-made ditch	
	(If ditch is not permanently flowing treat unit as "intermittently flowing") Provide photo or drawing	
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions) YES points = 4 NO points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class):	
	• Wetland has persistent, ungrazed vegetation > = 95% of area	Figure
	 Wetland has persistent, ungrazed vegetation > = 1/2 of area	1
	• Wetland has persistent, ungrazed vegetation $> 1/10$ of area	1
	Map of Cowardin vegetation classes	
	D 1.4 Characteristics of seasonal ponding or inundation: This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently	Figure
	ponded. Estimate area as the average condition 5 out of 10 years.	119010
	• Area seasonally ponded is > 1/2 total area of wetland	
	 Area seasonally ponded is > 1/4 total area of wetland	0
	Map of Hydroperiods	
	Total for D 1 Add the points in the boxes above	2
D 2	Does the wetland have the opportunity to improve water quality?	(see p. 44)
_	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 or orchards within 150 ft. of wetland A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed	
	fields, roads, or clear-cut logging	N 414:1:
	X Residential, urban areas, golf courses are within 150 ft. of wetland Wetland is fed by groundwater high in phosphorus or nitrogen	Multiplier
	Wetland is fed by groundwater high in phosphorus or hitrogen Other	X2
	YES multiplier is 2 NO multiplier is 1	
♦	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1	4
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	_
	Does the wetland have the potential to reduce flooding and erosion?	1
D 3	boes the wettand have the potential to reduce mooding and crosion.	(see p.46)
D 3	D 3.1 Characteristics of surface water flows out of the wetland unit	
D 3	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	
D 3	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	
D 3	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	
D 3	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	2
D 3	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	2
D 3	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	2
D 3	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	2
D 3	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	2
D 3	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	2
D 3	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	2
D 3	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	2
D 3	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	2
D 3	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet) points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch points = 1 (If ditch is not permanently flowing treat unit as "intermittently flowing") • Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0 D 3.2 Depth of storage during wet periods. Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry). • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet points = 7 • The wetland is a "headwater" wetland points = 5 • 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 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1 • Marks of ponding less than 0.5 ft. points = 0 D 3.3 Contribution of wetland unit 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.	0
D 3	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet) points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch points = 1 (If ditch is not permanently flowing treat unit as "intermittently flowing") • Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0 D 3.2 Depth of storage during wet periods. Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry). • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet points = 7 • The wetland is a "headwater" wetland points = 5 • 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 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1 • Marks of ponding less than 0.5 ft. points = 0 D 3.3 Contribution of wetland unit 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 unit. points = 3	0
D 3	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	0

D 4	Does the wetland have the <u>opportunity</u> to reduce flooding and erosion? Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. <i>Note which of the following indicators of opportunity apply</i> .	
	Wetland is in a headwater of a river or stream that has flooding problems. X Wetland drains to a river or stream that has flooding problems Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems Other YES multiplier is 2 NO multiplier is 1	
	TES multiplier is 2 NO multiplier is 1	
•	TOTAL – Hydrologic Functions Multiply the score from D3 by D4; then <i>add score to table on p. 1</i>	10

Thes	e questions apply to wetlands of all HGM classes.	Points
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	(only 1 score
H 1	Does the wetland have the <u>potential</u> 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 1/4 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)	Figure
	X Forested (areas where trees have > 30% cover) If the unit has a forested class check if: X The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. Add the number of vegetation types that qualify. If you have: 4 structures or more points = 4 2 structures points = 1 1 structure points = 0	2
	H 1.2 Hydroperiods (see p.73):	Figure
	Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods). Permanently flooded or inundated 4 or more types present points = 3 Seasonally flooded or inundated 3 or more types presentpoints = 2 Occasionally flooded or inundated 2 types presentpoints = 1 X Saturated only 1 type presentpoints = 0 Permanently flowing stream or river in, or adjacent to, the wetland Seasonally flowing stream in, or adjacent to, the wetland Lake-fringe wetland	1
	Freshwater tidal wetland = 2 points Map of hydroperiods	
	H 1.3 Richness of Plant Species (see p. 75): Count the number of plant species in the wetland that cover at least 10 ft² (different patches of the same species can be combined to meet the size threshold) You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle. If you counted: > 19 species	1
	H 1.4 Interspersion of Habitats (see p. 76): Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), 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 Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high".	
	Use map of Cowardin classes. Fight = 3 points Fight Fig	1
	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 (> 4 in. 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 (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned grey/brown) At least 1/4 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)	0
	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.	

Н 2	Does t	he wetland have the opportunity to provide habitat for many species?	(only 1 score per box)
	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". 100m (330 ft) 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)	Figure
	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 a 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 50 ft. 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 Lakefringe wetland, if it does not have an undisturbed corridor as in the question above? YES = 2 points (go to H 2.3) NO = go to 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 miles of a large field or pasture (> 40 acres) OR Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): (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 330 ft. (100m) of the wetland unit? NOTE: the connections do not have to be relatively undisturbed. Aspen Stands: Puer 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%; 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). X. 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). X. Instream: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. Nearshore: Relatively undisturbed nearshore habitats. These in	3
	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 1/2 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 developmentpoints = 5 • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 milepoints = 5 • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbedpoints = 3 • The wetland fringe on a lake with disturbance and there are 3 other lake-fringe wetlands within 1/2 milepoints = 3 • There is at least 1 wetland within 1/2 milepoints = 2 • There are no wetlands within 1/2 milepoints = 0 H 2 TOTAL Score – opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4	3
	TOTAL for H 1 from page 8	5
*	Total Score for Habitat Functions Add the points for H 1 and H 2; then record the result on p. 1	13
	-	

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.	
SC1		
BCI	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 X 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	Cat. 1
	332-30-151? YES = Category I NO = go to SC 1.2	Cat. 1
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions?	
	YES = Category I NO = Category II	Cat. I
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has	Cat. 1
	less than 10% cover of non-native plant species. If the non-native <i>Spartina</i> spp., are only species	Cat. II
	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 1. Do not, however, exclude the area of Spartina in	
	determining the size threshold of 1 acre. At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	Dual
	or un-mowed grassland	Rating
	The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	I/II
SC2	Natural Heritage Wetlands (see p. 87)	
SCZ	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 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 X	
	SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species?	Cat I
	YES = Category 1 NO not a Heritage Wetland	Cat 1
SC3	Bogs (see p. 87)	
303	Does the wetland (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 function.	
	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 soil profile? (See Appendix B for a field key to	
	identify organic soils)? YES = go to question 3 NO = go to question 2 2. Does the wetland 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 question 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 question 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. 4. 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)?	Cat. I
	YES = Category I NO = Is not a bog for purpose of rating	

Does the wetland 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 function. — Old-growth forests: (west of Cascade Crest) Stands of at least two three 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 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 1010%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. YES = Category 1 NO = X not a forested wetland with special characteristics SCS 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 X not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasi		E4-1 W-411- (00)	
and Wildlife's forests as priority habitats? If you answer yes you will still need to rate the wetland based on its function. — Old-growth forests: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hetare) that are at least 200 years of age QR 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 an average diameters (dbh) exceeding 21 inches (83 cm); 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. YES = Category I NO = X not a forested wetland with special characteristics 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 _X not a wetland in a coastal lagoon YES = Category I NO = Category II Cat. II YES = Category I NO = Category II Cat. II In practical terms that means the following three conditions? YES = Category II NO = Category II Cat. II Cat. II Cat. II Cat. II Category of wetland based on Special Characteristits Choose the "highest" rating if wetland falls into several categor	SC4	Forested Wetlands (see p. 90)	
Disased on its function. Old-growth forests: (west of Cascade Crest) Stands of at least two three 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 an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less			
Old-growth forests: (west of Cascade Crest) Stands of at least two three 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 an average diameters (dbh) exceeding 21 inches (53 cm); 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. YES = Category I NO = X not a forested wetland with special characteristics Wetlands in Coastal Lagoons (see p. 91) Does the wetland the eval and 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 X not a wetland in a coastal lagoon SC 5.1 Does 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 3/4 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 ft.) YES = Gategory I NO = Category II Cat. II YES = Go to SC 6.1 NO X not an interdunal wetland for rating Hyou answer yes you will still need to rate the wetland based on its functions. In practical terms that means the following geographic areas: 1 Long Beach Peninaisa - lands west of SR 115 and SR 109 SC 6.1 Is the wetland one			
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 an average diameters (dbh) exceeding 21 inches (53 cm); 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. YES = Category 1 NO _ X_ not a forested wetland with special characteristics Wetlands in Constal Lagoons (see p. 91) Does the wetland fies 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 NOX_ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive pate) and the sees than 20% cover of invasive plant species (see list of invasive pate) and year of un-mowed grassland. The wetland is larger than 1/10 acre (4350 square ft.) YES = Category II NO = Category II SC 6.1 Interdunal Wetlands (see p. 93) Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NOX_ not an interdunal wetland			
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 an average diameters (dbh) exceeding 21 inches (53 cm); 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. YES = Category I NO = X not a forested wetland with special characteristics Wetlands in Coastal Lagoons (see p. 91) Does 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 X not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). At least 3/4 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 ft.) YES = Gategory I NO = Category II Cat. II The defaunal Wetlands (see p. 93) Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBLO)? YES = Go to SC 6.1 NO X not an interdunal wetland for rating If you answer yes you will still need to rate the wetland based on it			
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 tree 80 − 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); 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. YES = Category I No = X not a forested wetland with special characteristics 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 _ X not a wetland in a coastal lagoon YES = Go to SC 5.1 No _ X not a wetland in a coastal lagoon 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 3/4 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 ft,) YES = Category I No = Category II No = Category II Sc 6.1 Interdunal Wetlands (see p. 93) Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 No _ X not an interdunal wetland for rating If you answer yes you will still need to rate the wetland based on it			
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 an average diameters (dbh) exceeding 21 inches (53 cm); 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. YES = Category 1 NO = X not a forested wetland with special characteristics Wetlands in Coastal Lagoons (see p. 91) Does 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 X not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). At least 344 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 ft.) YES = Category I NO = Category II Cat. II SC6 Interdunal Wetlands (see p. 9.3) Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO X 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 ~ lan			
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 an average diameters (dbh) exceeding 21 inches (53 cm); 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. YES = Category 1 No = X		,	
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 an average diameters (dbh) exceeding 21 inches (53 cm); 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. YES = Category 1 NO = X not a forested wetland with special characteristics Wetlands in Coastal Lagoons (see p. 91) Does the wetland met 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 X not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). At least 3/4 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 ft.) YES = Category I NO = Category II SC6 Interdunal Wetlands (see p. 93) Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO X 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 103 • Ocean Shores-Copalis - lands west of SR 105 • Ocean Sho			
Mature forests: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dob) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. YES = Category I NO = X not a forested wetland with special characteristics NO = X			
OR have an average diameters (dbh) exceeding 21 inches (53 cm); 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. YES = Category I NO = X not a forested wetland with special characteristics Wetlands in Coastal Lagoons (see p. 91) Does 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 X not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). At least 3/4 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 ft.) YES = Category I NO = Category II SC6 Interdunal Wetlands (see p. 9.3) Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO X 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 105 Ocean Shores-Copalis lands west of SR 105 Cocan Shores-Copalis lands west of SR 105 Cocan Shores-Copalis lands west of SR 105 Cat. II Cat. III Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record o			
OR have an average diameters (dbh) exceeding 21 inches (53 cm); 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. YES = Category I NO = X not a forested wetland with special characteristics Wetlands in Coastal Lagoons (see p. 91) Does 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 X not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). At least 3/4 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 ft.) YES = Category I NO = Category II SC6 Interdunal Wetlands (see p. 9.3) Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO X 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 105 Ocean Shores-Copalis lands west of SR 105 Cocan Shores-Copalis lands west of SR 105 Cocan Shores-Copalis lands west of SR 105 Cat. II Cat. III Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record o		Mature forests: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old	
Cat. I			
Less than that found in old-growth. YES = Category I NO = X not a forested wetland with special characteristics			
YES = Category I			Cat. I
SC5 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 X not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). At least 3/4 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 ft.) YES = Category I NO = Category II SC6 Interdunal Wetlands (see p. 93) Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO X 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 105 Ocean Shores-Copalis - land			
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 X not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). At least 3/4 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 ft.) YES = Category I NO = Category II Cat. II SC6 Interdunal Wetlands (see p. 93) Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO X 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 105 Cat. II SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland 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. III Cat. III	COF		
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 X not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). At least 3/4 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 ft.) YES = Category I NO = Category II Cat. II SC6 Interdunal Wetlands (see p. 93) Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO X 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 one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland 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. III Cat. III Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1.	SC3		
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 X not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). At least 3/4 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 ft.) YES = Category I NO = Category II Cat. II SC6 Interdunal Wetlands (see p. 93) Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO X 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 one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland 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 NO = go to SC 6.2 Cat. II Cat. III Cat. III			
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 X_ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). At least 3/4 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 ft.) YES = Category I NO = Category II Cat. II SC6 Interdunal Wetlands (see p. 93) Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO X_ 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 one acre or larger? YES = Category III NO = go to SC 6.2 SC 6.2 Is the wetland 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. III Cat. III Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1.			
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 X not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). At least 3/4 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 ft.) YES = Category I NO = Category II Cat. II SC6 Interdunal Wetlands (see p. 93) Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO X 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 one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland 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.			
SC 5.1 Does the wetland meet all of the following three conditions?			
YES = Go to SC 5.1 NO X not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). — At least 3/4 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 ft.) YES = Category I NO = Category II Cat. II SC6 Interdunal Wetlands (see p. 93) Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO X 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 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre? YES = Category III NO = go to SC 6.2 Cat. II Cat. III Cat. III Cat. III Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1.			
SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). At least 3/4 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 ft.) YES = Category I NO = Category II Cat. II SC6 Interdunal Wetlands (see p. 93) Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO X 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 one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland 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 NO = go to SC 6.2 Cat. II Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1.		· · · · · · · · · · · · · · · · · · ·	
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 3/4 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 ft.) YES = Category I NO = Category II Cat. II SC6 Interdunal Wetlands (see p. 93) Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO X 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 one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland 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 NO = go to SC 6.2 Cat. II Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1.			
less than 20% cover of invasive plant species (see list of invasive species on p. 74). At least 3/4 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 ft.) YES = Category I NO = Category II Cat. II SC6 Interdunal Wetlands (see p. 93) Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO X 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 one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland 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.			
At least 3/4 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 ft.) YES = Category I NO = Category II Cat. II SC6 Interdunal Wetlands (see p. 93) Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO X 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 one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland 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.			
or un-mowed grassland. The wetland is larger than 1/10 acre (4350 square ft.) YES = Category I NO = Category II Cat. II SC6 Interdunal Wetlands (see p. 93) Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO X 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 one acre or larger? YES = Category II NO = go to SC 6.2 Cat. II Cat. II Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1.			
The wetland is larger than 1/10 acre (4350 square ft.) YES = Category I NO = Category II Cat. II SC6 Interdunal Wetlands (see p. 93) Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO X 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 one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland 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 Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1.			
SC6 Interdunal Wetlands (see p. 93) Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO X 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 one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland 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 Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1.			Cat. I
Interdunal Wetlands (see p. 93) Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO X 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 one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland 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 Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1.			
Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO X 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 one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland 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 Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1.			Cat. II
Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO X 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 one acre or larger? YES = Category II NO = go to SC 6.2 Cat. II Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1.	SC6		
YES = Go to SC 6.1 NO X 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 one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland 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 Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1.		Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or	
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 one acre or larger? YES = Category II NO = go to SC 6.2 Cat. II SC 6.2 Is the wetland 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 Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1.		WBUO)?	
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 one acre or larger? YES = Category II NO = go to SC 6.2 Cat. II SC 6.2 Is the wetland 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 Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1.		YES = Go to SC 6.1 NO X not an interdunal wetland for rating	
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 one acre or larger? YES = Category II NO = go to SC 6.2 Cat. II SC 6.2 Is the wetland 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 Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1.			
 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 one acre or larger? YES = Category II NO = go to SC 6.2		In practical terms that means the following geographic areas:	
• 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 one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland 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 Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1.		Long Beach Peninsula lands west of SR 103	
SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland 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 Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1.		• Grayland-Westport lands west of SR 105	
YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland 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 Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1.			
SC 6.2 Is the wetland 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 Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1.		e ·	
YES = Category III Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1.			Cat. II
Category of wetland based on Special Characteristics ← Choose the "highest" rating if wetland falls into several categories, and record on p. 1.			
♦ Choose the "highest" rating if wetland falls into several categories, and record on p. 1.		<u> </u>	Cat. III
	1]		
If you answered NO for all types enter "Not Applicable" on p. 1	•		
		If you answered NO for all types enter "Not Applicable" on p. 1	NA

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): 15D		Date o	f site visit	: 01-30-09 & 0	9-12-13
Rated by: Colin Worsley / Matt Maynard Trained by Ecology? Yes X No Date of training: 11-2005 / 04-2006					
SEC: 07 TOWNSHIP: 24N	RANGE:	06E Is S/T/R in Appe	endix D?	YesN	o_X
Map of wetland unit: Fig	ure	Estimated size0	.05 acre	<u></u>	
	SUMMAF	RY OF RATING			
Category based on FUNCTIONS provided by w	vetland: I	II	_ III	IV	X
Category I = Score > 70		Score for Water Quality Funct	ions	8	7
Category II = Score 51 - 69		Score for Hydrologic Funct	ions	10	7
Category III = Score 30 – 50		Score for Habitat Funct	ions	11	7
Category IV = Score < 30		TOTAL Score for Funct	ions	29	
Category based on SPECIAL CHARACTERISTO	CS of Wetl	and I II	Do	es not apply	X
Final Categor	y (choose	the "highest" category from ab	ove")	IV	
Summary of basic info	ormation a	about the wetland unit.	!		_
Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating			
Estuarine		Depressional Depressional	X		
Natural Heritage Wetland		Riverine			
Bog		Lake-fringe			
Mature Forest		Slope			
Old Growth Forest		Flats			
Coastal Lagoon		Freshwater Tidal			
Interdunal					
None of the above	X	Check if unit has multiple HGM classes present			
Does the wetland being rated meet any of the co	riteria bel	ow? If you answer YES to any	of the que	estions below vo	u will

Does the wetland 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 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 1 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.

Classification of Vegetated Wetlands for 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 a Saltwater Tidal Fringe it
	is rated as an Estuarine wetland. Wetlands that were call 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 only source (>90%) of water to it. Groundwater and surface water
۷٠	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 meet both of the following criteria?
٥.	The vegetated part of the wetland is on the shores of a body of permanent open water (without any
	vegetation on the surface) where at least 20 acres (8ha) in size;
	At least 30% of the open water area is deeper than 6.6 (2 m)?
	NO – go to 4 YES – The wetland class is Lake-fringe (Lacustrine Fringe)
4.	Does the entire wetland meet all of the following criteria?
т.	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 types of wetlands except occasionally in very small and
	shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).
	NO – go to 5 YES – The wetland class is Slope
5.	Does the entire wetland 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 of
	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 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 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

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	Treat as ESTUARINE under wetlands with special
freshwater wetland	characteristics

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

than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score
D 1	Does the wetland have the <u>potential</u> to improve water quality?	$ \begin{array}{c} \text{per box})\\ (see p.38) \end{array} $
υı	D 1.1 Characteristics of surface water flows out of the wetland:	(see p.30)
	• Unit is a depression with no surface water leaving it (no outlet)points = 3	Figure
	• Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet points = 2	
	 Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 1 Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface 	
	outflow and no obvious natural outlet and/or outlet is a man-made ditchpoints = 1	2
	(If ditch is not permanently flowing treat unit as "intermittently flowing") Provide photo or drawing	
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions) YES points = 4 NO points = 0	
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class):	
	• Wetland has persistent, ungrazed vegetation > = 95% of area	Figure
	• Wetland has persistent, ungrazed vegetation > = 1/2 of area	
	 Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 Wetland has persistent, ungrazed vegetation < 1/10 of area points = 0 	0
	Map of Cowardin vegetation classes	
	D 1.4 Characteristics of seasonal ponding or inundation: This is the area of the wetland that is ponded for at	Figure
	least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.	rigure
	• Area seasonally ponded is > 1/2 total area of wetland	
	• Area seasonally ponded is > 1/4 total area of wetland points = 2	2
	• Area seasonally ponded is < 1/4 total area of wetland	
	Total for D 1 Add the points in the boxes above	
D 2	Does the wetland have the opportunity to improve water quality?	(see p. 44)
D Z	Answer YES if you know or believe there are pollutants in groundwater or surface water coming into	(see p. 17)
	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 or orchards within 150 ft. of wetland A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed	
	fields, roads, or clear-cut logging	
	X Residential, urban areas, golf courses are within 150 ft. of wetland Wetland is fed by groundwater high in phosphorus or nitrogen	Multiplier
	Wetland is fed by groundwater high in phosphorus or nitrogen Other	X2
	YES multiplier is 2 NO multiplier is 1	
•	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1	8
Ť	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	
D 3	Does the wetland have the <u>potential</u> to reduce flooding and erosion?	(see p.46)
	D 3.1 Characteristics of surface water flows out of the wetland unit	
	• Unit is a depression with no surface water leaving it (no outlet)	
	 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface 	2
	outflow and no obvious natural outlet and/or outlet is a man-made ditchpoints = 1	2
	(If ditch is not permanently flowing treat unit as "intermittently flowing")	
	• Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0	
	D 3.2 Depth of storage during wet periods. Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).	
	• Marks of ponding are 3 ft. or more above the surface or bottom of the outlet points = 7	
	• The wetland is a "headwater" wetland	0
	 Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet	
	• Warks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet	
	• Marks of ponding less than 0.5 ft points = 0	
	D 3.3 Contribution of wetland unit 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 unitpoints = 5	
	• The area of the basin is 10 to 100 times the area of the unit points = 3	3
	• The area of the basin is more than 100 times the area of the unit	
	• Entire unit is in the FLATS class	\bot $_$ $_$ $_$
	Total for D 3 Add the points in the boxes above	5

D 4	Does the wetland have the <u>opportunity</u> to reduce flooding and erosion? Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. Note which of the following indicators of opportunity apply.	(see p. 49)
	Wetland is in a headwater of a river or stream that has flooding problems. X Wetland drains to a river or stream that has flooding problems Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems Other YES multiplier is 2 NO multiplier is 1	Multiplier X2
	YES multiplier is 2 NO multiplier is 1	
•	TOTAL – Hydrologic Functions Multiply the score from D3 by D4; then <i>add score to table on p. 1</i>	10

	se quest	ions apply to wetlands of all HGM classes.		Points
	HABI	TAT FUNCTIONS – Indicators that wetland functions to provide important habit	tat.	(only 1 scor per box)
H 1	Does t	the wetland have the <u>potential</u> 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 t 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres. Aquatic Bed	hreshold for each class is	Figure
		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, here cover) that each cover 20% within the forested polygon. Add the number of vegetation types that qualify. If you have: 4 structures or more points = 4 3 structure	paceous, moss/ground- ardin vegetation classes espoints = 2	0
	II 1 2		epoints = 0	
	Н 1.2	X Seasonally flooded or inundated 3 or more type Occasionally flooded or inundated 2 types presen		Figure 2
	Н 1.3	5-19 species		1
	H 1.4	Interspersion of Habitats (see p. 76): Decided from the diagrams below whether interspersion between Cowardin vegetation the classes and unvegetated areas (can include open water or mudflats) is high, medically the classes are unvegetated areas.		
		Note: If		
		op	you have 4 or more classes 3 vegetation classes and en water, the rating is ways "high".	Figure
	(None = 0 points Low = 1 point Moderate = 2 points Use [riparian braided channels]	3 vegetation classes and en water, the rating is	
	H 1.5	None = 0 points Low = 1 point Moderate = 2 points Use	3 vegetation classes and en water, the rating is ways "high". Emap of Cowardin classes. Eks is the number of points ft. long) egetation extends at least a least 33 ft. (10m) rat for denning trubs or trees that have ess are present in areas that applibians) of plants	

H 2	Does t	he wetland have the opportunity to provide habitat for many species?	(only 1 score per box)
	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". 100m (330 ft) 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)	Figure
	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 a 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 50 ft. 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 Lakefringe wetland, if it does not have an undisturbed corridor as in the question above? YES = 2 points (go to H 2.3) NO = go to 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 miles of a large field or pasture (> 40 acres) OR Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): (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 330 ft. (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 ree 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 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: 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). X 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). X Instream: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. Nearshore: Relati	3
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 1/2 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 developmentpoints = 5 • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile	3
TOTAL for H 1 from page 8	3
◆ Total Score for Habitat Functions Add the points for H 1 and H 2; then record the result on p. 1	11

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.	
SC1	Estuarine wetlands? (see p.86)	1
BCI	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.	
	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. 1
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions?	+
	YES = Category I NO = Category II	Cat. I
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and ha	Cat. 1
	less than 10% cover of non-native plant species. If the non-native Spartina spp., are only species	Cat. II
	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	0
	with native species would be a Category 1. Do not, however, exclude the area of Spartina in	
	determining the size threshold of 1 acre. At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	Dual
	or un-mowed grassland	Rating
	The wetland has at least 2 of the following features: tidal channels, depressions with open water,	I/II
	or contiguous freshwater wetlands.	1
SC2	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 being rated in a Section/Township/Range that contains a natural heritage wetland? (<i>This</i>	
	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 NOX	
	SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened	
	or endangered plant species?	Cat I
	YES = Category 1 NO not a Heritage Wetland	
SC3	Bogs (see p. 87) Does the wetland (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 function.	
	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 soil profile? (See Appendix B for a field key to	,
	identify organic soils)? YES = go to question 3 NO = go to question 2	
	2. Does the wetland 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 question 3 NO = is not a bog for purpose of rating	
	pond? YES = go to question 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 question 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.	
	4. 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)?	Cat. I
	YES = Category I NO = Is not a bog for purpose of rating	Cat. I
\Box		

SC4	Forested Wetlands (see p. 90)	
	Does the wetland 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 function.	
	Old-growth forests: (west of Cascade Crest) Stands of at least two three 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 an average diameters (dbh) exceeding 21 inches (53 cm); 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.	Cat. I
	YES = Category I NO = \underline{X} not a forested wetland with special characteristics	Cut. 1
COF	Wetlands in Coastal Lagoons (see p. 91)	
SC5	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 \underline{X} not a wetland in a coastal lagoon	
	SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has	
	less than 20% cover of invasive plant species (see list of invasive species on p. 74). At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	
		G . T
	or un-mowed grassland.	Cat. I
	The wetland is larger than 1/10 acre (4350 square ft.)	G . TT
	YES = Category I NO = Category II	Cat. II
SC6	Interdunal Wetlands (see p. 93)	
	Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or	
	WBUO)?	
	YES = Go to SC 6.1 NO \underline{X} 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 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 one acre or larger?	
	YES = Category II $\frac{1}{100}$ NO = go to SC 6.2	Cat. II
	SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?	Cat. 11
	YES = Category III	Cat. III
	Category of wetland based on Special Characteristics	Cat. 111
	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	NA
	if you allowed to for all types effect. Not repried to b. 1	INA.

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): 15E		Date	of site visi	t: <u>01-30-09 & 0</u>	9-12-13
Rated by: Colin Worsley / Matt Maynard Traine	ed by Ecol	ogy? Yes X No Da	ate of train	ing: 11-2005 / 0	04-2006
SEC: 07 TOWNSHIP: 24N	RANGE:	06E Is S/T/R in App	endix D?	Yes N	lo_X
Map of wetland unit: Fig	ure	Estimated size(0.05 acre		
	SUMMAI	RY OF RATING			
Category based on FUNCTIONS provided by w	vetland: I	<u> </u>	_ III	IV	X
Category I = Score > 70		Score for Water Quality Func	tions	4	
Category II = Score 51 - 69		Score for Hydrologic Func	tions	14	
Category III = Score 30 – 50		Score for Habitat Func	tions	10	
Category IV = Score < 30		TOTAL Score for Func	tions	28]
Category based on SPECIAL CHARACTERISTO	CS of Wetl	and I II	Do	es not apply	X
Final Categor	y (choose	the "highest" category from ab	oove")	IV	7
Summary of basic info	ormation a	about the wetland unit.	ļ		_
Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating			
Estuarine		Depressional Depressional	X		
Natural Heritage Wetland		Riverine			
Bog		Lake-fringe			
Mature Forest		Slope			
Old Growth Forest		Flats			
Coastal Lagoon		Freshwater Tidal			
Interdunal					
None of the above	X	Check if unit has multiple HGM classes present			
Does the wetland being rated meet any of the co	riteria bel	ow? If you answer YES to any	of the au	estions below vo	ou will

Does the wetland 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 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 1 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.

Classification of Vegetated Wetlands for 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.	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 a Saltwater Tidal Fringe it is rated as an Estuarine wetland. Wetlands that were call 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 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 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) where at least 20 acres (8ha) in size; At least 30% of the open water area is deeper than 6.6 (2 m)? NO - go to 4 YES - The wetland class is Lake-fringe (Lacustrine Fringe)
4.	Does the entire wetland 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 types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep). NO - go to 5 YES - The wetland class is Slope
5.	Does the entire wetland 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 of 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 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 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

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	Treat as ESTUARINE under wetlands with special
freshwater wetland	characteristics

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

than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score
D 1	Does the wetland have the potential to improve water quality?	per box) $(see p.38)$
ע ד	D 1.1 Characteristics of surface water flows out of the wetland:	(see p.30)
	• Unit is a depression with no surface water leaving it (no outlet)	Figure
	• Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet points = 2	
	• Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 1	
	• Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditchpoints = 1	2
	(If ditch is not permanently flowing treat unit as "intermittently flowing") Provide photo or drawing	
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions)	
	YES points = 4 NO points = 0	
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class):	Figure
	 Wetland has persistent, ungrazed vegetation > = 95% of area	riguic
	• Wetland has persistent, ungrazed vegetation > = 1/2 of area	0
	• Wetland has persistent, ungrazed vegetation < 1/10 of area	
	Map of Cowardin vegetation classes	
	D 1.4 Characteristics of seasonal ponding or inundation: This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently	Figure
	ponded. Estimate area as the average condition 5 out of 10 years.	l'iguit
	• Area seasonally ponded is > 1/2 total area of wetland	
	• Area seasonally ponded is > 1/4 total area of wetland	0
	• Area seasonally ponded is < 1/4 total area of wetland	
	Total for D 1 Add the points in the boxes above	
2	Does the wetland have the opportunity to improve water quality?	(see p. 44
	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 or orchards within 150 ft. of wetland	
	A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed	
	fields, roads, or clear-cut logging	M14:1:
	X Residential, urban areas, golf courses are within 150 ft. of wetland Wetland is fed by groundwater high in phosphorus or nitrogen	Multiplier
	Other Other	X2
	YES multiplier is 2 NO multiplier is 1	
•	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1	4
Ť	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	<u> </u>
3	Does the wetland have the <u>potential</u> to reduce flooding and erosion?	(see p.46)
, ,	D 3.1 Characteristics of surface water flows out of the wetland unit	(see p.r.s)
	• Unit is a depression with no surface water leaving it (no outlet)	
	• Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2	
	• Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface	2
	outflow and no obvious natural outlet and/or outlet is a man-made ditch	
	• Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0	
	D 3.2 Depth of storage during wet periods. Estimate the height of ponding above the bottom of the outlet. For	
	units with no outlet measure from the surface of permanent water or deepest part (if dry).	
	• Marks of ponding are 3 ft. or more above the surface or bottom of the outlet	
	 The wetland is a "headwater" wetland	0
	• Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet	
	• Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1	
	• Marks of ponding less than 0.5 ft points = 0	
	D 3.3 Contribution of wetland unit to storage in the watershed: Estimate the ratio of the area of upstream	
	1	1
	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 unit.	
	• The area of the basin is less than 10 times the area of unit	5
	 The area of the basin is less than 10 times the area of unit	_
	 The area of the basin is less than 10 times the area of unit	

D 4	Does the wetland have the opportunity to reduce flooding and erosion?	(see p. 49)			
	Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. <i>Note which of the following indicators of opportunity apply.</i> Wetland is in a headwater of a river or stream that has flooding problems. X Wetland drains to a river or stream that has flooding problems				
	Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems Other				
	YES multiplier is 2 NO multiplier is 1				
•	TOTAL – Hydrologic Functions Multiply the score from D3 by D4; then <i>add score to table on p. 1</i>	14			

H 1 D		(only 1 scor per box)			
Н					
	1.1 <u>Vegetation structure</u> (see P. 72): Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres. Aquatic Bed	Figure			
	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 types that qualify. If you have: 4 structures or more points = 4 Map of Cowardin vegetation classes 3 structures	0			
	2 structures points = 1 1 structure points = 0				
Н	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 1/4 acre to count (see text for descriptions of hydroperiods). X Permanently flooded or inundated Seasonally flooded or inundated Occasionally flooded or inundated Y Saturated only 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	Figure			
	Freshwater tidal wetland = 2 points Map of hydroperiods				
Н	1.3 Richness of Plant Species (see p. 75): Count the number of plant species in the wetland that cover at least 10 ft² (different patches of the same species can be combined to meet the size threshold) You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle. If you counted: > 19 species	1			
Н	1.4 Interspersion of Habitats (see p. 76): Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or				
	the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none. Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high".	Figure			
	Use map of Cowardin classes [riparian braided channels]				
Н	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 (> 4 in. 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 (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned grey/brown) At least 1/4 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) 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.	0			
	AVIE. THE 2070 MATER IN EATER DEHILINGS OF THE MANHAL ON DAYE 18 AN EFFOR.	1			

H 2	Does t	he wetland have the opportunity to provide habitat for many species?	(only 1 score per box)
	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". 100m (330 ft) 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)	Figure
	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 a 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 50 ft. 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 Lakefringe wetland, if it does not have an undisturbed corridor as in the question above? YES = 2 points (go to H 2.3) NO = go to 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 miles of a large field or pasture (> 40 acres) OR Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): (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/habp/hslist.htm) Which of the following priority habitats are within 330 ft. (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/sacre) > 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%; 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). X 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 ochemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. Nearshore: Relatively undisturbed nearshore habitats. These incl	3
If wetland has 2 priority habitats = 3 points If wetland has 1 priority habitat = 1 point 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) 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 1/2 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 developmentpoints = 5 • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 milepoints = 5 • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbedpoints = 3 • The wetland fringe on a lake with disturbance and there are 3 other lake-fringe wetlands within 1/2 milepoints = 3 • There is at least 1 wetland within 1/2 milepoints = 0	3
H 2 TOTAL Score – opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4	8
TOTAL for H 1 from page 8	2
◆ Total Score for Habitat Functions Add the points for H 1 and H 2; then record the result on p. 1	10

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.	
SC1	Estuarine wetlands? (see p.86)	1
BCI	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.	
	Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC	Cat. 1
	332-30-151? YES = Category I NO = go to SC 1.2	Cat. 1
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions?	
	YES = Category I NO = Category II	Cat. I
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has	Cat. I
	less than 10% cover of non-native plant species. If the non-native Spartina spp., are only species	Cat. II
	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 1. Do not, however, exclude the area of Spartina in	
	determining the size threshold of 1 acre. At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	Dual
	or un-mowed grassland	Rating
	The wetland has at least 2 of the following features: tidal channels, depressions with open water,	I/II
	or contiguous freshwater wetlands.	
SC2	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 being rated in a Section/Township/Range that contains a natural heritage wetland? (<i>This</i>	
	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 NOX	
	SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened	
	or endangered plant species?	Cat I
	YES = Category 1 NO not a Heritage Wetland	
SC3	Bogs (see p. 87)	
	Does the wetland (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 function.	
	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 soil profile? (See Appendix B for a field key to	
	identify organic soils)? YES = go to question 3 $NO = go$ to question 2	
	2. Does the wetland 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 question 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 question 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.	
	4. 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)?	C-4 T
	YES = Category I NO = Is not a bog for purpose of rating	Cat. I
	120 - Category 1 100 - 15 not a bog for purpose of fating	

C C 4	Forested Wetlands (see p. 90)							
SC4	Does the wetland 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 function.							
	Old-growth forests: (west of Cascade Crest) Stands of at least two three 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 an average diameters (dbh) exceeding 21 inches (53 cm); 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.	Cat. I						
	YES = Category I NO = \underline{X} not a forested wetland with special characteristics							
SC5	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 \underline{X} not a wetland in a coastal lagoon							
	SC 5.1 Does the wetland meet all of the following three conditions?							
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has							
	less than 20% cover of invasive plant species (see list of invasive species on p. 74).							
	At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed							
	or un-mowed grassland.	Cat. I						
	The wetland is larger than 1/10 acre (4350 square ft.)	040.1						
	YES = Category I NO = Category II	Cat. II						
SC6	Interdunal Wetlands (see p. 93)							
	Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or							
	WBUO)?							
	YES = Go to SC 6.1 NO X 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 one acre or larger?							
	$YES = Category II \qquad NO = go to SC 6.2$	Cat. II						
	SC 6.2 Is the wetland 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. III						
	Category of wetland based on Special Characteristics							
	Choose the "highest" rating if wetland falls into several categories, and record on p. 1.							
1	If you answered NO for all types enter "Not Applicable" on p. 1	NA						

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): 18C			Date o	f site visit:	03-1	1-14
Rated by: Colin Worsley / Matt Maynard Trained	l by Ecolo	gy? Yes X No Da	ate of tr	aining: <u>11-</u>	2005 / 0	04-2006
SEC: 06 TOWNSHIP: 24N	RANGE:	06E Is S/T/R in App	endix [)? Yes	N	No <u>X</u> _
Map of wetland unit: Figu	ure	Estimated size 0.	.02 acre	<u>; </u>		
S	SUMMAF	RY OF RATING				
Category based on FUNCTIONS provided by w	etland: I	II	_ III_	X	_ IV	
Category I = Score > 70		Score for Water Quality Func	tions		24	
Category II = Score 51 - 69		Score for Hydrologic Func	tions		14	
Category III = Score 30 – 50		Score for Habitat Func	tions		8	
Category IV = Score < 30		TOTAL Score for Func	tions		46	7
Category based on SPECIAL CHARACTERISTIC	CS of Wet	land I II		Does not a	apply	X
Final Category	y (choose	the "highest" category from al	oove")		III	7
Summary of basic info	rmation a	about the wetland unit.				_
Wetland Unit has Special		Wetland HGM Class		1		
Characteristics		used for Rating	77	4		
Estuarine	\vdash	Depressional	X			
Natural Heritage Wetland	├ ─┤ ├	Riverine	+			
Bog Mature Forest		Lake-fringe	-	-		
	\vdash	Slope				
Old Growth Forest		Flats Frack-mater Tidal	-	-		
Coastal Lagoon Interdunal		Freshwater Tidal	-	-		
None of the above	X	Check if unit has multiple HGM classes present]		
Does the wetland being rated meet any of the cr	iteria bel	ow? If you answer YES to any	y of the	questions	below y	ou will

need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

	Check List for Wetlands that 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 1 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.

Classification of Vegetated Wetlands for 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.	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 a Saltwater Tidal Fringe it is rated as an Estuarine wetland. Wetlands that were call 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 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 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) where at least 20 acres (8ha) in size; At least 30% of the open water area is deeper than 6.6 (2 m)? NO - go to 4 YES - The wetland class is Lake-fringe (Lacustrine Fringe)
4.	Does the entire wetland 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 types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep). NO - go to 5 YES - The wetland class is Slope
5.	Does the entire wetland 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 of 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 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 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

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	Treat as ESTUARINE under wetlands with special
freshwater wetland	characteristics

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

than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
D 1	Does the wetland have the <u>potential</u> to improve water quality?	(see p.38)
υı	D 1.1 Characteristics of surface water flows out of the wetland:	(see p.50)
	 Unit is a depression with no surface water leaving it (no outlet)	Figure
	• Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet points = 2	
	 Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 1 Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface 	3
	outflow and no obvious natural outlet and/or outlet is a man-made ditchpoints = 1	
	(If ditch is not permanently flowing treat unit as "intermittently flowing") Provide photo or drawing	
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions) YES points = 4 NO points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class):	
	• Wetland has persistent, ungrazed vegetation > = 95% of area	
	 Wetland has persistent, ungrazed vegetation > = 1/2 of area points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 	5
	• Wetland has persistent, ungrazed vegetation $< 1/10$ of area	,
	Map of Cowardin vegetation classes	
ı	D 1.4 Characteristics of seasonal ponding or inundation: This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently	Figure
	ponded. Estimate area as the average condition 5 out of 10 years.	
	• Area seasonally ponded is > 1/2 total area of wetland	
	 Area seasonally ponded is > 1/4 total area of wetland points = 2 Area seasonally ponded is < 1/4 total area of wetland points = 0 	4
	Map of Hydroperiods	
	Total for D 1 Add the points in the boxes above	12
D 2	Does the wetland have the opportunity to improve water quality?	(see p. 44)
	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 or orchards within 150 ft. of wetland	
	A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed	
	fields, roads, or clear-cut logging	Multiplier
	 X Residential, urban areas, golf courses are within 150 ft. of wetland Wetland is fed by groundwater high in phosphorus or nitrogen 	Wintiplier
	Other	X2
	YES multiplier is 2 NO multiplier is 1	
•	<u>TOTAL</u> – Water Quality Functions Multiply the score from D1 by D2; then <i>add score to table on p. 1</i>	24
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	_
D 3	Does the wetland have the <u>potential</u> to reduce flooding and erosion?	(see p.46)
	D 3.1 Characteristics of surface water flows out of the wetland unit	
	 Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 	
	• Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface	4
	outflow and no obvious natural outlet and/or outlet is a man-made ditchpoints = 1	
	 (If ditch is not permanently flowing treat unit as "intermittently flowing") Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0 	
	D 3.2 Depth of storage during wet periods. Estimate the height of ponding above the bottom of the outlet. Fo	r
	units with no outlet measure from the surface of permanent water or deepest part (if dry).	
	 Marks of ponding are 3 ft. or more above the surface or bottom of the outlet	
	• The wetland is a fleadwater wetland	3
	 Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet points = 3 	
	• Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1	
	• Marks of ponding less than 0.5 ft	
	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 unit. The area of the basin is 10 to 100 times the area of the unit points = 5 	0
	• The area of the basin is 10 to 100 times the area of the limit noints — 4	· I · · · ·
	The area of the basin is more than 100 times the area of the unit	
	• The area of the basin is more than 100 times the area of the unit points = 0 • Entire unit is in the FLATS class points = 5	

D 4	Does the wetland have the opportunity to reduce flooding and erosion? Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. Note which of the following indicators of opportunity apply. Wetland is in a headwater of a river or stream that has flooding problems. Wetland drains to a river or stream that has flooding problems X Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems	(see p. 49) Multiplier					
	stream that has flooding problems Other						
	YES multiplier is 2 NO multiplier is 1						
•	TOTAL – Hydrologic Functions Multiply the score from D3 by D4; then <i>add score to table on p. 1</i>	14					

Comments: Adjacent property owner said this area floods in winter.

Thes	se questions apply to we	tlands of all HGM classes.		Points
	HABITAT FUNCTION	NS – Indicators that wetland functions to provide	le important habitat.	(only 1 score
H 1	Does the wetland have	e the <u>potential</u> to provide habitat for many s _l	pecies?	
	Check the type. 1/4 acre or mo Aquatic l Emergen X Scrub/shi	t plants rub (areas where shrubs have > 30% cover)		Figure
	Forested If the unit has a The forested cover) that each Add the numbe	(areas where trees have > 30% cover) a forested class check if: sted class has 3 out of 5 strata (canopy, sub-can h cover 20% within the forested polygon. r of vegetation types that qualify. If you have: structures or more points = 4 c structures		0
	H 1.2 <u>Hydroperiods</u> (Check the type.	see p.73): s of water regimes (hydroperiods) present with	in the wetland. The water regime has to	Figure
	Permaner X Seasonal Occasion Saturatec Permaner Seasonal Lake-fri	on 10% of the wetland or 1/4 acre to count (see ntly flooded or inundated ly flooded or inundated hally flooded or inundated lonly ntly flowing stream or river in, or adjacent to, the flowing stream in, or adjacent to, the wetlan nge wetland	4 or more types present points = 3 3 or more types presentpoints = 2 2 types presentpoints = 1 1 type present points = 0 the wetland	0
	Count the num species can be You do not hav loosestrife, Can	ant Species (see p. 75): ber of plant species in the wetland that cover at combined to meet the size threshold) be to name the species. Do not include Eurasia nadian Thistle. If you counted: low if you want to:		1
	Decided from the	f Habitats (see p. 76): ne diagrams below whether interspersion between unvegetated areas (can include open water or mud	flats) is high, medium, low, or none. Note: If you have 4 or more classes	
	None = 0 points	Low = 1 point Moderate = 2 points	or 3 vegetation classes and open water, the rating is always "high".	
	M	[riparian braided channe	Use map of Cowardin classes.	0
	Check the habi you put into the Large, de Standing Undercut 3.3 ft. (1) Stable ste (> 30 deg not yet tu	High = 3 points Expression Features (see p. 77): Itat features that are present in the wetland. The	the number of checks is the number of points a. diameter and 6 ft. long) the wetland or overhanging vegetation extends at least ith the unit, for at least 33 ft. (10m) y beaver or muskrat for denning the present (cut shrubs or trees that have	0
	are perm	anently or seasonally inundated (structures for	egg-laying by amphibians)	
	NOTE: 1	plants cover less than 25% of the wetland area The 20% stated in early printings of the manua core – potential for providing habitat	in each stratum of plants l on page 78 is an error. Add the points in the column above	1

H 2	Does t	he wetland have the opportunity to provide habitat for many species?	(only 1 score per box)
	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". 100m (330 ft) 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)	Figure
	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 a 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 50 ft. 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 Lakefringe wetland, if it does not have an undisturbed corridor as in the question above? YES = 2 points (go to H 2.3) NO = go to 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 miles of a large field or pasture (> 40 acres) OR Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

•	Total Score for Habitat Functions Add the points for H 1 and H 2; then record the result on p. 1	8
	TOTAL for H 1 from page 8	1
	H 2 TOTAL Score – opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4	7
	·	
	• There is at reast 1 wettand within 1/2 mile	
	• There is at least 1 wetland within 1/2 mile	
	• The wetland fringe on a lake with disturbance and there are 3 other lake-fringe wetlands within 1/2 milepoints = 3	
	disturbed	
	• There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are	3
	wetlands within 1/2 milepoints = 5	2
	• The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe	
	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 developmentpoints = 5	
	• There are at least 3 other wetlands within 1/2 mile, and the connections between them are	
	H 2.4 Wetland Landscape: Choose the one description of the landscape around the wetland that best fits (see p. 84)	
	addressed in question H 2.4)	
	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	
	If wetland has 2 priority habitats = 3 points	
	If wetland has 3 or more priority habitats = 4 points	
	end, and > 6 m (20 ft) long.	
	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	
	Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics	
	andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
	Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt,	
	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.	
	Caves: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils,	
	WDFW report: pp. 167-169 and glossary in Appendix A).	
	and Puget Sound Nearshore. (full descriptions of habitats and the definition of relatively undisturbed are in	
	Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore,	
	X Instream: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.	
	a wet prairie (full descriptions in WDFW PHS report p. 161).	2
	Westside Prairies: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or	
	terrestrial ecosystems which mutually influence each other.	
	oak component is important (full descriptions in WDFW PHS report p. 158). X Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and	
	Oregon white Oak: Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the	
	generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.	
	cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is	
	dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown	
	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)	
	Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.	
	fish and wildlife (full descriptions in WDFW PHS report p. 152).	
	Biodiversity Areas and Corridors: Areas of habitat that are relatively important to various species of native	
	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).	
	Which of the following priority habitats are within 330 ft. (100m) of the wetland unit?	
	http://wdfw.wa.gov/hab/phslist.htm)	
	descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report	
	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): (see new and complete	

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.					
SC1	Estuarine wetlands? (see p.86)					
SCI	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.					
	Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC	Cat. 1				
	332-30-151? YES = Category I NO = go to SC 1.2	Cat. 1				
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions?					
	YES = Category I NO = Category II	Cat. I				
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has	Cat. I				
	less than 10% cover of non-native plant species. If the non-native Spartina spp, are only species	Cat. II				
	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	0				
	with native species would be a Category 1. Do not, however, exclude the area of Spartina in					
	determining the size threshold of 1 acre. At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	Dual				
	or un-mowed grassland	Rating				
	The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	I/II				
SC2	Natural Heritage Wetlands (see p. 87)					
SC2	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 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 X					
	SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species?	Cat I				
	YES = Category 1 NO not a Heritage Wetland	Cat I				
SC3	Bogs (see p. 87)					
303	Does the wetland (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 function.					
	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 soil profile? (See Appendix B for a field key to					
	identify organic soils)? YES = go to question 3 NO = go to question 2 2. Does the wetland 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 question 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 question 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. 4. 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)?	Cat. I				
	$YES = Category I \qquad \qquad NO = Is not a bog for purpose of rating$					

SC4	Forested Wetlands (see p. 90)					
	Does the wetland 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 function.					
	Old-growth forests: (west of Cascade Crest) Stands of at least two three 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 an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than					
	100%; decay, decadence, numbers of snags, and quantity of large downed material is generally	G . T				
	less than that found in old-growth.	Cat. I				
	YES = Category I NO = \underline{X} not a forested wetland with special characteristics					
SC5	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 \underline{X} not a wetland in a coastal lagoon					
	SC 5.1 Does the wetland meet all of the following three conditions?					
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has					
	less than 20% cover of invasive plant species (see list of invasive species on p. 74).					
	At least 3/4 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 ft.)					
	YES = Category I NO = Category II					
CCC	Interdunal Wetlands (see p. 93)	Cat. II				
SC6	Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or					
	WBUO)?					
	YES = Go to SC 6.1 NO \underline{X} 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					
	• Long Beach Peninsula lands west of SR 103 • Grayland-Westport lands west of SR 105					
	Ocean Shores-Copalis – lands west of SR 103 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 one acre or larger?					
	YES = Category II NO = go to SC 6.2	Cat. II				
	SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?	Cat. 11				
	YES = Category III					
	Category of wetland based on Special Characteristics	Cat. III				
	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	NA				
	if you answered NO for all types enter Not Applicable on p. 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): 19A			Date of	site visit: 09-12-13	_
Rated by: Colin Worsley / Matt Maynard Traine	d by Ecolo	gy? Yes X No Da	ate of tra	ining: <u>11-2005 / 04-2006</u>	5_
SEC: 06 TOWNSHIP: 24N	RANGE:	06E Is S/T/R in App	endix D'	? Yes NoX	_
Map of wetland unit: Fig	gure	Estimated size 0	.02 acre		
-	CT 13 #3 # A 1	NA OF BATTING			
		RY OF RATING	***	13 7 3 7	
Category based on FUNCTIONS provided by v	vetland: 1	11	_ 1111	IVX	—
Category I = Score > 70		Score for Water Quality Func	tions	12	
Category II = Score 51 - 69		Score for Hydrologic Func	tions	8	
Category III = Score 30 – 50		Score for Habitat Func	tions	7	
Category IV = Score < 30		TOTAL Score for Func	tions	27	
Category based on SPECIAL CHARACTERISTI	ICS of Wet	land I II	I	Does not apply X	
Final Categor	V (choose	the "highest" category from al	nove")	IV	
S			,		
	ormation a	about the wetland unit.			
Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating			
Estuarine		Depressional	X		
Natural Heritage Wetland		Riverine			
Bog		Lake-fringe			
Mature Forest		Slope			
Old Growth Forest		Flats			
Coastal Lagoon		Freshwater Tidal			
Interdunal					
None of the above	X	Check if unit has multiple HGM classes present			
Does the wetland being rated meet any of the co	riteria bel	·	v of the o	questions below you will	

Does the wetland 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 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 1 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.

Classification of Vegetated Wetlands for 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.

Ι.	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 a Saltwater Tidal Fringe it
	is rated as an Estuarine wetland. Wetlands that were call 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 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 meet both of the following criteria?
٥.	The vegetated part of the wetland is on the shores of a body of permanent open water (without any
	vegetation on the surface) where at least 20 acres (8ha) in size;
	At least 30% of the open water area is deeper than 6.6 (2 m)?
	NO – go to 4 YES – The wetland class is Lake-fringe (Lacustrine Fringe)
4	
4.	Does the entire wetland 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 types of wetlands except occasionally in very small and
	shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).
	NO – go to 5 YES – The wetland class is Slope
5.	Does the entire wetland 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 of
	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 located in a very flat area with no obvious depression and no overbank flooding. The unit does not
٠.	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
0	·
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 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

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	Treat as ESTUARINE under wetlands with special
freshwater wetland	characteristics

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

than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
D 1	Does the wetland have the <u>potential</u> to improve water quality?	$\begin{array}{c} \text{per box} \\ \text{(see p.38)} \end{array}$
DI	D 1.1 Characteristics of surface water flows out of the wetland:	
	 Unit is a depression with no surface water leaving it (no outlet)	Figure
	• Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 1	3
	• Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface	
	outflow and no obvious natural outlet and/or outlet is a man-made ditchpoints = 1 (If ditch is not permanently flowing treat unit as "intermittently flowing") Provide photo or drawing	
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions)	0
	YES points = 4 D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class):	
	• Wetland has persistent, ungrazed vegetation > = 95% of area	Figure
	• Wetland has persistent, ungrazed vegetation > = 1/2 of area	1
	 Wetland has persistent, ungrazed vegetation > = 1/10 of area	1
	Map of Cowardin vegetation classes	
	D 1.4 Characteristics of seasonal ponding or inundation: This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently	Figure
	ponded. Estimate area as the average condition 5 out of 10 years.	8
	 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	2
	Map of Hydroperiods	
	Total for D 1 Add the points in the boxes above	
D 2	Does the wetland have the <u>opportunity</u> to improve water quality? Answer YES if you know or believe there are pollutants in groundwater or surface water coming into	(see p. 44)
	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 or orchards within 150 ft. of wetland	
	A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed	
	fields, roads, or clear-cut logging X Residential, urban areas, golf courses are within 150 ft. of wetland	Multiplier
	Wetland is fed by groundwater high in phosphorus or nitrogen	
	Other	X2
	YES multiplier is 2 NO multiplier is 1 TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1	12
_	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then <i>add score to table on p. 1</i> HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	12
D 3	Does the wetland have the <u>potential</u> to reduce flooding and erosion?	(see p.46)
	D 3.1 Characteristics of surface water flows out of the wetland unit	
	• Unit is a depression with no surface water leaving it (no outlet)	
	 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface 	4
	outflow and no obvious natural outlet and/or outlet is a man-made ditchpoints = 1	
	 (If ditch is not permanently flowing treat unit as "intermittently flowing") Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0 	
	D 3.2 Depth of storage during wet periods. Estimate the height of ponding above the bottom of the outlet. For	
	units with no outlet measure from the surface of permanent water or deepest part (if dry). • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet points = 7	
	• The wetland is a "headwater" wetland	
	• Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet	0
	 Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet	
	• Marks of ponding less than 0.5 ft	
	D 3.3 Contribution of wetland unit 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 unit	0
		0
	• The area of the basin is 10 to 100 times the area of the unit	
	 The area of the basin is 10 to 100 times the area of the unit	

D 4	Does the wetland have the <u>opportunity</u> to reduce flooding and erosion? Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flan valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from	(see p. 49)
	gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. Note which of the following indicators of opportunity apply. Wetland is in a headwater of a river or stream that has flooding problems. Wetland drains to a river or stream that has flooding problems X Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems	Multiplier
	Other	X2
•	TOTAL – Hydrologic Functions Multiply the score from D3 by D4; then <i>add score to table on p. 1</i>	8

	se questi	ons apply to wetlands of all HGM classes.		Points
	HABIT	AT FUNCTIONS - Indicators that wetland functions to provide im-	portant habitat.	(only 1 scor per box)
H 1	Does t	he wetland have the <u>potential</u> to provide habitat for many specie	es?	
	Н 1.1	Vegetation structure (see P. 72): Check the types of vegetation classes present (as defined by Cowa 1/4 acre or more than 10% of the area if unit is smaller than 2.5 a Aquatic Bed X Emergent plants		Figure
		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, cover) that each cover 20% within the forested polygon. Add the number of vegetation types that qualify. If you have: 4 structures or more points = 4 2 structures	, shrubs, herbaceous, moss/ground- Map of Cowardin vegetation classes 3 structures points = 2 1 structure points = 0	0
	H 1.2	<u>Hydroperiods</u> (see p.73):		Figure
		X Seasonally flooded or inundated Occasionally flooded or inundated 2 X Saturated only Permanently flowing stream or river in, or adjacent to, the westland Lake-fringe wetland = 2 points	for descriptions of hydroperiods). or more types present points = 3 or more types presentpoints = 2 types presentpoints = 1 type present points = 0 yetland	1
	H 1.3	Freshwater tidal wetland = 2 points	Map of hydroperiods	
	11 1.3	5 –		1
	H 1.4	Interspersion of Habitats (see p. 76): Decided from the diagrams below whether interspersion between Cow the classes and unvegetated areas (can include open water or mudflats)		
		None = 0 points Low = 1 point Moderate = 2 points	Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high".	Figure
	([riparian braided channels]	or 3 vegetation classes and open water, the rating is	
	H 1.5	Iriparian braided channels	or 3 vegetation classes and open water, the rating is always "high". Use map of Cowardin classes. umber of checks is the number of points at the number and 6 ft. long)	0
	H 1.5	High = 3 points Special Habitat Features (see p. 77): Check the habitat features that are present in the wetland. The nu you put into the next column. Large, downed, woody debris within the wetland (> 4 in. dia	or 3 vegetation classes and open water, the rating is always "high". Use map of Cowardin classes. The sumber of checks is the number of points at least and the unit, for at least 33 ft. (10m) aver or muskrat for denning resent (cut shrubs or trees that have boody branches are present in areas that alwaying by amphibians) ach stratum of plants	0

H 2	Does t	he wetland have the opportunity to provide habitat for many species?	(only 1 score per box)
	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". 100m (330 ft) 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)	Figure
	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 a 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 50 ft. 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 Lakefringe wetland, if it does not have an undisturbed corridor as in the question above? YES = 2 points (go to H 2.3) NO = go to 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 miles of a large field or pasture (> 40 acres) OR Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): (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/phsits.htm) Which of the following priority habitats are within 330 ft. (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%; 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 firsh and wildlife resources. Nearshore: Relatively undisturbed nearshore habitats. These include	0
	 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 1/2 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 developmentpoints = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 milepoints = 5 There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbedpoints = 3 The wetland fringe on a lake with disturbance and there are 3 other lake-fringe wetlands within 1/2 milepoints = 3 There is at least 1 wetland within 1/2 milepoints = 2 There are no wetlands within 1/2 milepoints = 0 H 2 TOTAL Score – opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4 	3
	TOTAL for H 1 from page 8	2
♦	Total Score for Habitat Functions Add the points for H 1 and H 2; then record the result on p. 1	7
	<u> </u>	

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.	
SC1	Estuarine wetlands? (see p.86)	1
BCI	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.	
	Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC	Cat. 1
	332-30-151? YES = Category I NO = go to SC 1.2	Cat. 1
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions?	+
	YES = Category I NO = Category II	Cat. I
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and ha	Cat. 1
	less than 10% cover of non-native plant species. If the non-native Spartina spp., are only species	Cat. II
	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	0
	with native species would be a Category 1. Do not, however, exclude the area of Spartina in	
	determining the size threshold of 1 acre. At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	Dual
	or un-mowed grassland	Rating
	The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	I/II
0.02	Natural Heritage Wetlands (see p. 87)	+
SC2	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 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 NOX	
	SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened	G . T
	or endangered plant species?	Cat I
0.00	YES = Category 1 NO not a Heritage Wetland Bogs (see p. 87)	+
SC3	Does the wetland (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 function.	
	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 soil profile? (See Appendix B for a field key to)
	identify organic soils)? YES = go to question 3 NO = go to question 2	
	2. Does the wetland 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 question 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 question 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.	
	4. 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)?	Cat. I
	YES = Category I NO = Is not a bog for purpose of rating	Cat. I
\Box		

SC4	Forested Wetlands (see p. 90)					
	Does the wetland 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 function.					
	Old-growth forests: (west of Cascade Crest) Stands of at least two three 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						
	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 an average diameters (dbh) exceeding 21 inches (53 cm); 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.	Cat. I				
	YES = Category I NO = X not a forested wetland with special characteristics					
SC5	Wetlands in Coastal Lagoons (see p. 91)					
SC3	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.)					
	SC 5.1 Does the wetland meet all of the following three conditions?					
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has					
	less than 20% cover of invasive plant species (see list of invasive species on p. 74).					
	At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed					
	or un-mowed grassland.	Cat. I				
	The wetland is larger than 1/10 acre (4350 square ft.)					
	YES = Category I NO = Category II	Cat. II				
SC6	<u>Interdunal Wetlands</u> (see p. 93)					
	Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or					
	WBUO)?					
	YES = Go to SC 6.1 NO X 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 Grayland-Westport lands west of SR 115 and SR 100					
	Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1. Is the westland one care or larger, or in it in a massic of westlands that is one care or larger?					
	SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger?					
	$YES = Category II \qquad NO = go to SC 6.2$	Cat. II				
	SC 6.2 Is the wetland 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. III				
	Category of wetland based on Special Characteristics					
•	Choose the "highest" rating if wetland falls into several categories, and record on p. 1.					
1	If you answered NO for all types enter "Not Applicable" on p. 1	NA				

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 w	etland (if known): 19B			Date of site visit:	05-05-09 (rev: 03-	11-14)
Rated by:_	Colin Worsley / Matt Maynard	Гrained by Е	cology? Yes X N	o Date of train	ning: <u>11- 2005 / 0</u>	4-2006
SEC:	06 TOWNSHIP: 24N	RANGE:	<u>06E</u> Is S/T/I	R in Appendix D?	Yes No	X
	Map of wetland unit: F	igure	Estimate	d size ~0.36 acre		
		SUMMAI	RY OF RATING			
Category b	pased on FUNCTIONS provided by	wetland:	I II	III	<u>X</u> IV	
	Category I = Score > 70		Score for Water Qual	lity Functions	20	
	Category II = Score 51 - 69		Score for Hydrolo	gic Functions	4	
	Category III = Score 30 – 50		Score for Habi	itat Functions	11	
	Category IV = Score < 30		TOTAL Score	for Functions	35	
Category b	ased on SPECIAL CHARACTERIS	TCS of Wetl	and I	II Do	oes not apply X	
	Final Catego	Pry (choose	the "highest" category	y from above")	III	
	Summary of basic in	nformation a	about the wetland un	it.		1
	Wetland Unit has Special		Wetland HGM (
	Characteristics		used for Ratin	ng		
	Estuarine		Depressional			
	Natural Heritage Wetland Bog		Riverine Lake-fringe	X		
	Mature Forest		Slope	(x)		
	Old Growth Forest		Flats	(A)		
	Coastal Lagoon		Freshwater Tidal			
	Interdunal		Fieshwater Fidar			
	None of the above	X	Check if unit has mul	* X		
Doos the w	etland being rated meet any of the	critorio bol	•		actions below you	will

Does the wetland 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 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 1 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.

Classification of Vegetated Wetlands for 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 a Saltwater Tidal Fringe it is rated as an Estuarine wetland. Wetlands that were call 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 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 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) where at least 20 acres (8ha) in size; At least 30% of the open water area is deeper than 6.6 (2 m)? NO – go to 4 YES – The wetland class is Lake-fringe (Lacustrine Fringe)
4.	Does the entire wetland 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 types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep). NO – go to 5 YES – The wetland class is Slope
5.	Does the entire wetland 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 of 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 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 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	Treat as ESTUARINE under wetlands with special
freshwater wetland	characteristics

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

L	Lake-fringe Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that the wetland unit functions to improve water quality.	only 1 score
L 1	Does the wetland unit have the <u>potential</u> to improve water quality? (see p.59)	per box)
	L 1.1 Average width of vegetation along the lakeshore (use polygons of Cowardin classes): • Vegetation is more than 33 ft. (10m) wide	Figure
	 L 1.2 Characteristics of the vegetation in the wetland: Choose the appropriate description that results in the highest points, and do not include any open water in your estimate of coverage. The herbaceous plants can be either the dominant form or as an understory in a shrub or forest community. These are not Cowardin classes. Area of Cover is total cover in the unit, but it can be in patches. NOTE: Herbaceous does not include aquatic bed. Cover of herbaceous plants is > 90% of the vegetated area	Figure
	 Cover of herbaceous plants is > 2/3 of the vegetated area	4
	Add the points in the boxes above	
L 2	Does the wetland have the opportunity to improve water quality? Answer YES if you know or believe there are pollutants in the lake water, or polluted surface water flowing through the unit to the lake. 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. Wetland is along the shores of a lake or reservoir that does not meet water quality standards Grazing in the wetland or within 150 ft Polluted water discharges to wetland along upland edge Tilled fields or orchards within 150 ft. of wetland	(see p.61)
	Residential or urban areas are within 150 ft. of wetland Parks with grassy areas that are maintained, ballfields, golf courses (all within 150 ft. of lake shore) Power boats with gasoline or diesel engines use the lake Other YES multiplier is 2 NO multiplier is 1	Multiplier X2
	TOTAL – Water Quality Functions Multiply the score from L1 by L2; then add score to table on p. 1	20
	HYDROLOGIC FUNCTIONS – Indicators that wetland functions to reduce shoreline erosion.	20
L 3	Does the wetland have the <u>potential</u> to reduce shoreline erosion?	(see p.62)
LJ	L 3 Average width and characteristics of vegetation along the lakeshore (do not include aquatic bed):	
	(choose the highest scoring description that matches conditions in the wetland) • 3/4 of distance is shrubs or forest at least 33 ft. (10m) wide	Figure 2
	Record the points in the boxes above	2
T 4	Does the wetland have the opportunity to reduce erosion?	
L 4	Are there features along the shore that will be impacted if the shoreline erodes? Note which of the following conditions apply. X There are human structures and activities along the upland edge of the wetland (buildings, fields) that can be damaged by erosion. There are undisturbed natural resources along the upland edge of the wetland (e.g. mature forests, other wetlands) that can be damaged by shoreline erosion.	(see p. 64) Multiplier
	Other	X2
	YES multiplier is 2 NO multiplier is 1	
•	<u>TOTAL</u> – Hydrologic Functions Multiply the score from L3 by L4; then <i>add score to table on p. 1</i>	4

Comments: Majority of herbaceous vegetation is maintained lawn.

Thes	se questions apply to wetlands of all HGM classes.	Points	
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	(only 1 scor per box)	
H 1	Does the wetland have the <u>potential</u> 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 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres. Aquatically be a function of the area if unit is smaller than 2.5 acres.	Figure	
	X Emergent plants X 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 types that qualify. If you have: 4 structures or more points = 4 2 structures		
	2 structurespoints = 1 1 structurepoints = 0 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 1/4 acre to count (see text for descriptions of hydroperiods). Permanently flooded or inundated 4 or more types present points = 3	Figure	
	Seasonally flooded or inundated Occasionally flooded or inundated Saturated only Permanently flowing stream or river in, or adjacent to, the wetland Seasonally flowing stream in, or adjacent to, the wetland Lake-fringe wetland	2	
	Freshwater tidal wetland = 2 points Map of hydroperiods		
H 1.3 Richness of Plant Species (see p. 75): Count the number of plant species in the wetland that cover at least 10 ft² (different patches of the 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. List species below if you want to: List species below if you want to: Significant patches of the species and patches of the			
	H 1.4 Interspersion of Habitats (see p. 76): Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.		
	Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high".		
	Use map of Cowardin classes [riparian braided channels]	1	
-	High = 3 points 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 polynou put into the next column. Large, downed, woody debris within the wetland (> 4 in. 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 (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned grey/brown)			
	At least 1/4 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) 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.	t	

Н 2	Does tl	he wetland have the opportunity to provide habitat for many species?	(only 1 score per box)
	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". 100m (330 ft) 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)	Figure
	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 a 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 50 ft. 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 Lakefringe wetland, if it does not have an undisturbed corridor as in the question above? YES = 2 points (go to H 2.3) NO = go to 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 miles of a large field or pasture (> 40 acres) OR YES = 1 point • Within 1 mile of a lake greater than 20 acres? NO = 0 points	2

TOTAL for H 1 from page 8	5
H 2 TOTAL Score – opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4	6
• There are no wetlands within 1/2 milepoints = 0	
• There is at least 1 wetland within 1/2 milepoints = 2	
• The wetland fringe on a lake with disturbance and there are 3 other lake-fringe wetlands within 1/2 milepoints = 3	
disturbed. points = 3	
• There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are	3
• The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 milepoints = 5	
but connections should NOT be bisected by paved roads, fill, fields, or other developmentpoints = 5	
relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating,	
 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 1/2 mile, and the connections between them are 	
addressed in question H 2.4)	
Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are	
If wetland has 2 priority habitats = 3 points If wetland has 1 priority habitat = 1 point No habitats = 0 points	
If wetland has 3 or more priority habitats = 4 points	
end, and > 6 m (20 ft) long.	
western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest	
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	
andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt,	
Cliffs: Greater than 7.6 m (25 ft) high and occurring below 5000 ft.	
rock, ice, or other geological formations and is large enough to contain a human.	
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,	
and Puget Sound Nearshore. (full descriptions of habitats and the definition of relatively undisturbed are in	
Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore,	
provide functional life history requirements for instream fish and wildlife resources.	
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	0
Westside Prairies: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or	0
terrestrial ecosystems which mutually influence each other.	
Riparian : The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and	
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).	
generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.	
cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is	
dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown	
multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in)	
 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 	
fish and wildlife (full descriptions in WDFW PHS report p. 152).	
Biodiversity Areas and Corridors: Areas of habitat that are relatively important to various species of native	
Aspen Stands: Pure or mixed stands of aspen greater than 0.4 ha (1 acre).	
Which of the following priority habitats are within 330 ft. (100m) of the wetland unit? <i>NOTE: the connections do not have to be relatively undisturbed.</i>	
http://wdfw.wa.gov/hab/phslist.htm)	
descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report	
H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): (see new and complete	

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.				
SC1	Estuarine wetlands? (see p.86)				
301	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.				
	Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC	Cat. 1			
	332-30-151? YES = Category I NO = go to SC 1.2				
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions?				
	YES = Category I NO = Category II	Cat. I			
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has	0400 1			
	less than 10% cover of non-native plant species. If the non-native <i>Spartina</i> spp, are 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	Cat. II			
	with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	Dual			
	or un-mowed grassland The wetland has at least 2 of the following features: tidal channels, depressions with open water,	Rating I/II			
	or contiguous freshwater wetlands.				
SC2	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 being rated in a Section/Township/Range that contains a natural heritage wetland? (<i>This</i>				
	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 NOX				
	SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species?	Cat I			
	YES = Category 1 NO not a Heritage Wetland	Cat 1			
SC3	Bogs (see p. 87)				
SCS	Does the wetland (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 function.				
	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 soil profile? (See Appendix B for a field key to identify organic soils)? YES = go to question 3 NO = go to question 2				
	2. Does the wetland 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 question 3 $NO = is \text{ not a bog for purpose of rating}$				
	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 question 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.				
	4. 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	O . T			
	component of the ground cover (> 30% coverage of the total shrub/herbaceous cover)? YES = Category I NO = Is not a bog for purpose of rating	Cat. I			
	125 - Category 1 100 - 15 not a bog for purpose of fating				

SC4	Forested Wetlands (see p. 90)					
	Does the wetland 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 function.					
	Old-growth forests: (west of Cascade Crest) Stands of at least two three 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						
	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 an average diameters (dbh) exceeding 21 inches (53 cm); 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.	Cat. I				
	YES = Category I NO = X not a forested wetland with special characteristics					
COF	Wetlands in Coastal Lagoons (see p. 91)					
SC5	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 \underline{X} not a wetland in a coastal lagoon					
	SC 5.1 Does the wetland meet all of the following three conditions?					
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has					
	less than 20% cover of invasive plant species (see list of invasive species on p. 74).					
	At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	~				
	or un-mowed grassland.	Cat. I				
	The wetland is larger than 1/10 acre (4350 square ft.)	a . ==				
	YES = Category I NO = Category II	Cat. II				
SC6	Interdunal Wetlands (see p. 93)					
	Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or					
	WBUO)?					
	YES = Go to SC 6.1 NO \underline{X} 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 SP 105					
	 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 one acre or larger?					
	YES = Category II NO = go to SC 6.2	Cot II				
	SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?	Cat. II				
		C-4 TT				
	YES = Category III	Cat. III				
	Category of wetland based on Special Characteristics					
•	Choose the "highest" rating if wetland falls into several categories, and record on p. 1.					
1	If you answered NO for all types enter "Not Applicable" on p. 1	NA				

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): 20A			_ Date of	site visi	it: 09-	12-13
Rated by: Colin Worsley / Matt Maynard Tra	ined by Ecol	ogy? Yes <u>X</u> No D	ate of tra	ining: <u>1</u>	1-2005 /	04-2006
SEC: 06 TOWNSHIP: 24N	RANGE	:06E Is S/T/R in Ap	pendix D'	Yes_		No_X_
		Estimated size			_	
Map of wettand unit.	rigure	Estimated size).03 acre			
	SUMMA	RY OF RATING				
Category based on FUNCTIONS provided b	y wetland:	I II	III	X	IV_	
Category I = Score > 70		Score for Water Quality Fun	ctions		18	
Category II = Score 51 - 69					16	
		Score for Hydrologic Fun				
Category III = Score 30 – 50		Score for Habitat Fun	ctions		11	
Category IV = Score < 30		TOTAL Score for Fun	ctions		45	
Category based on SPECIAL CHARACTERI	STICS of We	tland I II	Г	oes not	apply_	X
Final Categ	ory (choose	e the "highest" category from a	above")		III	
Summary of basic	information	about the wetland unit.				_
Wetland Unit has Specia		Wetland HGM Class				
Characteristics		used for Rating				
Estuarine		Depressional	X			
Natural Heritage Wetland		Riverine				
Bog		Lake-fringe				
Mature Forest		Slope	(x)			
Old Growth Forest		Flats				
Coastal Lagoon		Freshwater Tidal				
Interdunal						
None of the above	X	Check if unit has multiple HGM classes present	X			

Does the wetland 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 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 1 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.

Classification of Vegetated Wetlands for 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 a Saltwater Tidal Fringe it
	is rated as an Estuarine wetland. Wetlands that were call 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 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 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) where at least 20 acres (8ha) in size;
	At least 30% of the open water area is deeper than 6.6 (2 m)?
4	NO – go to 4 YES – The wetland class is Lake-fringe (Lacustrine Fringe)
4.	Does the entire wetland meet all of the following criteria? The wetland is on a slope (slope can be very gradual).
	The wettand is on a slope (stope 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 types of wetlands except occasionally in very small and
	shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).
	NO – go to 5 YES – The wetland class is Slope
5.	Does the entire wetland 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 of
	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 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 APE AS IN THE LINIT (make a rough sketch to halp you decide). Use the following to block is identify the appropriate class to use for the
	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

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	Treat as ESTUARINE under wetlands with special
freshwater wetland	characteristics

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

than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
D 1	Does the wetland have the potential to improve water quality?	$\begin{cases} see p.38 \end{cases}$
<i>D</i> 1	D 1.1 Characteristics of surface water flows out of the wetland:	
	• Unit is a depression with no surface water leaving it (no outlet)	Figure
	 Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 1 	2
	• Unit is a "flat" depression (0.7 on key), or in the Flats class, with permanent surface	
	outflow and no obvious natural outlet and/or outlet is a man-made ditchpoints = 1	
	(If ditch is not permanently flowing treat unit as "intermittently flowing") Provide photo or drawing D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions)	
	YES points = 4 NO points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class):	Figure
	 Wetland has persistent, ungrazed vegetation > = 95% of area points = 5 Wetland has persistent, ungrazed vegetation > = 1/2 of area points = 3 	rigure
	• Wetland has persistent, ungrazed vegetation > = 1/2 of area	5
	• Wetland has persistent, ungrazed vegetation < 1/10 of area	
	Map of Cowardin vegetation classes D 1.4 Characteristics of seasonal ponding or inundation: This is the area of the wetland that is ponded for at	
	least 2 months, but dries out sometime during the year. Do not count the area that is permanently	Figure
	ponded. Estimate area as the average condition 5 out of 10 years.	
	 Area seasonally ponded is > 1/2 total area of wetland	
	• Area seasonally ponded is < 1/4 total area of wetland	
	Map of Hydroperiods	
	Total for D 1 Add the points in the boxes above	
D 2	Does the wetland have the <u>opportunity</u> to improve water quality?	(see p. 44)
	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 or orchards within 150 ft. of wetland	
	A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed	
	fields, roads, or clear-cut logging X. Residential, urban areas, golf courses are within 150 ft. of wetland	Multiplier
	 X Residential, urban areas, golf courses are within 150 ft. of wetland Wetland is fed by groundwater high in phosphorus or nitrogen 	
	Other	X2
•	YES multiplier is 2 NO multiplier is 1	1.0
_	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1	18
D 2	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation. Does the wetland have the potential to reduce flooding and exector?	(see n 16)
D 3	Does the wetland have the <u>potential</u> to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit	(see p.46)
	• Unit is a depression with no surface water leaving it (no outlet)	
	• Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2	
	• Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditchpoints = 1	2
	(If ditch is not permanently flowing treat unit as "intermittently flowing")	
	• Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0	
	D 3.2 Depth of storage during wet periods. Estimate the height of ponding above the bottom of the outlet. For	
	units with no outlet measure from the surface of permanent water or deepest part (if dry). • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet points = 7	
	• The wetland is a "headwater" wetland	3
	• Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outletpoints = 5	3
	 Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet	
	• Marks of ponding less than 0.5 ft points = 0	
	D 3.3 Contribution of wetland unit 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 unitpoints = 5	
	• The area of the basin is 10 to 100 times the area of the unit points = 3	3
	• The area of the basin is more than 100 times the area of the unit	
	• Entire unit is in the FLATS class	
		8

D 4	Does the wetland have the <u>opportunity</u> to reduce flooding and erosion? Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity,				
	it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide				
	gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. <i>Note which of the following indicators of opportunity apply.</i>				
	Wetland is in a headwater of a river or stream that has flooding problems.				
	Wetland drains to a river or stream that has flooding problems X Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or				
	stream that has flooding problems Other				
	YES multiplier is 2 NO multiplier is 1				
•	TOTAL – Hydrologic Functions Multiply the score from D3 by D4; then <i>add score to table on p. 1</i>	16			

Thes	se questions apply to wetlands of all HGM classes.	Points			
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	(only 1 scor per box)			
H 1 Does the wetland have the <u>potential</u> 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 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres. Aquatic Bed Emergent plants	Figure			
	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 types that qualify. If you have: 4 structures or more points = 4 2 structures points = 1 1 structure points = 0	0			
	H 1.2 <u>Hydroperiods</u> (see p.73): Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to	Figure			
	cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods). X Permanently flooded or inundated X Seasonally flooded or inundated Occasionally flooded or inundated X Saturated only Permanently flowing stream or river in, or adjacent to, the wetland Seasonally flowing stream in, or adjacent to, the wetland Lake-fringe wetland	2			
	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	1			
	H 1.4 Interspersion of Habitats (see p. 76):				
	H 1.4 Interspersion of Habitats (<i>see p. 76</i>): Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.				
	Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high".	Figure			
	Use map of Cowardin classes [riparian braided channels]	0			
	High = 3 points 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 point you put into the next column. Large, downed, woody debris within the wetland (> 4 in. 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 (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned grey/brown)	0			
At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas the are permanently or seasonally inundated (structures for egg-laying by amphibians) 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.					

H 2	Does t	he wetland have the opportunity to provide habitat for many species?	(only 1 score per box)
	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". 100m (330 ft) 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)	Figure
	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 a 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 50 ft. 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 Lakefringe wetland, if it does not have an undisturbed corridor as in the question above? YES = 2 points (go to H 2.3) NO = go to 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 miles of a large field or pasture (> 40 acres) OR Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

♦	Total Score for Habitat Functions Add the points for H 1 and H 2; then <i>record the result on p. 1</i>	11
	TOTAL for H 1 from page 8	3
	H 2 TOTAL Score – opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4	8
	• There are no wetlands within 1/2 mile	
	• There is at least 1 wetland within 1/2 mile	
	• The wetland fringe on a lake with disturbance and there are 3 other lake-fringe wetlands within 1/2 milepoints = 3	
	disturbed	
	• There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are	3
	wetlands within 1/2 milepoints = 5	2
	• The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe	
	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 developmentpoints = 5	
	• There are at least 3 other wetlands within 1/2 mile, and the connections between them are	
	H 2.4 Wetland Landscape: Choose the one description of the landscape around the wetland that best fits (see p. 84)	
	addressed in question H 2.4)	
	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	
	If wetland has 2 priority habitats = 3 points If wetland has 1 priority habitats = 3 points No habitate = 0 priority	
	If wetland has 3 or more priority habitats = 4 points	
	end, and > 6 m (20 ft) long.	
	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	
	Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics	
	andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
	Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt,	
	Cliffs: Greater than 7.6 m (25 ft) high and occurring below 5000 ft.	
	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.	
	WDFW report: pp. 167-169 and glossary in Appendix A).	
	and Puget Sound Nearshore. (full descriptions of habitats and the definition of relatively undisturbed are in	
	Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore,	
	provide functional life history requirements for instream fish and wildlife resources.	
	X Instream: The combination of physical, biological, and chemical processes and conditions that interact to	3
	Westside Prairies: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (<i>full descriptions in WDFW PHS report p. 161</i>).	3
	terrestrial ecosystems which mutually influence each other.	
	X Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and	
	oak component is important (full descriptions in WDFW PHS report p. 158).	
	Oregon white Oak: Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the	
	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.	
	dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown	
	multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in)	
	Old-growth/Mature forests: (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a	
	Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.	
	Biodiversity Areas and Corridors : Areas of habitat that are relatively important to various species of native fish and wildlife (<i>full descriptions in WDFW PHS report p. 152</i>).	
	Aspen Stands: Pure or mixed stands of aspen greater than 0.4 ha (1 acre).	
	NOTE: the connections do not have to be relatively undisturbed.	
	Which of the following priority habitats are within 330 ft. (100m) of the wetland unit?	
	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)	
	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): (see new and complete	

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.				
SC1	Estuarine wetlands? (see p.86)				
BCI	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.				
	Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC	Cat. 1			
	332-30-151? YES = Category I NO = go to SC 1.2	Cat. 1			
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions?				
	YES = Category I NO = Category II	Cat. I			
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has	Cat. 1			
	less than 10% cover of non-native plant species. If the non-native Spartina spp, are only species	Cat. II			
	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	0444 11			
	with native species would be a Category 1. Do not, however, exclude the area of Spartina in				
	determining the size threshold of 1 acre. At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	Dual			
	or un-mowed grassland	Rating			
	The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	I/II			
SC2	Natural Heritage Wetlands (see p. 87)				
SCZ	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 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 NOX				
	SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species?	Cat I			
	YES = Category 1 NO not a Heritage Wetland	Cat I			
SC3	Bogs (see p. 87)				
303	Does the wetland (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 function.				
	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 soil profile? (See Appendix B for a field key to				
	identify organic soils)? YES = go to question 3 NO = go to question 2 2. Does the wetland 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 question 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 question 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. 4. 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)?	Cat. I			
	$YES = Category I \qquad \qquad NO = Is not a bog for purpose of rating$				

SC4	Forested Wetlands (see p. 90)					
	Does the wetland 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 function.					
	Old-growth forests: (west of Cascade Crest) Stands of at least two three 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 an average diameters (dbh) exceeding 21 inches (53 cm); 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.	Cat. I				
	YES = Category I NO = \underline{X} not a forested wetland with special characteristics	0				
COF	Wetlands in Coastal Lagoons (see p. 91)					
SC5	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 \underline{X} not a wetland in a coastal lagoon					
	SC 5.1 Does the wetland meet all of the following three conditions?					
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has					
	less than 20% cover of invasive plant species (see list of invasive species on p. 74).					
	At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed					
		G . T				
	or un-mowed grassland. The westend is legger than 1/10 core (4350 square ft.)	Cat. I				
	The wetland is larger than 1/10 acre (4350 square ft.)	G . TT				
	YES = Category I NO = Category II	Cat. II				
SC6	Interdunal Wetlands (see p. 93)					
	Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or					
	WBUO)?					
	YES = Go to SC 6.1 NO \underline{X} 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					
	 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 one acre or larger?					
	YES = Category II $\frac{1}{100}$ NO = go to SC 6.2	Cat. II				
	SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?	Cat. 11				
	YES = Category III	Cat. III				
	Category of wetland based on Special Characteristics	Cat. 111				
	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	NA				
	if you answered NO for all types enter. Not Applicable on p. 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): 21AC		Dat	e of site visit:	: <u>10-31-07 (rev: 0</u>	<u>3-19-14)</u>	
Rated by: Colin Worsley / Matt Maynard	Trained by E	Coology? Yes X No	Date of trai	ning: <u>11- 2005 /</u>	04-2006	
SEC: 06 TOWNSHIP: 24N	RANGE:	06E Is S/T/R in A	Appendix D?	Yes N	o_X	
Map of wetland unit: I	Figure	Estimated size	e_~0.40 acre			
	SUMMA	RY OF RATING				
Category based on FUNCTIONS provided by	y wetland:	I II	III	X IV_		
Category I = Score > 70		Score for Water Quality F	unctions	18		
Category II = Score 51 - 69		Score for Hydrologic F	unctions	4	7	
Category III = Score 30 – 50		Score for Habitat F	unctions	12	7	
Category IV = Score < 30		TOTAL Score for F	unctions	34	1	
Category based on SPECIAL CHARACTERISTCS of Wetland I II Does not apply X						
Final Catego	ory (choose	the "highest" category from	n above")	III	1	
Summary of basic in	nformation :	about the wetland unit.			_	
Wetland Unit has Special Characteristics	l	Wetland HGM Class				
Estuarine Characteristics		used for Rating Depressional				
Natural Heritage Wetland		Riverine				
Bog		Lake-fringe	X			
Mature Forest		Slope	(x)			
Old Growth Forest		Flats				
Coastal Lagoon		Freshwater Tidal				
Interdunal						
None of the above	X	Check if unit has multiple HGM classes present	X			
Does the wetland being rated meet any of the	e criteria bel	low? If you answer YES to	any of the au	iestions below vo	ou will	

Does the wetland 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 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 1 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.

Classification of Vegetated Wetlands for 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 a Saltwater Tidal Fringe it
	is rated as an Estuarine wetland. Wetlands that were call 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 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 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) where at least 20 acres (8ha) in size;
	At least 30% of the open water area is deeper than 6.6 (2 m)?
4	NO – go to 4 YES – The wetland class is Lake-fringe (Lacustrine Fringe)
4.	Does the entire wetland meet all of the following criteria? The wetland is on a slope (slope can be very gradual).
	The wettaild is on a slope (stope 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 types of wetlands except occasionally in very small and
	shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).
	NO – go to 5 YES – The wetland class is Slope
5.	Does the entire wetland 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 of
	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 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 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

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	Treat as ESTUARINE under wetlands with special
freshwater wetland	characteristics

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

than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

L	Lake-fringe Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that the wetland unit functions to improve water quality.	(only 1 score
L 1	Does the wetland unit have the <u>potential</u> to improve water quality? (see p.59)	per box)
	L 1.1 Average width of vegetation along the lakeshore (use polygons of Cowardin classes):	E:
	 Vegetation is more than 33 ft. (10m) wide	Figure
	• Vegetation is more than 16 ft. (5m) wide and < 33 ft	3
	Vegetation is more than 6 ft. (2m) wide and < 16 ft points = 1 Vegetation is less than 6 ft. wide points = 0 Map of Cowardin classes with widths marked	3
	Map of Cowardin classes with widths marked	
	L 1.2 Characteristics of the vegetation in the wetland: <i>Choose the appropriate description that results in the highest points, and do not include any open water in your estimate of coverage.</i> The herbaceous plants can be either the	Figure
	dominant form or as an understory in a shrub or forest community. These are not Cowardin classes. Area of Cover is	
	total cover in the unit, but it can be in patches. NOTE: Herbaceous does not include aquatic bed.	
	• Cover of herbaceous plants is > 90% of the vegetated area	
	 Cover of herbaceous plants is > 2/3 of the vegetated area points = 4 Cover of herbaceous plants is > 1/3 of the vegetated area points = 3 	6
	• Other vegetation that is not aquatic bed or herbaceous covers > 2/3 of the unit	
	• Other vegetation that is not aquatic bed in > 1/3 vegetated area	
	• Aquatic bed cover and open water > 2/3 of the unit	
	Add the points in the boxes above	9
L 2	Does the wetland have the opportunity to improve water quality?	(see p.61)
LZ	Answer YES if you know or believe there are pollutants in the lake water, or polluted surface water flowing	(see p.o1)
	through the unit to the lake. 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.	
	Wetland is along the shores of a lake or reservoir that does not meet water quality standards	
	Grazing in the wetland or within 150 ft Polluted water discharges to wetland along upland edge	
	Tilled fields or orchards within 150 ft. of wetland	
	X Residential or urban areas are within 150 ft. of wetland Parks with grassy areas that are maintained, ballfields, golf courses (all within 150 ft. of lake shore)	Multiplie
	Your boats with gasoline or diesel engines use the lake	1
	Other	X2
	YES multiplier is 2 NO multiplier is 1	
*	TOTAL – Water Quality Functions Multiply the score from L1 by L2; then <i>add score to table on p. 1</i>	18
	HYDROLOGIC FUNCTIONS – Indicators that wetland functions to reduce shoreline erosion.	7
L 3	Does the wetland have the <u>potential</u> to reduce shoreline erosion?	(see p.62)
	L 3 Average width and characteristics of vegetation along the lakeshore (do not include aquatic bed):	Figure
	(choose the highest scoring description that matches conditions in the wetland) • 3/4 of distance is shrubs or forest at least 33 ft. (10m) wide	rigure
	• 3/4 of distance is shrubs or forest at least 6 ft. (2m) wide	
	• 1/4 of distance is shrubs or forest at least 33 ft. (10m) wide. points = 4	2
	 Vegetation is at least 6 ft. (2m) wide (any type except aquatic bed)	
	Aerial photo or map with Cowardin vegetation classes	
	Record the points in the boxes above	2
L 4	Does the wetland have the opportunity to reduce erosion?	(see p. 64)
	Are there features along the shore that will be impacted if the shoreline erodes? <i>Note which of the following</i>	
	conditions apply.	
	X There are human structures and activities along the upland edge of the wetland (buildings, fields) that can be damaged by erosion.	
	There are undisturbed natural resources along the upland edge of the wetland (e.g. mature forests.	Multiplier
	other wetlands) that can be damaged by shoreline erosion.	
	Other	X2
•	YES multiplier is 2 NO multiplier is 1	4
•	<u>TOTAL</u> – Hydrologic Functions Multiply the score from L3 by L4; then <i>add score to table on p. 1</i>	4

Comments: Majority of herbaceous vegetation is maintained lawn.

Thes	e questions apply to wetlands of all HGM classes.	Points
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	(only 1 scor per box)
H 1	Does the wetland have the <u>potential</u> 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 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres. Aquatic Bed	Figure
	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 types that qualify. If you have: 4 structures or more points = 4 2 structures points = 1 1 structure points = 0	0
	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 1/4 acre to count (see text for descriptions of hydroperiods). Permanently flooded or inundated Seasonally flooded or inundated Some or more types present points = 3 Some or more types present points = 2	Figure
	Occasionally flooded or inundated Saturated only 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	2
	Freshwater tidal wetland = 2 points Map of hydroperiods 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	1
	H 1.4 Interspersion of Habitats (see p. 76): Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.	
	Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high".	Figure
	Use map of Cowardin classes. [riparian braided channels]	0
\dashv	High = 3 points 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 (> 4 in. 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 (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned grey/brown)	0
	At least 1/4 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) 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.	

H 2	Does t	he wetland have the opportunity to provide habitat for many species?	(only 1 score per box)
	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". 100m (330 ft) 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)	Figure
	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 a 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 50 ft. 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 Lakefringe wetland, if it does not have an undisturbed corridor as in the question above? YES = 2 points (go to H 2.3) NO = go to 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 miles of a large field or pasture (> 40 acres) OR Within 1 mile of a lake greater than 20 acres? NO = 0 points	2

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): (see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report habitaty, way now haby possibly sits. Ithin 1 Which of the following priority habitats are within 330 ft. (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-growthMature 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%; 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). X 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 vet prairie (full descriptions in WDFW PHS report p. 161). X Instream: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildire resources. Nearshore: Relatively undisturbed nearshore habitats. The	3
addressed in question H 2.4) 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 1/2 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 developmentpoints = 5 • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 milepoints = 5 • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbedpoints = 3 • The wetland fringe on a lake with disturbance and there are 3 other lake-fringe wetlands within 1/2 milepoints = 3 • There is at least 1 wetland within 1/2 milepoints = 2 • There are no wetlands within 1/2 milepoints = 0 H 2 TOTAL Score – opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4	3
TOTAL for H 1 from page 8	3
◆ Total Score for Habitat Functions Add the points for H 1 and H 2; then record the result on p. 1	12

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): 21B			_ Date of	site visit:_	09-12-13	
Rated by: Colin Worsley / Matt Maynard Trained	d by Ecolo	ogy? Yes <u>X</u> No <u> </u>	Date of train	ining: <u>11-2</u>	2005 / 04-20	06_
SEC: 06 TOWNSHIP: 24N	RANGE:	06E Is S/T/R in Ap	pendix D?	Yes	No	<u>X</u> _
Map of wetland unit: Fig	ure	Estimated size	0.08 acre			
	SUMMAI	RY OF RATING				
Category based on FUNCTIONS provided by w			III	X	IV	
Category I = Score > 70		Score for Water Quality Fun	ctions	1	4	
Category II = Score 51 - 69		Score for Hydrologic Fun	ctions	1	0	
Category III = Score 30 – 50		Score for Habitat Fun	ctions	1	5	
Category IV = Score < 30		TOTAL Score for Fun	ctions	3	9	
Category based on SPECIAL CHARACTERISTI	CS of Wet	tland I II	D	oes not ap	oply X	
Final Categor	y (choose	the "highest" category from a	above")	I	II	
Summary of basic info	ormation a	about the wetland unit.				
Wetland Unit has Special Characteristics		Wetland HGM Class				
Estuarine		used for Rating Depressional	X			
Natural Heritage Wetland		Riverine				
Bog		Lake-fringe				
Mature Forest		Slope				
Old Growth Forest		Flats				
Coastal Lagoon		Freshwater Tidal				
Interdunal						
None of the above	X	Check if unit has multiple HGM classes present				
Does the wetland being rated meet any of the co	riteria bel	·	nv of the o	uestions b	elow vou wi	i11

Does the wetland 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 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 1 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.

Classification of Vegetated Wetlands for 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.	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 a Saltwater Tidal Fringe it
	is rated as an Estuarine wetland. Wetlands that were call 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 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 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) where at least 20 acres (8ha) in size; At least 30% of the open water area is deeper than 6.6 (2 m)? NO - go to 4 YES - The wetland class is Lake-fringe (Lacustrine Fringe)
4.	Does the entire wetland 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 types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep). NO – go to 5 YES – The wetland class is Slope
5.	Does the entire wetland 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 of 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 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 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

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	Treat as ESTUARINE under wetlands with special
freshwater wetland	characteristics

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

than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

D	Depressional and Flat Wetlands	Points	
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score	
D 1	Does the wetland have the <u>potential</u> to improve water quality?	$ \begin{array}{c} \text{per box})\\ (see p.38) \end{array} $	
<i>D</i> 1	D 1.1 Characteristics of surface water flows out of the wetland:		
	 Unit is a depression with no surface water leaving it (no outlet)	Figure	
	• Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 1	2	
	• Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface		
	outflow and no obvious natural outlet and/or outlet is a man-made ditchpoints = 1 (If ditch is not permanently flowing treat unit as "intermittently flowing") Provide photo or drawing		
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions)	0	
	YES points = 4 D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class):	,	
	• Wetland has persistent, ungrazed vegetation > = 95% of area	Figure	
	 Wetland has persistent, ungrazed vegetation > = 1/2 of area	5	
	• Wetland has persistent, ungrazed vegetation > = 1/10 of area		
	Map of Cowardin vegetation classes		
	D 1.4 Characteristics of seasonal ponding or inundation: This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently	Figure	
	ponded. Estimate area as the average condition 5 out of 10 years.		
	 Area seasonally ponded is > 1/2 total area of wetland	0	
	 Area seasonally ponded is < 1/4 total area of wetland		
	Map of Hydroperiods Total for D 1 Add the points in the boxes above		
D 2	Does the wetland have the opportunity to improve water quality?	(see p. 44)	
D Z	Answer YES if you know or believe there are pollutants in groundwater or surface water coming into	(see p. 44)	
	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 or orchards within 150 ft. of wetland		
	A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed		
	fields, roads, or clear-cut logging X Residential, urban areas, golf courses are within 150 ft. of wetland	Multiplier	
	Wetland is fed by groundwater high in phosphorus or nitrogen		
	Other	X2	
•	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1	14	
Ť	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	11	
D 3	Does the wetland have the <u>potential</u> to reduce flooding and erosion?	(see p.46)	
	D 3.1 Characteristics of surface water flows out of the wetland unit		
	 Unit is a depression with no surface water leaving it (no outlet)		
	• Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface	2	
	outflow and no obvious natural outlet and/or outlet is a man-made ditch		
	• Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0		
	D 3.2 Depth of storage during wet periods. Estimate the height of ponding above the bottom of the outlet. For		
	units with no outlet measure from the surface of permanent water or deepest part (if dry). • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet points = 7		
	• The wetland is a "headwater" wetland	0	
	 Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet		
	• Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1		
	• Marks of ponding less than 0.5 ft		
	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 unit	3	
	 The area of the basin is 10 to 100 times the area of the unit		
		1	
	• Entire unit is in the FLATS class		

D 4	Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. <i>Note which of the following indicators of opportunity apply</i> . Wetland is in a headwater of a river or stream that has flooding problems Wetland drains to a river or stream that has flooding problems		
	Wetland drains to a river or stream that has flooding problems Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems		
	Other		
	YES multiplier is 2 NO multiplier is 1		
•	<u>TOTAL</u> – Hydrologic Functions Multiply the score from D3 by D4; then <i>add score to table on p. 1</i>	10	

Thes	e questions apply to wetlands of all HGM classes.	Points
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	(only 1 scor per box)
H 1	Does the wetland have the <u>potential</u> 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 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres. Aquatic Bed Emergent plants X Scrub/shrub (areas where shrubs have > 30% cover)	Figure
	Forested (areas where trees have > 30% cover) If the unit has a forested class check if: X The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. Add the number of vegetation types that qualify. If you have: 4 structures or more points = 4 2 structures points = 1 1 structure points = 0	2
	H 1.2 <u>Hydroperiods</u> (see p.73): Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to	Figure
	cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods). X Permanently flooded or inundated Seasonally flooded or inundated Occasionally flooded or inundated X Occasionally flooded or inundated Saturated only 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	3
	Freshwater tidal wetland = 2 points Map of hydroperiods 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	1
	H 1.4 Interspersion of Habitats (see p. 76): Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), 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 Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high".	
	Use map of Cowardin classes. Fight = 3 points Fight Fig	1
	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 (> 4 in. 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 (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned grey/brown)	0
	At least 1/4 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) 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. H 1 TOTAL Score – potential for providing habitat Add the points in the column above	7

H 2	Does t	he wetland have the opportunity to provide habitat for many species?	(only 1 score per box)
	Н 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". 100m (330 ft) 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)	Figure
	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 a 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 50 ft. 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 Lakefringe wetland, if it does not have an undisturbed corridor as in the question above? YES = 2 points (go to H 2.3) NO = go to 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 miles of a large field or pasture (> 40 acres) OR Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

•	Total Score for Habitat Functions Add the points for H 1 and H 2; then <i>record the result on p. 1</i>	15
	TOTAL for H 1 from page 8	7
	H 2 TOTAL Score – opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4	8
	• There are no wetlands within 1/2 mile	
	• There is at least 1 wetland within 1/2 mile	
	• The wetland fringe on a lake with disturbance and there are 3 other lake-fringe wetlands within 1/2 milepoints = 3	
	disturbed	
	• There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are	3
	wetlands within 1/2 milepoints = 5	2
	• The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe	
	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 developmentpoints = 5	
	• There are at least 3 other wetlands within 1/2 mile, and the connections between them are	
	H 2.4 Wetland Landscape: Choose the one description of the landscape around the wetland that best fits (see p. 84)	
	addressed in question H 2.4)	
	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	
	If wetland has 2 priority habitats = 3 points If wetland has 1 priority habitats = 1 points No habitate = 0 points	
	If wetland has 3 or more priority habitats = 4 points	
	end, and > 6 m (20 ft) long.	
	western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest	
	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	
	andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
	Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt,	
	Cliffs: Greater than 7.6 m (25 ft) high and occurring below 5000 ft.	
	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.	
	WDFW report: pp. 167-169 and glossary in Appendix A).	
	and Puget Sound Nearshore. (full descriptions of habitats and the definition of relatively undisturbed are in	
	Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore,	
	provide functional life history requirements for instream fish and wildlife resources.	
	X Instream: The combination of physical, biological, and chemical processes and conditions that interact to	3
	Westside Prairies: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (<i>full descriptions in WDFW PHS report p. 161</i>).	3
	terrestrial ecosystems which mutually influence each other.	
	X Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and	
	oak component is important (full descriptions in WDFW PHS report p. 158).	
	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	
	cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is	
	dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown	
	multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in)	
	Old-growth/Mature forests: (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a	
	Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.	
	Biodiversity Areas and Corridors : Areas of habitat that are relatively important to various species of native fish and wildlife (<i>full descriptions in WDFW PHS report p. 152</i>).	
	Aspen Stands: Pure or mixed stands of aspen greater than 0.4 ha (1 acre).	
	NOTE: the connections do not have to be relatively undisturbed.	
	http://wdfw.wa.gov/hab/phslist.htm) Which of the following priority habitats are within 330 ft. (100m) of the wetland unit?	
	descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report	
	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): (see new and complete	

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.				
SC1	Estuarine wetlands? (see p.86)				
BCI	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.				
	Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC	Cat. 1			
	332-30-151? YES = Category I NO = go to SC 1.2				
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions?				
	YES = Category I NO = Category II	Cat. I			
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has	Cat. 1			
	less than 10% cover of non-native plant species. If the non-native Spartina spp, are only species	Cat. II			
	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	0400 22			
	with native species would be a Category 1. Do not, however, exclude the area of Spartina in				
	determining the size threshold of 1 acre. At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	Dual			
	or un-mowed grassland	Rating			
	The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	I/II			
SC2	Natural Heritage Wetlands (see p. 87)				
SCZ	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 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 X				
	SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species?	Cat I			
	YES = Category 1 NO not a Heritage Wetland	Cat 1			
SC3	Bogs (see p. 87)				
SCS	Does the wetland (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 function.				
	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 soil profile? (See Appendix B for a field key to				
	identify organic soils)? YES = go to question 3 NO = go to question 2 2. Does the wetland 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 question 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 question 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. 4. 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)?	Cat. I			
	$YES = Category I \qquad NO = Is not a bog for purpose of rating$				

SC4	Forested Wetlands (see p. 90)					
	Does the wetland 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 function.					
	Old-growth forests: (west of Cascade Crest) Stands of at least two three 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 an average diameters (dbh) exceeding 21 inches (53 cm); 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.					
	YES = Category I NO = \underline{X} not a forested wetland with special characteristics					
SC5	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 X not a wetland in a coastal lagoon					
	SC 5.1 Does the wetland meet all of the following three conditions?					
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has					
	less than 20% cover of invasive plant species (see list of invasive species on p. 74).					
	At least 3/4 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 ft.)					
	YES = Category I NO = Category II	Cat. II				
SC6	Interdunal Wetlands (see p. 93)					
BCU	Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or					
	WBUO)?					
	YES = Go to SC 6.1 NO X 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 one acre or larger?					
	YES = Category II NO = go to SC 6.2	C-4 TT				
	SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?	Cat. II				
	YES = Category III	C-4 III				
\vdash	<u> </u>	Cat. III				
	Category of wetland based on Special Characteristics Chaose the "highest" rating if yetland falls into several agreeous and record on p. 1					
▼	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	NA				

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 know	wn): 21D			Date of	site visit: 09	-20-13
Rated by: Colin Worsley	/ Matt Maynard Trained	d by Ecolo	gy? Yes <u>X</u> No	Date of tra	ining: <u>11-2005</u>	/ 04-2006
SEC:06	OWNSHIP: 24N	RANGE:_	06E Is S/T/R in A	ppendix D?	Yes	No_X_
M	ap of wetland unit: Fig	gure	Estimated size	0.15 acre		
		CHINANAAD	N OF DATING			
Catagory hand on FUN			RY OF RATING	111	137	v
Category based on FUN	CHONS provided by w	vetiana: 1	II	'''1	IV	A
Category I	= Score > 70		Score for Water Quality Fu	nctions	2	
	= Score 51 - 69		Score for Hydrologic Fu	inctions	6	
	= Score 30 – 50		Score for Habitat Fu		10	
Category IV	= Score < 30		TOTAL Score for Fu	inctions	18	
Category based on SPEC	IAL CHARACTERISTI	ICS of Wet	land I II	D	oes not apply	X
	Final Categor	Y (choose	the "highest" category from	above")	IV	
	Summary of basic info					
Wat	land Unit has Special		Wetland HGM Class			
vvet	Characteristics		used for Rating			
Estuar			Depressional	X		
	al Heritage Wetland		Riverine			
Bog			Lake-fringe			
	re Forest		Slope	(x)		
Old G	rowth Forest		Flats			
Coasta	al Lagoon		Freshwater Tidal			
Interd						
None o	of the above	X	Check if unit has multiple HGM classes present	X		
Does the wetland being	rated most one of the a	mitania hala	w? If you answer VES to	ony of the c	wastions balow	v von will

Does the wetland 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 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 1 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.

Classification of Vegetated Wetlands for 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.	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 a Saltwater Tidal Fringe it is rated as an Estuarine wetland. Wetlands that were call 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 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 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) where at least 20 acres (8ha) in size;
	At least 30% of the open water area is deeper than 6.6 (2 m)? NO – go to 4 YES – The wetland class is Lake-fringe (Lacustrine Fringe)
4.	Does the entire wetland 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 types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep). NO – go to 5 YES – The wetland class is Slope
5.	•
٥.	Does the entire wetland 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 of
	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 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 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
	The second communitenessens form of more of the total area of the weband that being taled. If the area of the class histed in collimn 7 is less

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	Treat as ESTUARINE under wetlands with special
freshwater wetland	characteristics

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

than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
D 1	Does the wetland have the <u>potential</u> to improve water quality?	(see p.38)
<u> </u>	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet)	Figure
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions) YES points = 4 NO points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area	Figure
	D 1.4 Characteristics of seasonal ponding or inundation: This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years. • 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 Map of Hydroperiods	Figure
	Total for D 1 Add the points in the boxes above	1
D 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 or orchards within 150 ft. of wetland A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging X Residential, urban areas, golf courses are within 150 ft. of wetland Wetland is fed by groundwater high in phosphorus or nitrogen	(see p. 44) Multiplier
	OtherYES multiplier is 2 NO multiplier is 1	X2
*	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1	2
D 2	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation. Does the wetland have the <u>potential</u> to reduce flooding and erosion?] (saan 16)
D 3	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	(see p.46)
	D 3.2 Depth of storage during wet periods. Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry). • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet points = 7 • The wetland is a "headwater" wetland points = 5 • 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 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1 • Marks of ponding less than 0.5 ft. points = 0 D 3.3 Contribution of wetland unit to storage in the watershed: Estimate the ratio of the area of upstream	0
	D 3.3 Contribution of wetland unit 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 unit	3

D 4	Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. <i>Note which of the following indicators of opportunity apply.</i>		
	Wetland is in a headwater of a river or stream that has flooding problems. Wetland drains to a river or stream that has flooding problems Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems Other YES multiplier is 2 NO multiplier is 1		
•	TOTAL – Hydrologic Functions Multiply the score from D3 by D4; then add score to table on p. 1	6	

	se quest	ions apply to wetlands of all HGM classes.	Points
	HABI	TAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	(only 1 scor per box)
H 1	Does t	he wetland 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 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres. Aquatic Bed Emergent plants	Figure
		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 types that qualify. If you have: 4 structures or more points = 4 2 structures	
	H 1.2	<u>Hydroperiods</u> (see p.73):	Figure
		Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods). X Permanently flooded or inundated 4 or more types present points = 3 Seasonally flooded or inundated 3 or more types present points = 2 Occasionally flooded or inundated 2 types present points = 1 X Saturated only 1 type present points = 0 Permanently flowing stream or river in, or adjacent to, the wetland Seasonally flowing stream in, or adjacent to, the wetland Lake-fringe wetland = 2 points	1
	H 1.3	Freshwater tidal wetland = 2 points Map of hydroperiods	-
	11 1.3	Richness of Plant Species (see p. 75): Count the number of plant species in the wetland that cover at least 10 ft² (different patches of the same species can be combined to meet the size threshold) You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle. If you counted: > 19 species	1
	H 1.4	Interspersion of Habitats (<i>see p. 76</i>): Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.	
		the classes and univegetated areas (can include open water of induffats) is high, medium, low, of none.	
		None = 0 points Low = 1 point Moderate = 2 points Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high".	
	(None = 0 points Low = 1 point Moderate = 2 points Note: If you have 4 or more classe or 3 vegetation classes and open water, the rating is always "high". Use map of Cowardin classes [riparian braided channels]	
	H 1.5	None = 0 points Low = 1 point Moderate = 2 points Moderate = 2 points Low = 1 point Moderate = 2 points Low = 1 point Low = 1 point Moderate = 2 points Low = 1 point Low = 1 point Low = 1 point Moderate = 2 points Low = 1 point Low = 2 points Low = 1 point Low = 1 point Low = 2 points Low = 2 points Low = 1 point Low = 2 points Low = 1 point Low = 2 points Low = 1 point Low = 2 points Low = 2 points Low = 1 point Low = 2 points Low = 1 point Low = 2 points 0	
	H 1.5	None = 0 points Low = 1 point Moderate = 2 points Note: If you have 4 or more classe or 3 vegetation classes and open water, the rating is always "high". Use map of Cowardin classes: Special Habitat Features (see p. 77): Check the habitat features that are present in the wetland. The number of checks is the number of point you put into the next column.	s. 0

H 2	Does t	he wetland have the opportunity to provide habitat for many species?	(only 1 score per box)
	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". 100m (330 ft) 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)	Figure
	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 a 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 50 ft. 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 Lakefringe wetland, if it does not have an undisturbed corridor as in the question above? YES = 2 points (go to H 2.3) NO = go to 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 miles of a large field or pasture (> 40 acres) OR Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): (see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.us.gov/hab/phs/list.htm) Which of the following priority habitats are within 330 ft. (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-alyered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre)-81 cm (22 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%; 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). X 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). X Instream: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. Nearshore: Relatively undisturbed nearshore habitats. These inclu	3
	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)	
	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 1/2 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 developmentpoints = 5 • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 milepoints = 5 • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbedpoints = 3 • The wetland fringe on a lake with disturbance and there are 3 other lake-fringe wetlands within 1/2 milepoints = 3 • There is at least 1 wetland within 1/2 milepoints = 0 • There are no wetlands within 1/2 mile	3
	H 2 TOTAL Score – opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4	8
	TOTAL for H 1 from page 8	2
*	Total Score for Habitat Functions Add the points for H 1 and H 2; then record the result on p. 1	10
	*	

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.				
SC1	Estuarine wetlands? (see p.86)				
301	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.				
	Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO = go to SC 1.2				
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions?				
	YES = Category I NO = Category II	Cat. I			
	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 <i>Spartina</i> spp., are 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	Cat. II			
	with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre.	Dual			
	At least 3/4 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,	Rating I/II			
	or contiguous freshwater wetlands.	ı			
SC2	Natural Heritage Wetlands (see p. 87)				
	Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as	1			
	either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species.	1			
	SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? (<i>This</i>	1			
	question is used to screen out most sites before you need to contact WNHP/DNR.)	1			
	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 NOX	1			
	SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened	1			
	or endangered plant species?				
	YES = Category 1 NO not a Heritage Wetland				
SC3	Bogs (see p. 87)	1			
	Does the wetland (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	1			
	wetland based on its function.	1			
	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 soil profile? (See Appendix B for a field key to	l			
	identify organic soils)? YES = go to question 3 NO = go to question 2	,			
	2. Does the wetland 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 question 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,	1			
	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)?	ı			
	YES = Is a bog for purpose of rating $NO = go$ to question 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.	ı			
	4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western	ı			
	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)?	Cat. I			
	YES = Category I NO = Is not a bog for purpose of rating				

SC4	Forested Wetlands (see p. 90)					
	Does the wetland 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 function.					
	Old-growth forests: (west of Cascade Crest) Stands of at least two three 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 an average diameters (dbh) exceeding 21 inches (53 cm); 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.	Cat. I				
	YES = Category I NO = \underline{X} not a forested wetland with special characteristics					
SC5	Wetlands in Coastal Lagoons (see p. 91)					
203	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 \underline{X} not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions?					
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has					
	less than 20% cover of invasive plant species (see list of invasive species on p. 74).					
	At least 3/4 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 ft.)					
		Cat. II				
SC6	Interdunal Wetlands (see p. 93)					
	Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or					
	WBUO)?					
	YES = Go to SC 6.1 NO \underline{X} 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 one acre or larger?					
	YES = Category II $\frac{1}{100}$ NO = go to SC 6.2	Cat. II				
	SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?	Cat. II				
	YES = Category III	Cot III				
	* •	Cat. III				
	Category of wetland based on Special Characteristics Chaose the "highest" rating if yetland falls into several agreeous and record on pull.					
	Choose the "highest" rating if wetland falls into several categories, and record on p. 1.	NA				
1	If you answered NO for all types enter "Not Applicable" on p. 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): 22AB			Date of s	site visit:_	09-20-13	
Rated by: Colin Worsley / Matt Maynard Trai	ned by Ecolo	gy? Yes <u>X</u> No D	ate of trai	ning: <u>11-2</u>	2005 / 04-200	16
SEC: 06 TOWNSHIP: 24N	RANGE:		pendix D?	Yes	NoX	<u> </u>
Man of wetland unit. I	Figure	Estimated size () 46 acre			
Map of wettand unit.		Listimated Size	7.40 acre			
	SUMMAI	RY OF RATING				
Category based on FUNCTIONS provided by	y wetland: I	II	III	X	_ IV	
Category I = Score > 70		Score for Water Quality Fun	ctions	2	20	
		·				
Category II = Score 51 - 69		Score for Hydrologic Fun		<u> </u>	6	
Category III = Score 30 – 50		Score for Habitat Fun	ctions	2	20	
Category IV = Score < 30		TOTAL Score for Fun	ctions	4	16	
Category based on SPECIAL CHARACTERISTICS of Wetland I II Does not apply X						
Final Catego	Dry (choose	the "highest" category from a	bove")	I	II	
Summary of basic in	nformation a	about the wetland unit.				
Wetland Unit has Special		Wetland HGM Class				
Characteristics		used for Rating				
Estuarine		Depressional	X			
Natural Heritage Wetland		Riverine				
Bog		Lake-fringe				
Mature Forest		Slope	(x)			
Old Growth Forest		Flats				
Coastal Lagoon		Freshwater Tidal				
Interdunal						
None of the above	X	Check if unit has multiple HGM classes present	X			
Does the wetland being rated meet any of the	e criteria bel	ow? If you answer YES to ar	y of the qu	uestions b	elow you wil	1

need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

	Check List for Wetlands that 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 1 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.

Classification of Vegetated Wetlands for 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 a Saltwater Tidal Fringe it
	is rated as an Estuarine wetland. Wetlands that were call 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 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 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) where at least 20 acres (8ha) in size;
	At least 30% of the open water area is deeper than 6.6 (2 m)?
4	NO – go to 4 YES – The wetland class is Lake-fringe (Lacustrine Fringe)
4.	Does the entire wetland 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 types of wetlands except occasionally in very small and
	shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).
	NO – go to 5 YES – The wetland class is Slope
5.	Does the entire wetland 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 of
	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 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
	Y 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
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
8.	slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO
8.	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
8.	slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO

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	Treat as ESTUARINE under wetlands with special
freshwater wetland	characteristics

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

than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
D 1	Does the wetland have the <u>potential</u> to improve water quality?	(see p.38)
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet)	Figure
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions) YES points = 4 NO points = 0	4
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area	Figure
	D 1.4 Characteristics of seasonal ponding or inundation: This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years. • Area seasonally ponded is > 1/2 total area of wetland	Figure
	Total for D 1 Map of Hydroperiods Add the points in the boxes above	10
D 2	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 or orchards within 150 ft. of wetland A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging X Residential, urban areas, golf courses are within 150 ft. of wetland Wetland is fed by groundwater high in phosphorus or nitrogen Other YES multiplier is 2 NO multiplier is 1 TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1	(see p. 44) Multiplier
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	7
D 3	Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	(see p.46)
	D 3.2 Depth of storage during wet periods. Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry). • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet	0
	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 unit	3
	Total for D 3 Add the points in the boxes above	_

D 4	Does the wetland have the opportunity to reduce flooding and erosion? Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. Note which of the following indicators of opportunity apply. Wetland is in a headwater of a river or stream that has flooding problems. Wetland drains to a river or stream that has flooding problems Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems.	(see p. 49) Multiplier		
	stream that has flooding problems Other			
	YES multiplier is 2 NO multiplier is 1			
•	TOTAL – Hydrologic Functions Multiply the score from D3 by D4; then <i>add score to table on p. 1</i>	6		

hese que	estions apply to wetlands of all HGM classes.	Points
HAI	BITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	(only 1 sco per box)
1 Doe	s the wetland have the <u>potential</u> 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 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres. Aquatic Bed X Emergent plants X Scrub/shrub (areas where shrubs have > 30% cover)	Figure
	Scrub/shirub (aleas where shrubs have > 30% cover) X	4
Н 1.	2 <u>Hydroperiods</u> (see p.73):	Figure
	Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods). X Permanently flooded or inundated X Seasonally flooded or inundated Y Occasionally flooded or inundated X Saturated only Y 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	3
H 1.	Freshwater tidal wetland = 2 points Map of hydroperiods 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 List species below if you want to: < 5 species points = 0	2
H 1.	4 Interspersion of Habitats (see p. 76): Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), 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 Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high".	Figure
	Use map of Cowardin classes. Figure Figure	2
H 1.		1
	NOTE: The 20% stated in early printings of the manual on page 78 is an error.	12
	H 1 TOTAL Score – potential for providing habitat Add the points in the column above	

H 2	Does t	he wetland have the opportunity to provide habitat for many species?	(only 1 score per box)
	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". 100m (330 ft) 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)	Figure
	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 a 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 50 ft. 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 Lakefringe wetland, if it does not have an undisturbed corridor as in the question above? YES = 2 points (go to H 2.3) NO = go to 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 miles of a large field or pasture (> 40 acres) OR Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): (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 330 ft. (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%; 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). X 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). X Instream: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.	3
	 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 habitats = 3 points 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) 	
	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 1/2 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 developmentpoints = 5 • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile	3
	H 2 TOTAL Score – opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4	8
	TOTAL for H 1 from page 8	12
♦	Total Score for Habitat Functions Add the points for H 1 and H 2; then record the result on p. 1	20

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

	Wetlan	d Type – Check off any criteria that apply to the wetland. Circle the Category when the appropriate are met.		
SC1		ne 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.		
		$YES = Go \text{ to } SC 1.1 \qquad NO \underline{X}$		
	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	Cat. 1	
		332-30-151? YES = Category I $NO = go \text{ to } SC 1.2$		
	SC 1.2 I	s the wetland at least 1 acre in size and meets at least two of the following conditions?		
		YES = Category I NO = Category II	Cat. I	
	-	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 <i>Spartina</i> spp, are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II).	Cat. II	
		The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh		
		with native species would be a Category 1. Do not, however, exclude the area of Spartina in		
		determining the size threshold of 1 acre.	Dual	
		At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland	Rating	
	_	The wetland has at least 2 of the following features: tidal channels, depressions with open water,	I/II	
		or contiguous freshwater wetlands.		
SC2		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 being rated in a Section/Township/Range that contains a natural heritage wetland? (This		
	4	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 NOX		
	SC 2.2	Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened		
	or endangered plant species?			
		YES = Category 1 NO not a Heritage Wetland		
SC3	Bogs (se	e p. 87)		
		Does the wetland (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		
	1	wetland based on its function.		
	-	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 soil profile? (See Appendix B for a field key to		
		identify organic soils)? YES = go to question 3 NO = go to question 2		
	7	2. Does the wetland 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 question 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 question 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.		
	2	4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, ledgenede pine, quaking aspen. Englemenn's spruce, or western white pine. WITH any of		
		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)?	Cot	
		YES = Category I NO = Is not a bog for purpose of rating	Cat. I	
		1 LO - Category 1 100 - 18 not a bog for purpose of fatting		

SC4	Forested Wetlands (see p. 90)		
	Does the wetland 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 function.		
	Old-growth forests: (west of Cascade Crest) Stands of at least two three 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 an average diameters (dbh) exceeding 21 inches (53 cm); 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.		
	YES = Category I NO = \underline{X} not a forested wetland with special characteristics		
SC5	Wetlands in Coastal Lagoons (see p. 91)		
SC3	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 \underline{X} not a wetland in a coastal lagoon		
	SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has		
	less than 20% cover of invasive plant species (see list of invasive species on p. 74).		
	At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed		
	The wetland is larger than 1/10 acre (4350 square ft.)	Cat. I	
	YES = Category I NO = Category II	Cat II	
	<u> </u>	Cat. II	
SC6	Interdunal Wetlands (see p. 93) Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or		
	WBUO)?		
	YES = Go to SC 6.1 NO \underline{X} 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 one acre or larger?		
	YES = Category II NO = go to SC 6.2	Cat. II	
	SC 6.2 Is the wetland 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. 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	NA	

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): 22CD			_ Date of	site visit: 10-25	5-13
Rated by: Colin Worsley / Matt Maynard Traine	d by Ecolo	ogy? Yes <u>X</u> No D	ate of tra	nining: <u>11-2005 / 0</u>	4-2006
SEC: 06 TOWNSHIP: 24N	RANGE:	06E Is S/T/R in Ap	pendix D	? Yes N	lo <u>X</u> _
Map of wetland unit: Fig	gure	Estimated size (0.46 acre		
-	CT 13 #3 # A 1	NA OF BATTING			
		RY OF RATING	***	***	***
Category based on FUNCTIONS provided by v	vetland: 1	п	''''	IV	X
Category I = Score > 70		Score for Water Quality Fun	ctions	6	
Category II = Score 51 - 69		Score for Hydrologic Fun	ctions	7	
Category III = Score 30 – 50		Score for Habitat Fun	ctions	9	7
Category IV = Score < 30		TOTAL Score for Fun	ctions	22	
Category based on SPECIAL CHARACTERISTI	ICS of Wet	iland I II]	Does not apply	X
Final Categor	W (choose	the "highest" category from a	hove")	IV	7
			ibove)		_
Summary of basic info	ormation a	about the wetland unit.		•	
Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating			
Estuarine		Depressional Depressional	X		
Natural Heritage Wetland		Riverine			
Bog		Lake-fringe			
Mature Forest		Slope	(x)		
Old Growth Forest		Flats			
Coastal Lagoon		Freshwater Tidal			
Interdunal					
None of the above	X	Check if unit has multiple HGM classes present	X		
Does the wetland being rated meet any of the co	riteria bel	ow? If you answer YES to a	ny of the	questions below vo	ou will

Does the wetland 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 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 1 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.

Classification of Vegetated Wetlands for 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 a Saltwater Tidal Fringe it
	is rated as an Estuarine wetland. Wetlands that were call 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 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 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) where at least 20 acres (8ha) in size;
	At least 30% of the open water area is deeper than 6.6 (2 m)?
4	NO – go to 4 YES – The wetland class is Lake-fringe (Lacustrine Fringe)
4.	Does the entire wetland 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 types of wetlands except occasionally in very small and
	shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).
	NO – go to 5 YES – The wetland class is Slope
5.	Does the entire wetland 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 of
	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 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 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

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	Treat as ESTUARINE under wetlands with special
freshwater wetland	characteristics

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

than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
D 1	Does the wetland have the <u>potential</u> to improve water quality?	(see p.38)
<i>D</i> I	D 1.1 Characteristics of surface water flows out of the wetland:	
	• Unit is a depression with no surface water leaving it (no outlet)	Figure
	 Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 1 	2
	• Unit is a "flat" depression (0.7 on key), or in the Flats class, with permanent surface	2
	outflow and no obvious natural outlet and/or outlet is a man-made ditch	
	(If ditch is not permanently flowing treat unit as "intermittently flowing") Provide photo or drawing D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions)	
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions) YES points = 4 NO points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class):	E:
	• Wetland has persistent, ungrazed vegetation > = 95% of area	Figure
	 Wetland has persistent, ungrazed vegetation > = 1/2 of area	1
	• Wetland has persistent, ungrazed vegetation < 1/10 of area	1
	Map of Cowardin vegetation classes	
l	D 1.4 Characteristics of seasonal ponding or inundation: This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently	Figure
l	ponded. Estimate area as the average condition 5 out of 10 years.	8
1	 Area seasonally ponded is > 1/2 total area of wetland	
	• Area seasonally ponded is > 1/4 total area of wetland points = 2 • Area seasonally ponded is < 1/4 total area of wetland points = 0	0
	Map of Hydroperiods	
	Total for D 1 Add the points in the boxes above	3
D 2	Does the wetland have the opportunity to improve water quality?	(see p. 44)
	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 or orchards within 150 ft. of wetland	
l	A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed	
l	fields, roads, or clear-cut logging	Multiplier
l	X Residential, urban areas, golf courses are within 150 ft. of wetland Wetland is fed by groundwater high in phosphorus or nitrogen	Withtipfier
l	Other	X2
l	YES multiplier is 2 NO multiplier is 1	
•	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1	6
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	_
D 3	Does the wetland have the <u>potential</u> to reduce flooding and erosion?	(see p.46)
	D 3.1 Characteristics of surface water flows out of the wetland unit	
	 Unit is a depression with no surface water leaving it (no outlet)	
	• Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface	2
	outflow and no obvious natural outlet and/or outlet is a man-made ditchpoints = 1	
	(If ditch is not permanently flowing treat unit as "intermittently flowing") Unit has an unconstricted or clicktly constricted surface outlet (norman antly flowing) points = 0.	
	• Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0	
	D 3.2 Depth of storage during wet periods. Estimate the height of ponding above the hottom of the outlet. For	
	D 3.2 Depth of storage during wet periods. Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).	
	units with no outlet measure from the surface of permanent water or deepest part (if dry). • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet	
	 units with no outlet measure from the surface of permanent water or deepest part (if dry). Marks of ponding are 3 ft. or more above the surface or bottom of the outlet	0
	units with no outlet measure from the surface of permanent water or deepest part (if dry). • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet	0
	 units with no outlet measure from the surface of permanent water or deepest part (if dry). Marks of ponding are 3 ft. or more above the surface or bottom of the outlet points = 7 The wetland is a "headwater" wetland points = 5 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 Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1 	0
	 units with no outlet measure from the surface of permanent water or deepest part (if dry). Marks of ponding are 3 ft. or more above the surface or bottom of the outlet points = 7 The wetland is a "headwater" wetland points = 5 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 Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft points = 0 	0
	 units with no outlet measure from the surface of permanent water or deepest part (if dry). Marks of ponding are 3 ft. or more above the surface or bottom of the outlet points = 7 The wetland is a "headwater" wetland points = 5 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 Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft. points = 0 D 3.3 Contribution of wetland unit to storage in the watershed: Estimate the ratio of the area of upstream 	0
	 units with no outlet measure from the surface of permanent water or deepest part (if dry). Marks of ponding are 3 ft. or more above the surface or bottom of the outlet points = 7 The wetland is a "headwater" wetland points = 5 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 Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft. points = 0 D 3.3 Contribution of wetland unit 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 unit. 	
	 units with no outlet measure from the surface of permanent water or deepest part (if dry). Marks of ponding are 3 ft. or more above the surface or bottom of the outlet	5
	 units with no outlet measure from the surface of permanent water or deepest part (if dry). Marks of ponding are 3 ft. or more above the surface or bottom of the outlet points = 7 The wetland is a "headwater" wetland points = 5 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 Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft. points = 0 D 3.3 Contribution of wetland unit 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 unit. 	

D 4	Does the wetland have the opportunity to reduce flooding and erosion?	(see p. 49)
	Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. <i>Note which of the following indicators of opportunity apply.</i>	-
	 Wetland is in a headwater of a river or stream that has flooding problems. Wetland drains to a river or stream that has flooding problems Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems Other	Multiplier
	YES multiplier is 2 NO multiplier is 1	-
•	TOTAL – Hydrologic Functions Multiply the score from D3 by D4; then <i>add score to table on p. 1</i>	7

Thes	questions apply to wetlands of all HGM classes.	Points
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	(only 1 score per box)
H 1	Does the wetland have the <u>potential</u> 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 cla 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres. Aquatic Bed X Emergent plants X Scrub/shrub (areas where shrubs have > 30% cover)	Figure
	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 types that qualify. If you have: 4 structures or more points = 4 2 structures points = 1 1 structure points	sses 1 1 1 1
	H 1.2 <u>Hydroperiods</u> (see p.73): Check the types of water regimes (hydroperiods) present within the wetland. The water regime has a	Figure
	cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods). Permanently flooded or inundated Seasonally flooded or inundated Occasionally flooded or inundated Saturated only Permanently flowing stream or river in, or adjacent to, the wetland Seasonally flowing stream in, or adjacent to, the wetland Lake-fringe wetland	2 1 0 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 ft² (different patches of the sa 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	1
	H 1.4 Interspersion of Habitats (see p. 76): Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1) the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none. Note: If you have 4 or more classes	
	None = 0 points Low = 1 point Moderate = 2 points or 3 vegetation classes an open water, the rating is always "high".	
	Use map of Cowardin cla	sses.
	High = 3 points 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 power put into the next column. Large, downed, woody debris within the wetland (> 4 in. 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 (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned area/(hypotry)	east 0
	not yet turned grey/brown) At least 1/4 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) 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.	

H 2	Does t	he wetland have the opportunity to provide habitat for many species?	(only 1 score per box)
	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". 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed plant of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use)	Figure
	Н 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 a 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 50 ft. 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 Lakefringe wetland, if it does not have an undisturbed corridor as in the question above? YES = 2 points (go to H 2.3) NO = go to 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 miles of a large field or pasture (> 40 acres) OR Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): (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 330 ft. (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%; 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: Relative	0
If wetland has 2 priority habitats = 3 points If wetland has 1 priority habitat = 1 point 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) 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 1/2 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 developmentpoints = 5 • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 milepoints = 5 • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed	3
H 2 TOTAL Score – opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4	5
TOTAL for H 1 from page 8	4
◆ Total Score for Habitat Functions Add the points for H 1 and H 2; then record the result on p. 1	9

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

		na Type – Cneck off any criteria that apply to the wetlana. Circle the Category when the appropriate	
a c: .		are met.	
SC1	Estuar	ine 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.	
	~~	$YES = Go to SC 1.1 \qquad NO \underline{X}$	
		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. 1
	SC 1.2	Is the wetland at least 1 acre in size and meets at least two of the following conditions?	
		YES = Category I NO = Category II	Cat. I
		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 <i>Spartina</i> spp,, are 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 1. Do not, however, exclude the area of Spartina in	Cat. II
		determining the size threshold of 1 acre.	Dual
		At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	Rating
		or un-mowed grassland The wetland has at least 2 of the following features: tidal channels, depressions with open water,	I/II
		or contiguous freshwater wetlands.	
SC2	Natura	ll Heritage Wetlands (see p. 87)	
SCZ	1141414	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 being rated in a Section/Township/Range that contains a natural heritage wetland? (<i>This</i>	
	50 2.1	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 X	
	SC 2.2	Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened	
	SC 2.2	or endangered plant species?	Cot I
		YES = Category 1 NO not a Heritage Wetland	Cat I
	Desa (s		
SC3	bogs (S	ree p. 87)	
		Does the wetland (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 function.	
		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 soil profile? (See Appendix B for a field key to	
		identify organic soils)? YES = go to question 3 NO = go to question 2	
		2. Does the wetland 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 question 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 question 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.	
		4. 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	0
		component of the ground cover (> 30% coverage of the total shrub/herbaceous cover)?	Cat. I
L !		$YES = Category I \qquad NO = Is not a bog for purpose of rating$	

	If you answered NO for all types enter "Not Applicable" on p. 1	NA			
•	Choose the "highest" rating if wetland falls into several categories, and record on p. 1.				
	Category of wetland based on Special Characteristics	Cat. III			
	SC 6.2 Is the wetland 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 III			
	YES = Category II NO = go to SC 6.2	Cat. II			
	SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger?				
	 Grayland-Westport lands west of SR 105 Ocean Shores-Copalis – lands west of SR 115 and SR 109 				
	• Long Beach Peninsula lands west of SR 103				
	In practical terms that means the following geographic areas:				
	YES = Go to SC 6.1 NO X not an interdunal wetland for rating If you answer yes you will still need to rate the wetland based on its functions.				
	WBUO)?				
SC6	Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or				
SCC	7 () 177 () 1 () () ()	Cat. II			
	The wetland is larger than 1/10 acre (4350 square ft.) YES = Category I NO = Category II	Cat. II			
	or un-mowed grassland. The westland is larger than 1/10 acre (4350 square ft.)				
	At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed				
	less than 20% cover of invasive plant species (see list of invasive species on p. 74).				
	SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has				
	YES = Go to SC 5.1 NO \underline{X} not a wetland in a coastal lagoon				
	bottom.)				
	ppt) during most of the year in at least a portion of the lagoon (needs to be measured near the				
	The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5				
	from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks.				
	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				
SC5	Wetlands in Coastal Lagoons (see p. 91)				
	$YES = Category I \qquad NO = \underline{X} not a forested wetland with special characteristics$				
	less than that found in old-growth.	Cat. I			
	100%; decay, decadence, numbers of snags, and quantity of large downed material is generally				
	Mature forests: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than				
	criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter.				
	in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW				
	NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees				
	more).				
	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				
	Old-growth forests: (west of Cascade Crest) Stands of at least two three species forming a				
	based on its function.				
	Does the wetland 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? <i>If you answer yes you will still need to rate the wetland</i>				
SC4	Forested Wetlands (see p. 90)				

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): 22E			Date of	f site visit: 10-25	5-13
Rated by: Colin Worsley / Matt Maynard Train	ed by Ecolo	ogy? Yes <u>X</u> No D	ate of tr	raining: <u>11-2005 / 0</u>	4-2006
SEC: 06 TOWNSHIP: 24N	RANGE:	06E Is S/T/R in App	pendix I)? Yes N	loX _
Map of wetland unit:	Figure	Estimated size	<0.01	acre_	
	SUMMAI	RY OF RATING			
Category based on FUNCTIONS provided by	wetland: 1	I II	III_	IV	X
Category I = Score > 70		Score for Water Quality Fund	ctions	8	
Category II = Score 51 - 69		Score for Hydrologic Fun	ctions	9	7
Category III = Score 30 – 50		Score for Habitat Fund	ctions	9	
Category IV = Score < 30		TOTAL Score for Fund	ctions	26	
Category based on SPECIAL CHARACTERIST	tland I II		Does not apply	X	
Final Catego	ry (choose	the "highest" category from a	bove")	IV	
Summary of basic in	formation :	about the wetland unit.			
Wetland Unit has Special		Wetland HGM Class			
Characteristics		used for Rating			
Estuarine		Depressional	X		
Natural Heritage Wetland		Riverine			
Bog		Lake-fringe			
Mature Forest		Slope			
Old Growth Forest		Flats			
Coastal Lagoon		Freshwater Tidal			
Interdunal					
None of the above	X	Check if unit has multiple HGM classes present			
Does the wetland being rated meet any of the	criteria bel	ow? If you answer YES to an	v of the	auestions below vo	ou will

Does the wetland 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 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 1 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.

Classification of Vegetated Wetlands for 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.

I.	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 a Saltwater Tidal Fringe it
	is rated as an Estuarine wetland. Wetlands that were call 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 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.
2	
3.	Does the entire wetland 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) where at least 20 acres (8ha) in size;
	At least 30% of the open water area is deeper than 6.6 (2 m)?
	NO – go to 4 YES – The wetland class is Lake-fringe (Lacustrine Fringe)
4.	Does the entire wetland 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 types of wetlands except occasionally in very small and
	shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).
	$\frac{\text{NO} - \text{go to 5}}{\text{NO} - \text{go to 5}}$ YES – The wetland class is Slope
5	
٥.	Does the entire wetland 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 of
	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 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
0	·
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 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

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	Treat as ESTUARINE under wetlands with special
freshwater wetland	characteristics

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

than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
D 1	Does the wetland have the <u>potential</u> to improve water quality?	(see p.38)
<i>J</i> 1	D 1.1 Characteristics of surface water flows out of the wetland:	(see p.50)
	• Unit is a depression with no surface water leaving it (no outlet)	Figure
	• Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet points = 2	
	 Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 1 Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface 	3
	outflow and no obvious natural outlet and/or outlet is a man-made ditch	
	(If ditch is not permanently flowing treat unit as "intermittently flowing") Provide photo or drawing	
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions) YES points = 4 NO points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class):	
	• Wetland has persistent, ungrazed vegetation > = 95% of area	Figure
	• Wetland has persistent, ungrazed vegetation > = 1/2 of area	_
	 Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 Wetland has persistent, ungrazed vegetation < 1/10 of area points = 0 	5
	Map of Cowardin vegetation classes	
	D 1.4 Characteristics of seasonal ponding or inundation: This is the area of the wetland that is ponded for at	
	least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.	Figure
	• Area seasonally ponded is > 1/2 total area of wetlandpoints = 4	
	• Area seasonally ponded is > 1/4 total area of wetland	0
	• Area seasonally ponded is < 1/4 total area of wetlandpoints = 0 Map of Hydroperiods	
	Total for D 1 Add the points in the boxes above	
D 2	Does the wetland have the opportunity to improve water quality?	(see p. 44)
D 2	Answer YES if you know or believe there are pollutants in groundwater or surface water coming into	(see p. 11)
	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 or orchards within 150 ft. of wetland A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed	
	fields, roads, or clear-cut logging	
	Residential, urban areas, golf courses are within 150 ft. of wetland Wetland is fed by groundwater high in phosphorus or nitrogen	
		Multiplier
	Wetland is fed by groundwater high in phosphorus or nitrogen	
	Other	Multiplier X1
•	Other YES multiplier is 2 NO multiplier is 1	X1
*	Other	X1
• D 3	Other YES multiplier is 2 NO multiplier is 1 TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1 HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	X1
• D 3	Other	<u>X1</u> 8
b D 3	Other YES multiplier is 2 NO multiplier is 1 TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1 HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation. Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet) points = 4	X1 8 (see p.46)
D 3	Other YES multiplier is 2 NO multiplier is 1 TOTAL - Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1 HYDROLOGIC FUNCTIONS - Indicators that wetland unit functions to reduce flooding and stream degradation. Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet) points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2	X1 8 (see p.46)
b D 3	Other YES multiplier is 2 NO multiplier is 1 TOTAL - Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1 HYDROLOGIC FUNCTIONS - Indicators that wetland unit functions to reduce flooding and stream degradation. Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet) points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface	X1 8 (see p.46)
D 3	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1 HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation. Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet)	_X1
D 3	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1 HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation. Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet)	X1 8 (see p.46)
D 3	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1 HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation. Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch points = 1 (If ditch is not permanently flowing treat unit as "intermittently flowing") Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0 D 3.2 Depth of storage during wet periods. Estimate the height of ponding above the bottom of the outlet. For	X1 8 (see p.46)
D 3	TOTAL - Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1 HYDROLOGIC FUNCTIONS - Indicators that wetland unit functions to reduce flooding and stream degradation. Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	X1 8 (see p.46)
b D 3	TOTAL - Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1 HYDROLOGIC FUNCTIONS - Indicators that wetland unit functions to reduce flooding and stream degradation. Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	X1 8 (see p.46)
♦ D 3	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1 HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation. Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet) points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch points = 1 (If ditch is not permanently flowing treat unit as "intermittently flowing") • Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0 D 3.2 Depth of storage during wet periods. Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry). • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet points = 5	8 (see p.46) 4
♦ D 3	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1 HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation. Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet) points = 4 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch points = 1 (If ditch is not permanently flowing treat unit as "intermittently flowing") • Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0 D 3.2 Depth of storage during wet periods. Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry). • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet points = 3 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet points = 3	X1 8 (see p.46)
D 3	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1 HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation. Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	X1 8 (see p.46)
D 3	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1 HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation. Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch points = 1 (If ditch is not permanently flowing treat unit as "intermittently flowing") Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0 D 3.2 Depth of storage during wet periods. Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry). Marks of ponding are 3 ft. or more above the surface or bottom of the outlet points = 5 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 = 1 Marks of ponding less than 0.5 ft. points = 6 D 3.3 Contribution of wetland unit to storage in the watershed: Estimate the ratio of the area of upstream	X1 8 (see p.46)
b D 3	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1 HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation. Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	X1
b D 3	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1 HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation. Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	X1
♦ D 3	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1 HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation. Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet) points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch points = 1 (If ditch is not permanently flowing treat unit as "intermittently flowing") • Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0 D 3.2 Depth of storage during wet periods. Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry). • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet points = 7 • The wetland is a "headwater" wetland	X1

D 4	Does the wetland have the opportunity to reduce flooding and erosion? Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. Note which of the following indicators of opportunity apply. Wetland is in a headwater of a river or stream that has flooding problems. Wetland drains to a river or stream that has flooding problems Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems Other	(see p. 49) Multiplier X1
	YES multiplier is 2 NO multiplier is 1	
•	TOTAL – Hydrologic Functions Multiply the score from D3 by D4; then <i>add score to table on p. 1</i>	9

Thes	se questions apply to wetlands of all HGM classes.	Points
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	(only 1 scor per box)
H 1	Does the wetland have the <u>potential</u> 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 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres. Aquatic Bed Emergent plants Sorth check (see Sorth check these should be supported by Coward)	Figure
	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 types that qualify. If you have: 4 structures or more points = 4 2 structures	0
	H 1.2 <u>Hydroperiods</u> (see p.73): Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to	Figure
	cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods). Permanently flooded or inundated 4 or more types present points = 3 Seasonally flooded or inundated 3 or more types presentpoints = 2 Occasionally flooded or inundated 2 types presentpoints = 1 X Saturated only 1 type presentpoints = 0 Permanently flowing stream or river in, or adjacent to, the wetland Seasonally flowing stream in, or adjacent to, the wetland Lake-fringe wetland	0
	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	1
	H 1.4 Interspersion of Habitats (see p. 76):	
	Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), 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 Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high".	Figure
	Use map of Cowardin classes [riparian braided channels]	0
	High = 3 points 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 (> 4 in. 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 (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned grey/brown) At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that	0
	are permanently or seasonally inundated (structures for egg-laying by amphibians) 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.	
	H 1 TOTAL Score – potential for providing habitat Add the points in the column above	1

H 2	Does t	he wetland have the opportunity to provide habitat for many species?	(only 1 score per box)
	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". 100m (330 ft) 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)	Figure
	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 a 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 50 ft. 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 Lakefringe wetland, if it does not have an undisturbed corridor as in the question above? YES = 2 points (go to H 2.3) NO = go to 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 miles of a large field or pasture (> 40 acres) OR Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

•	Total Score for Habitat Functions Add the points for H 1 and H 2; then record the result on p. 1	9
	TOTAL for H 1 from page 8	1
	H 2 TOTAL Score – opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4	8
	•	
	• There is at reast 1 wettand within 1/2 mile points = 2 • There are no wetlands within 1/2 mile points = 0	
	• There is at least 1 wetland within 1/2 mile	
	• The wetland fringe on a lake with disturbance and there are 3 other lake-fringe wetlands within 1/2 milepoints = 3	
	disturbedpoints = 3	
	• There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are	3
	wetlands within 1/2 milepoints = 5	2
	• The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe	
	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 developmentpoints = 5	
	• There are at least 3 other wetlands within 1/2 mile, and the connections between them are	
	H 2.4 Wetland Landscape: Choose the one description of the landscape around the wetland that best fits (see p. 84)	
	addressed in question H 2.4)	
	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	
	If wetland has 2 priority habitats = 3 points If wetland has 1 priority habitats = 1 points No habitate = 0 points	
	If wetland has 3 or more priority habitats = 4 points	
	end, and > 6 m (20 ft) long.	
	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	
	Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics	
	andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
	Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt,	
	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.	
	Caves: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils,	
	WDFW report: pp. 167-169 and glossary in Appendix A).	
	and Puget Sound Nearshore. (full descriptions of habitats and the definition of relatively undisturbed are in	
	Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore,	
	X Instream: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.	
	a wet prairie (full descriptions in WDFW PHS report p. 161).	3
	Westside Prairies: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or	
	terrestrial ecosystems which mutually influence each other.	
	oak component is important (<i>full descriptions in WDFW PHS report p. 158</i>). X Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and	
	Oregon white Oak: Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the	
	generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.	
	cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is	
	dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown	
	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)	
	Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.	
	fish and wildlife (full descriptions in WDFW PHS report p. 152).	
	Biodiversity Areas and Corridors: Areas of habitat that are relatively important to various species of native	
	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).	
	Which of the following priority habitats are within 330 ft. (100m) of the wetland unit?	
	http://wdfw.wa.gov/hab/phslist.htm)	
	descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report	
	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): (see new and complete	

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.	
SC1	Estuarine wetlands? (see p.86)	
BCI	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 X 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	Cat. 1
	332-30-151? YES = Category I NO = go to SC 1.2	Cat. 1
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions?	
	YES = Category I NO = Category II	Cat. I
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has	Cat. 1
	less than 10% cover of non-native plant species. If the non-native Spartina spp., are only species	Cat. II
	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	040.11
	with native species would be a Category 1. Do not, however, exclude the area of Spartina in	
	determining the size threshold of 1 acre. At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	Dual
	or un-mowed grassland	Rating
	The wetland has at least 2 of the following features: tidal channels, depressions with open water,	I/II
	or contiguous freshwater wetlands.	
SC2	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 being rated in a Section/Township/Range that contains a natural heritage wetland? (<i>This</i>	
	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 NOX	
	SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened	
	or endangered plant species?	Cat I
	YES = Category 1 NO not a Heritage Wetland	
SC3	Bogs (see p. 87) Does the wetland (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 function.	
	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 soil profile? (See Appendix B for a field key to	
	identify organic soils)? YES = go to question 3 NO = go to question 2	
	2. Does the wetland 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 question 3 NO = is not a bog for purpose of rating	
	pond? YES = go to question 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 question 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.	
	4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hamlook ladgeneds ring gueling gener. Englement's approach or western white ring. WITH any of	
	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 $(> 30\% \ coverage \ of the total \ shrub/herbaceous \ cover)$?	Cat. I
	YES = Category I NO = Is not a bog for purpose of rating	Cal. I

SC4				
	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).			
	Does the wetland 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 function.			
	and Wildlife's forests as priority habitats? If you answer yes you will still need to rate the wetland based on its function.			
	criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter.			
	·			
	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 an average diameters (dbh) exceeding 21 inches (53 cm); 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. YES = Category I NO = X not a forested wetland with special characteristics 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 X not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). At least 3/4 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 ft.) YES = Category I NO = Category II			
		Cat. I		
a a f				
SC3				
	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 X not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).			
	The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5			
	,			
	SC 5.1 Does the wetland meet all of the following three conditions?			
	SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has			
	less than 20% cover of invasive plant species (see list of invasive species on p. 74).			
	less than 20% cover of invasive plant species (see list of invasive species on p. 74).			
	less than 20% cover of invasive plant species (see list of invasive species on p. 74). At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed			
	SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). At least 3/4 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 ft.) YES = Category I NO = Category II Interdunal Wetlands (see p. 93)			
		G . TT		
	· · · · · · · · · · · · · · · · · · ·	Cat. II		
SC6				
	In practical terms that means the following geographic areas:			
	• Long Beach Peninsula lands west of SK 105 • Grayland-Westport lands west of SR 105			
	• Ocean Shores-Copalis – 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 one acre or larger?			
	YES = Category II $\frac{1}{100}$ NO = go to SC 6.2	Cat. II		
	SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?	Cat. II		
	YES = Category III	Cat. III		
	Category of wetland based on Special Characteristics	Cut. 111		
	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	NI A		
	if you answered to for all types effect. Not applicable on p. 1	NA		

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): 23A			_ Date of	site visit: 10-2	5-13
Rated by: Colin Worsley / Matt Maynard Train	ed by Ecolo	ogy? Yes <u>X</u> No I	Date of tra	nining: <u>11-2005 / 0</u>	4-2006
SEC: 06 TOWNSHIP: 24N	RANGE:	06E Is S/T/R in Ap	pendix D	? Yes N	lo <u>X</u> _
Map of wetland unit: F	igure	Estimated size	0.03 acre		
	CHINANAA				
Cotogowy bogod on EUNCTIONS avorided by		RY OF RATING	TTT	IV	v
Category based on FUNCTIONS provided by	wettand: 1	II	111	IV	X
Category I = Score > 70		Score for Water Quality Fun	ections	14	
Category II = Score 51 - 69		Score for Hydrologic Fur	nctions	7	
Category III = Score 30 – 50		Score for Habitat Fur	nctions	7	
Category IV = Score < 30		TOTAL Score for Fur	nctions	28	
Category based on SPECIAL CHARACTERIST	ΓICS of Wet	tland I II]	Does not apply	X
Final Catego	rv (choose	the "highest" category from	above")	IV	
9			,		_
	formation a	about the wetland unit.		1	
Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating			
Estuarine		Depressional	X		
Natural Heritage Wetland		Riverine			
Bog		Lake-fringe			
Mature Forest		Slope	(x)		
Old Growth Forest		Flats			
Coastal Lagoon		Freshwater Tidal			
Interdunal					
None of the above	X	Check if unit has multiple HGM classes present	X		
Does the wetland being rated meet any of the	criteria bel	ow? If you answer YES to a	nv of the	auestions below vo	ou will

Does the wetland 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 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 1 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.

Classification of Vegetated Wetlands for 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 a Saltwater Tidal Fringe it
	is rated as an Estuarine wetland. Wetlands that were call 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 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 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) where at least 20 acres (8ha) in size;
	At least 30% of the open water area is deeper than 6.6 (2 m)?
	NO – go to 4 YES – The wetland class is Lake-fringe (Lacustrine Fringe)
4.	Does the entire wetland 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 types of wetlands except occasionally in very small and
	shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).
	$\frac{NO - go to 5}{}$ YES – The wetland class is Slope
5.	Does the entire wetland 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 of
	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 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 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

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	Treat as ESTUARINE under wetlands with special
freshwater wetland	characteristics

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

than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score
D 1	Does the wetland have the <u>potential</u> to improve water quality?	per box)
D 1	D 1.1 Characteristics of surface water flows out of the wetland:	(see p.38)
	• Unit is a depression with no surface water leaving it (no outlet)	Figure
	• Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet points = 2	
	• Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 1	2
	• Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditchpoints = 1	
	(If ditch is not permanently flowing treat unit as "intermittently flowing") Provide photo or drawing	
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions)	0
	YES points = 4	· ·
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area	Figure
	• Wetland has persistent, ungrazed vegetation > = 1/2 of area	8
	• Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1	5
	• Wetland has persistent, ungrazed vegetation < 1/10 of area	
	Map of Cowardin vegetation classes D 1.4 Characteristics of seasonal ponding or inundation: This is the area of the wetland that is ponded for at	
	least 2 months, but dries out sometime during the year. Do not count the area that is permanently	Figure
	ponded. Estimate area as the average condition 5 out of 10 years.	
	 Area seasonally ponded is > 1/2 total area of wetland	
	• Area seasonally ponded is < 1/4 total area of wetland points = 0	0
	Map of Hydroperiods	
	Total for D 1 Add the points in the boxes above	7
D 2	Does the wetland have the opportunity to improve water quality?	(see p. 44)
	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? <i>Note which of the following conditions provide the sources of pollutants. A unit</i>	
	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 or orchards within 150 ft. of wetland A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed	
	fields, roads, or clear-cut logging	
	 X Residential, urban areas, golf courses are within 150 ft. of wetland Wetland is fed by groundwater high in phosphorus or nitrogen 	Multiplier
	Wetland is fed by groundwater high in phosphorus or nitrogen	7/2
	Other YES multiplier is 2 NO multiplier is 1	X2
	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1	14
_	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	14
D 2		(16)
D 3	Does the wetland have the <u>potential</u> to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit	(see p.46)
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	
	• Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2	
	 Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface 	2
	outflow and no obvious natural outlet and/or outlet is a man-made ditch	
	 (If ditch is not permanently flowing treat unit as "intermittently flowing") Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0 	
	D 3.2 Depth of storage during wet periods. Estimate the height of ponding above the bottom of the outlet. For	
	units with no outlet measure from the surface of permanent water or deepest part (if dry).	
	• Marks of ponding are 3 ft. or more above the surface or bottom of the outlet points = 7	
	 The wetland is a "headwater" wetland	0
	 Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet	
	• Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1	
_	• Marks of ponding less than 0.5 ft points = 0	
	D 3.3 Contribution of wetland unit 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 unit	
	• 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	
	 The area of the basin is more than 100 times the area of the unit	⊥

D 4	Does the wetland have the opportunity to reduce flooding and erosion? Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. Note which of the following indicators of opportunity apply. Wetland is in a headwater of a river or stream that has flooding problems. Wetland drains to a river or stream that has flooding problems Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems	(see p. 49) Multiplier
	Other YES multiplier is 2 NO multiplier is 1	X1
•	<u>TOTAL</u> – Hydrologic Functions Multiply the score from D3 by D4; then <i>add score to table on p. 1</i>	7

Thes	se questions apply to wetlands of all HGM classes.	Points
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	(only 1 scor per box)
H 1	Does the wetland 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 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres. Aquatic Bed Emergent plants	Figure
	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 types that qualify. If you have: 4 structures or more points = 4 2 structures points = 1 1 structure points = 0	0
	H 1.2 <u>Hydroperiods</u> (see p.73):	Figure
	Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods). X Permanently flooded or inundated 4 or more types present points = 3 Seasonally flooded or inundated 3 or more types present points = 2 Occasionally flooded or inundated 2 types present points = 1 X Saturated only 1 type present points = 0 Permanently flowing stream or river in, or adjacent to, the wetland Seasonally flowing stream in, or adjacent to, the wetland Lake-fringe wetland = 2 points	1
	Freshwater tidal wetland = 2 points Map of hydroperiods H 1.3 Richness of Plant Species (see p. 75):	
	H 1.3 Richness of Plant Species (see p. 75): Count the number of plant species in the wetland that cover at least 10 ft² (different patches of the same species can be combined to meet the size threshold) You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle. If you counted: > 19 species	1
	H 1.4 Interspersion of Habitats (see p. 76): Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), 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 Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high".	Figure
	Use map of Cowardin classes [riparian braided channels]	0
	High = 3 points 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 point you put into the next column. Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long)	S
	 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 (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned grey/brown) At least 1/4 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) 	0
	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.	
	H 1 TOTAL Score – potential for providing habitat Add the points in the column above	2

H 2	Does t	he wetland have the opportunity to provide habitat for many species?	(only 1 score per box)
	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". 100m (330 ft) 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)	Figure
	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 a 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 50 ft. 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 Lakefringe wetland, if it does not have an undisturbed corridor as in the question above? YES = 2 points (go to H 2.3) NO = go to 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 miles of a large field or pasture (> 40 acres) OR Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

•	Total Score for Habitat Functions Add the points for H 1 and H 2; then <i>record the result on p. 1</i>	7
	TOTAL for H 1 from page 8	2
	H 2 TOTAL Score – opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4	5
	• There are no wetlands within 1/2 milepoints = 0	
	• There is at least 1 wetland within 1/2 milepoints = 2	
	• The wetland fringe on a lake with disturbance and there are 3 other lake-fringe wetlands within 1/2 milepoints = 3	
	• The wetland fringe on a lake with disturbance and there are 3 other lake-fringe wetlands	
	• There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are	J
	wetlands within 1/2 milepoints = 5	3
	• The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe	
	but connections should NOT be bisected by paved roads, fill, fields, or other developmentpoints = 5	
	• There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating,	
	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 1/2 mile, and the connections between them are	
	addressed in question H 2.4)	
	Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are	
	If wetland has 1 priority habitat = 1 point No habitats = 0 points	
	If wetland has 2 priority habitats = 3 points	
	end, and > 6 m (20 ft) long. If wetland has 3 or more priority habitats = 4 points	
	western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest	
	to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in	
	Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics	
	andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
	Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt,	
	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.	
	Caves: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils,	
	WDFW report: pp. 167-169 and glossary in Appendix A).	
	and Puget Sound Nearshore. (full descriptions of habitats and the definition of relatively undisturbed are in	
	Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore,	
	provide functional life history requirements for instream fish and wildlife resources.	
	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	0
	Westside Prairies: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or	0
	terrestrial ecosystems which mutually influence each other.	
	Riparian : The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and	
	oak component is important (full descriptions in WDFW PHS report p. 158).	
	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	
	cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is	
	dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown	
	multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in)	
	Old-growth/Mature forests: (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a	
	Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.	
	Biodiversity Areas and Corridors : Areas of habitat that are relatively important to various species of native fish and wildlife (<i>full descriptions in WDFW PHS report p. 152</i>).	
	Aspen Stands: Pure or mixed stands of aspen greater than 0.4 ha (1 acre).	
	NOTE: the connections do not have to be relatively undisturbed.	
	Which of the following priority habitats are within 330 ft. (100m) of the wetland unit?	
	http://wdfw.wa.gov/hab/phslist.htm)	
	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): (see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report	
	II 2.2 Noon on adjacent to other mignity helitate listed by WDEW (see a 92) (see a man of a smallet	

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.	
SC1	Estuarine wetlands? (see p.86)	
301	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.	
	Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC	Cat. 1
	332-30-151? YES = Category I NO = go to SC 1.2	Cat. 1
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions?	
	YES = Category I NO = Category II	Cat. I
	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 <i>Spartina</i> spp., are 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	Cat. II
	with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre.	Dual
	At least 3/4 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,	Rating I/II
	or contiguous freshwater wetlands.	ı
SC2	Natural Heritage Wetlands (see p. 87)	
	Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as	1
	either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species.	1
	SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? (<i>This</i>	1
	question is used to screen out most sites before you need to contact WNHP/DNR.)	1
	S/T/R information from Appendix D or accessed from WNHP/DNR web site	1
	YES Contact WNHP/DNR (see p. 79) and go to SC 2.2 NOX	1
	SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened	1
	or endangered plant species?	Cat I
	YES = Category 1 NO not a Heritage Wetland	
SC3	Bogs (see p. 87)	1
	Does the wetland (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	1
	wetland based on its function.	1
	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 soil profile? (See Appendix B for a field key to	l
	identify organic soils)? YES = go to question 3 NO = go to question 2	,
	2. Does the wetland 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 question 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,	1
	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)?	ı
	YES = Is a bog for purpose of rating $NO = go$ to question 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.	ı
	4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western	ı
	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)?	Cat. I
	YES = Category I NO = Is not a bog for purpose of rating	

SC4	Forested Wetlands (see p. 90)	
	Does the wetland 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 function.	
	Old-growth forests: (west of Cascade Crest) Stands of at least two three 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 an average diameters (dbh) exceeding 21 inches (53 cm); 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.	Cat. I
	YES = Category I NO = \underline{X} not a forested wetland with special characteristics	
SC5	Wetlands in Coastal Lagoons (see p. 91)	
203	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 \underline{X} not a wetland in a coastal lagoon	
	<u>——</u>	
	SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has	
	less than 20% cover of invasive plant species (see list of invasive species on p. 74).	
	At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	
		G . T
	or un-mowed grassland. The westland is larger than 1/10 core (4250 square ft.)	Cat. I
	The wetland is larger than 1/10 acre (4350 square ft.) YES = Category I NO = Category II	G 4 II
-		Cat. II
SC6	Interdunal Wetlands (see p. 93)	
	Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or	
	WBUO)?	
	YES = Go to SC 6.1 NO \underline{X} 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 103 • 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 one acre or larger?	
	YES = Category II $\frac{1}{100}$ NO = go to SC 6.2	Cat. II
	SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?	Cat. II
	YES = Category III	Cot III
\vdash	* •	Cat. III
	Category of wetland based on Special Characteristics	
▼	Choose the "highest" rating if wetland falls into several categories, and record on p. 1.	3 7.4
1	If you answered NO for all types enter "Not Applicable" on p. 1	NA

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 wet	tland (if known):	23B				_ Date o	f site visit:	09-20-13
Rated by:	Colin Worsley / Ma	att Maynard Tr	ained by I	Ecology? Yes	<u>X</u> No I	Date of tra	ining: <u>11-2</u>	2005 / 04-2006
SEC: 06	5 TWNS	HP: 24N	RNGE:_	06E Is	s S/T/R in App	endix D?	Yes	NoX
	Map of	wetland unit: Fig	ure	Esti	imated size <u>0.</u>	05 acre		
			SUMMAI	RY OF RATING	3			
Category ba	sed on FUNCTIO	NS provided by w	vetland:	I :	II	_ III	X	IV
	Category I = So	core > 70		Score for Water	r Quality Func	tions	20	
	Category II = So	core 51 - 69		Score for Hy	drologic Func	tions	4	
	Category III = So	core 30 – 50		Score for	r Habitat Func	tions	10	
	Category IV = So			TOTAL S	Score for Func	tions	34	
Category bas	sed on SPECIAL C	HARACTERIST (CS of Wetl	land I	II	Do	oes not app	oly X
	F	inal Categor	y (choose	the "highest" ca	itegory from at	oove")	III	
	Sum	mary of basic info	ormation :	about the wetlar	nd unit.			
		Init has Special		Wetland H				
		acteristics		used for	Rating			
	Estuarine			Depressional				
	Bog	ritage Wetland		Riverine Lake-fringe		X		
	Mature For	oct	+ -	Slope		(x)		
	Old Growth			Flats		(A)		
	Coastal Lag			Freshwater Ti	dal			
	Interdunal	,0011		1105HWWW01 11				
	None of the	above	X	Check if unit had HGM classes p		X		
Does the we	tland being rated	meet any of the c	riteria bel	low? If you answ	wer YES to any	of the au	iestions bel	ow you will

Does the wetland 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 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 1 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.

Classification of Vegetated Wetlands for 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 a Saltwater Tidal Fringe it
	is rated as an Estuarine wetland. Wetlands that were call 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	
2.	The entire wetland unit is flat and precipitation is 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.
2	
3.	Does the entire wetland meet both of the following criteria?
	X The vegetated part of the wetland is on the shores of a body of permanent open water (without any
	vegetation on the surface) where at least 20 acres (8ha) in size;
	X At least 30% of the open water area is deeper than 6.6 (2 m)?
	NO – go to 4 YES – The wetland class is Lake-fringe (Lacustrine Fringe)
4.	Does the entire wetland 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 types of wetlands except occasionally in very small and
	shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).
	NO – go to 5 YES – The wetland class is Slope
5.	Does the entire wetland 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 of
	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 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 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	Treat as ESTUARINE under wetlands with special
freshwater wetland	characteristics

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

L	Lake-fringe Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that the wetland unit functions to improve water quality.	(only 1 score
L 1	Does the wetland unit have the <u>potential</u> to improve water quality? (see p.59)	per box)
	L 1.1 Average width of vegetation along the lakeshore (use polygons of Cowardin classes): • Vegetation is more than 33 ft. (10m) wide	Figure
	 L 1.2 Characteristics of the vegetation in the wetland: Choose the appropriate description that results in the highest points, and do not include any open water in your estimate of coverage. The herbaceous plants can be either the dominant form or as an understory in a shrub or forest community. These are not Cowardin classes. Area of Cover is total cover in the unit, but it can be in patches. NOTE: Herbaceous does not include aquatic bed. Cover of herbaceous plants is > 90% of the vegetated area	Figure
	 Cover of herbaceous plants is > 2/3 of the vegetated area	4
	Add the points in the boxes above	10
L 2	Does the wetland have the opportunity to improve water quality? Answer YES if you know or believe there are pollutants in the lake water, or polluted surface water flowing through the unit to the lake. 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. Wetland is along the shores of a lake or reservoir that does not meet water quality standards Grazing in the wetland or within 150 ft Polluted water discharges to wetland along upland edge Tilled fields or orchards within 150 ft. of wetland	(see p.61)
	Residential or urban areas are within 150 ft. of wetland Parks with grassy areas that are maintained, ballfields, golf courses (all within 150 ft. of lake shore)	Multiplier X2
	TOTAL – Water Quality Functions Multiply the score from L1 by L2; then add score to table on p. 1	20
	HYDROLOGIC FUNCTIONS – Indicators that wetland functions to reduce shoreline erosion.	20
L 3	Does the wetland have the <u>potential</u> to reduce shoreline erosion?	(see p.62)
LJ	L 3 Average width and characteristics of vegetation along the lakeshore (do not include aquatic bed):	
	(choose the highest scoring description that matches conditions in the wetland) • 3/4 of distance is shrubs or forest at least 33 ft. (10m) wide	Figure 2
	Aerial photo or map with Cowardin vegetation classes	2
T 4	Record the points in the boxes above	
L 4	Does the wetland have the opportunity to reduce erosion? Are there features along the shore that will be impacted if the shoreline erodes? Note which of the following conditions apply. X There are human structures and activities along the upland edge of the wetland (buildings, fields) that can be damaged by erosion. There are undisturbed natural resources along the upland edge of the wetland (e.g. mature forests,	(see p. 64) Multiplier
	other wetlands) that can be damaged by shoreline erosion. Other YES multiplier is 2 NO multiplier is 1	X2
	TOTAL – Hydrologic Functions Multiply the score from L3 by L4; then add score to table on p. 1	4
•	IVITAL - Hydrologic Functions Intuitiply the score from L3 by L4; then and score to table on p. 1	4

Comments: Deck, shed, and walkways in wetland.

Thes	se questions apply to wetlands of all HGM classes.	Points
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	(only 1 score per box)
H 1	Does the wetland have the <u>potential</u> 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 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres. Aquatic Bed	Figure
	X Emergent plants X 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.	1
	Add the number of vegetation types that qualify. If you have: 4 structures or more points = 4 2 structures points = 1 1 structure points = 0	2
	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 1/4 acre to count (see text for descriptions of hydroperiods). Permanently flooded or inundated 4 or more types present points = 3	Figure
	Seasonally flooded or inundated Occasionally flooded or inundated Saturated only 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	2
	Freshwater tidal wetland = 2 points Map of hydroperiods H 1.3 Richness of Plant Species (see p. 75):	3
	Count the number of plant species (see p. 9). Count the number of plant species in the wetland that cover at least 10 ft² (different patches of the same species can be combined to meet the size threshold) You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle. If you counted: > 19 species	1
	H 1.4 Interspersion of Habitats (see p. 76): Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), 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 Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high".	s Figure
	Use map of Cowardin classed [riparian braided channels]	s. 1
	High = 3 points 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 poin you put into the next column. Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) Standing snags (diameter at the bottom > 4 inches) in the wetland	ts
	 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 (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned grey/brown) At least 1/4 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) 	0
	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.	
	H 1 TOTAL Score – potential for providing habitat Add the points in the column above	5

H 2	Does t	he wetland have the opportunity to provide habitat for many species?	(only 1 score per box)
	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". 100m (330 ft) 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)	Figure
	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 a 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 50 ft. 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 Lakefringe wetland, if it does not have an undisturbed corridor as in the question above? YES = 2 points (go to H 2.3) NO = go to 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 miles of a large field or pasture (> 40 acres) OR Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

•	Total Score for Habitat Functions Add the points for H 1 and H 2; then record the result on p. 1	10
	TOTAL for H 1 from page 8	5
	H 2 TOTAL Score – opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4	5
	•	
	• There are no wetlands within 1/2 mile	
	• There is at least 1 wetland within 1/2 mile	
	• The wetland fringe on a lake with disturbance and there are 3 other lake-fringe wetlands within 1/2 milepoints = 3	
	disturbed	
	• There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are	3
	wetlands within 1/2 milepoints = 5	2
	• The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe	
	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 developmentpoints = 5	
	• There are at least 3 other wetlands within 1/2 mile, and the connections between them are	
	H 2.4 Wetland Landscape: Choose the one description of the landscape around the wetland that best fits (see p. 84)	
	addressed in question H 2.4)	
	Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are	
	If wetland has 2 priority habitats = 3 points If wetland has 1 priority habitat = 1 point No habitats = 0 points	
	If wetland has 3 or more priority habitats = 4 points	
	end, and > 6 m (20 ft) long.	
	western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest	
	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	
	andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
	Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt,	
	Cliffs: Greater than 7.6 m (25 ft) high and occurring below 5000 ft.	
	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.	
	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,	
	and Puget Sound Nearshore. (full descriptions of habitats and the definition of relatively undisturbed are in	
	Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore,	
	provide functional life history requirements for instream fish and wildlife resources.	
	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	0
	Westside Prairies: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or	0
	terrestrial ecosystems which mutually influence each other.	
	Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and	
	Oregon white Oak: Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (<i>full descriptions in WDFW PHS report p. 158</i>).	
	generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.	
	cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is	
	dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown	
	multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in)	
	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	
	fish and wildlife (full descriptions in WDFW PHS report p. 152).	
	Biodiversity Areas and Corridors: Areas of habitat that are relatively important to various species of native	
	Aspen Stands: Pure or mixed stands of aspen greater than 0.4 ha (1 acre).	
	NOTE: the connections do not have to be relatively undisturbed.	
	http://wdfw.wa.gov/hab/phslist.htm) Which of the following priority habitats are within 330 ft. (100m) of the wetland unit?	
	descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report	
	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): (see new and complete	

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

		na Type – Cneck off any criteria that apply to the wetlana. Circle the Category when the appropriate	
a c: :		are met.	
SC1	Estuar	ine 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.	
	~~	$YES = Go to SC 1.1 \qquad NO \underline{X}$	
		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. 1
	SC 1.2	Is the wetland at least 1 acre in size and meets at least two of the following conditions?	
		YES = Category I NO = Category II	Cat. I
		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 <i>Spartina</i> spp, are 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 1. Do not, however, exclude the area of Spartina in	Cat. II
		determining the size threshold of 1 acre.	Dual
		At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	Rating
		or un-mowed grassland The wetland has at least 2 of the following features: tidal channels, depressions with open water,	I/II
		or contiguous freshwater wetlands.	
CCA	Natura	l Heritage Wetlands (see p. 87)	
SC2	1141414	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 being rated in a Section/Township/Range that contains a natural heritage wetland? (This	
	50 2.1	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 NOX	
	SC 2.2	Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened	
	DC 2.2	or endangered plant species?	Cat I
		YES = Category 1 NO not a Heritage Wetland	Cat 1
	Dogg (ree p. 87)	
SC3	Dogs (S	Does the wetland (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 function.	
		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 soil profile? (See Appendix B for a field key to	
		identify organic soils)? YES = go to question 3 NO = go to question 2	
		2. Does the wetland 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 question 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 question 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.	
		4. 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)?	Cot I
		YES = Category I NO = Is not a bog for purpose of rating	Cat. I
		120 Category 1 100 = 15 not a bog for purpose of rating	

SC4	Forested Wetlands (see p. 90)			
	Does the wetland 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 function.			
	Old-growth forests: (west of Cascade Crest) Stands of at least two three 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 an average diameters (dbh) exceeding 21 inches (53 cm); 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.	Cat. I		
	YES = Category I NO = \underline{X} not a forested wetland with special characteristics			
SC5	Wetlands in Coastal Lagoons (see p. 91)			
500	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 \underline{X} not a wetland in a coastal lagoon			
	SC 5.1 Does the wetland meet all of the following three conditions?			
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has			
	less than 20% cover of invasive plant species (see list of invasive species on p. 74).			
	At least 3/4 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 ft.)			
	YES = Category I NO = Category II	Cat. II		
SC6	Interdunal Wetlands (see p. 93)			
DCU	Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or			
	WBUO)?			
	YES = Go to SC 6.1 NO X 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 Grayland-Westport lands west of SR 115 and SR 100			
	 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 one acre or larger? 			
	YES = Category II NO = go to SC 6.2	O 4 TT		
	SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?	Cat. II		
	YES = Category III	C-4 III		
\vdash	<u> </u>	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	NA		

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): 23C			Date of	site visit:	09-20-13
Rated by: Colin Worsley / Matt Maynard Train	ined by Ecolo	gy? Yes <u>X</u> No	Date of tra	ining: <u>11-20</u>	05 / 04-2006
SEC: 06 TOWNSHIP: 24N	RANGE:	06E Is S/T/R in A	ppendix D?	Yes	NoX _
Map of wetland unit:	Figure	Estimated size	0.08 acre		
	SUMMAI	RY OF RATING			
Category based on FUNCTIONS provided b			III	X	IV
Category I = Score > 70		Score for Water Quality Fu	nctions	10	,
Category II = Score 51 - 69		Score for Hydrologic Fu	nctions	14	
Category III = Score 30 – 50		Score for Habitat Fu	nctions	14	
Category IV = Score < 30		TOTAL Score for Fu	nctions	38	
Category based on SPECIAL CHARACTERIS	STICS of Wet	land I II	D	oes not app	oly X
Final Categ	ory (choose	the "highest" category from	above")	III	
Summary of basic i	information a	about the wetland unit.			
Wetland Unit has Specia	1	Wetland HGM Class			
Characteristics		used for Rating	***		
Estuarine		Depressional	X		
Natural Heritage Wetland		Riverine Lake-fringe			
Bog Mature Forest		Slope			
Old Growth Forest		Flats			
Coastal Lagoon		Freshwater Tidal			
Interdunal		Fieshwater Huar			
None of the above	X	Check if unit has multiple HGM classes present			
Does the wetland being rated meet any of the	e criteria hel	ow? If you answer VES to	any of the o	mestions hel	low you will

Does the wetland 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 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 1 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.

Classification of Vegetated Wetlands for 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.	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 a Saltwater Tidal Fringe it is rated as an Estuarine wetland. Wetlands that were call 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 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 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) where at least 20 acres (8ha) in size; At least 30% of the open water area is deeper than 6.6 (2 m)? NO - go to 4 YES - The wetland class is Lake-fringe (Lacustrine Fringe)
4.	Does the entire wetland 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 types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).
	NO – go to 5 YES – The wetland class is Slope
5.	Does the entire wetland 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 of 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 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 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

, ,	
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	Treat as ESTUARINE under wetlands with special
freshwater wetland	characteristics

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

than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score
D 1	Does the wetland have the <u>potential</u> to improve water quality?	$ \begin{array}{c} \text{per box})\\ (see p.38) \end{array} $
	D 1.1 Characteristics of surface water flows out of the wetland:	
	 Unit is a depression with no surface water leaving it (no outlet)	Figure
	• Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 1	2
	• Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditchpoints = 1	
	(If ditch is not permanently flowing treat unit as "intermittently flowing") Provide photo or drawing	
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions)	0
	YES points = 4 D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class):	
	• Wetland has persistent, ungrazed vegetation > = 95% of area	Figure
	• Wetland has persistent, ungrazed vegetation > = 1/2 of area	2
	 Wetland has persistent, ungrazed vegetation > = 1/10 of area	3
	Map of Cowardin vegetation classes	
	D 1.4 Characteristics of seasonal ponding or inundation: This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently	Figure
	ponded. Estimate area as the average condition 5 out of 10 years.	
	 Area seasonally ponded is > 1/2 total area of wetland	
	• Area seasonally ponded is < 1/4 total area of wetland points = 0	0
	Map of Hydroperiods	
	Total for D 1 Add the points in the boxes above	
D 2	Does the wetland have the opportunity to improve water quality?	(see p. 44)
	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 or orchards within 150 ft. of wetland A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed	
	fields, roads, or clear-cut logging	Multiplian
	 X Residential, urban areas, golf courses are within 150 ft. of wetland Wetland is fed by groundwater high in phosphorus or nitrogen 	Multiplier
	Other	X2
	YES multiplier is 2 NO multiplier is 1	
•	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1	10
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	٦
D 3	Does the wetland have the <u>potential</u> to reduce flooding and erosion?	(see p.46)
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)points = 4	
	• Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2	
	• Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditchpoints = 1	2
	(If ditch is not permanently flowing treat unit as "intermittently flowing")	
	• Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0	
	D 3.2 Depth of storage during wet periods. Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).	
	• Marks of ponding are 3 ft. or more above the surface or bottom of the outlet points = 7	
	 The wetland is a "headwater" wetland	0
	• Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet	
	• Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1	
	• Marks of ponding less than 0.5 ft	
	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 unit. The area of the basin is 10 to 100 times the area of the unit points = 5 	5
1	• The area of the basin is more than 100 times the area of the unit	
	• Entire unit is in the FLATS class	

D 4	Does the wetland have the opportunity to reduce flooding and erosion? Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. Note which of the following indicators of opportunity apply. Wetland is in a headwater of a river or stream that has flooding problems. Wetland drains to a river or stream that has flooding problems Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or	(see p. 49) Multiplier	
	X Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems		
	Other	X2	
♦	TOTAL – Hydrologic Functions Multiply the score from D3 by D4; then <i>add score to table on p. 1</i>	14	

Thes	e questions apply to wetlands of all HGM classes.	Points
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	(only 1 scor per box)
H 1	Does the wetland have the <u>potential</u> 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 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres. Aquatic Bed Emergent plants X Scrub/shrub (areas where shrubs have > 30% cover)	Figure
	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 types that qualify. If you have: 4 structures or more points = 4 2 structures points = 1 1 structure points = 0	2
	H 1.2 Hydroperiods (see p.73): Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to	Figure
	cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods). X Permanently flooded or inundated Seasonally flooded or inundated Occasionally flooded or inundated X Occasionally flooded or inundated Y Saturated only Permanently flowing stream or river in, or adjacent to, the wetland Seasonally flowing stream in, or adjacent to, the wetland Lake-fringe wetland	2
	H 1.3 Richness of Plant Species (see p. 75): Count the number of plant species in the wetland that cover at least 10 ft² (different patches of the same species can be combined to meet the size threshold) You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle. If you counted: > 19 species	1
	H 1.4 Interspersion of Habitats (<i>see p. 76</i>): Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), 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 Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high".	
	Use map of Cowardin classes [riparian braided channels]	s. 1
	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 point you put into the next column. X Large, downed, woody debris within the wetland (> 4 in. 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 (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned grey/brown) At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that	1
	are permanently or seasonally inundated (structures for egg-laying by amphibians) 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.	
	H 1 TOTAL Score – potential for providing habitat Add the points in the column above	6

Н 2	Does t	he wetland have the opportunity to provide habitat for many species?	(only 1 score per box)
	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". 100m (330 ft) 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)	Figure
	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 a 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 50 ft. 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 Lakefringe wetland, if it does not have an undisturbed corridor as in the question above? YES = 2 points (go to H 2.3) NO = go to 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 miles of a large field or pasture (> 40 acres) OR Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

•	Total Score for Habitat Functions Add the points for H 1 and H 2; then record the result on p. 1	14
	TOTAL for H 1 from page 8	6
	H 2 TOTAL Score – opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4	8
	• There are no wetlands within 1/2 milepoints = 0	
	• There is at least 1 wetland within 1/2 milepoints = 2	
	• The wetland fringe on a lake with disturbance and there are 3 other lake-fringe wetlands within 1/2 milepoints = 3	
	disturbed	
	• There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are	3
	wetlands within 1/2 milepoints = 5	3
	• The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe	
	but connections should NOT be bisected by paved roads, fill, fields, or other developmentpoints = 5	
	• There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating,	
	H 2.4 Wetland Landscape: Choose the one description of the landscape around the wetland that best fits (see p. 84)	
	addressed in question H 2.4)	
	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	
	If wetland has 2 priority habitats = 3 points If wetland has 1 priority habitats = 1 points No habitats = 0 points	
	If wetland has 3 or more priority habitats = 4 points	
	end, and > 6 m (20 ft) long.	
	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	
	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	
	andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
	Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt,	
	Cliffs: Greater than 7.6 m (25 ft) high and occurring below 5000 ft.	
	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.	
	WDFW report: pp. 167-169 and glossary in Appendix A).	
	and Puget Sound Nearshore. (full descriptions of habitats and the definition of relatively undisturbed are in	
	Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore,	
	X Instream: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.	
	a wet prairie (full descriptions in WDFW PHS report p. 161).	3
	Westside Prairies: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or	_
	terrestrial ecosystems which mutually influence each other.	
	oak component is important (<i>full descriptions in WDFW PHS report p. 158</i>). X Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and	
	Oregon white Oak: Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the	
	generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.	
	cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is	
	dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown	
	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)	
	Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.	
	fish and wildlife (full descriptions in WDFW PHS report p. 152).	
	Biodiversity Areas and Corridors: Areas of habitat that are relatively important to various species of native	
	Aspen Stands: Pure or mixed stands of aspen greater than 0.4 ha (1 acre).	
	Which of the following priority habitats are within 330 ft. (100m) of the wetland unit? <i>NOTE: the connections do not have to be relatively undisturbed.</i>	
	http://wdfw.wa.gov/hab/phslist.htm)	
	descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report	
	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): (see new and complete	

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.				
SC1					
SCI	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.				
	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. 1			
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions?				
	YES = Category I NO = Category II	Cat. I			
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has	Cat. 1			
	less than 10% cover of non-native plant species. If the non-native <i>Spartina</i> spp., are only species	Cat. II			
	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 1. Do not, however, exclude the area of Spartina in				
	determining the size threshold of 1 acre. At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	Dual			
	or un-mowed grassland	Rating			
	The wetland has at least 2 of the following features: tidal channels, depressions with open water,	I/II			
	or contiguous freshwater wetlands.				
SC2	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 being rated in a Section/Township/Range that contains a natural heritage wetland? (<i>This</i>				
	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 NOX				
	SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened				
	or endangered plant species?	Cat I			
	YES = Category 1 NO not a Heritage Wetland				
SC3	<u>Bogs</u> (see p. 87) Does the wetland (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 function.				
	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 soil profile? (See Appendix B for a field key to	,			
	identify organic soils)? YES = go to question 3 NO = go to question 2				
	2. Does the wetland 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 question 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 question 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.				
	4. 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)?	Cat. I			
	YES = Category I NO = Is not a bog for purpose of rating	Cat. I			

SC4	Forested Wetlands (see p. 90)					
	Does the wetland 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 function.					
	Old-growth forests: (west of Cascade Crest) Stands of at least two three 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 an average diameters (dbh) exceeding 21 inches (53 cm); 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.	Cat. I				
	YES = Category I NO = \underline{X} not a forested wetland with special characteristics					
SC5	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 \underline{X} not a wetland in a coastal lagoon					
	SC 5.1 Does the wetland meet all of the following three conditions?					
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has					
	less than 20% cover of invasive plant species (see list of invasive species on p. 74).					
	At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed					
	or un-mowed grassland.					
	or un-mowed grassland. The wetland is larger than 1/10 acre (4350 square ft.)					
	YES = Category I NO = Category II	Cat. II				
SC6	Interdunal Wetlands (see p. 93)					
DCU	Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or					
	WBUO)?					
	YES = Go to SC 6.1 NO X 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 westland one agree or larger, or in it in a massin of westlands that is one agree or larger?					
	SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger?					
	YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?	Cat. II				
	YES = Category III	C-4 III				
\vdash	<u> </u>	Cat. III				
	Category of wetland based on Special Characteristics					
	Choose the "highest" rating if wetland falls into several categories, and record on p. 1.	N.T.				
	If you answered NO for all types enter "Not Applicable" on p. 1	NA				

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): 24A			_ Date of	site visit:	09-20)-13
Rated by: Colin Worsley / Matt Maynard Trained by Ecology? Yes X No Date of training: 11-2005 / 04-2006						
SEC: 06 TOWNSHIP: 24N	RANGE:	06E Is S/T/R in Ap	pendix D?	Yes	N	o_X_
Map of wetland unit:	Figure	Estimated size ().60 acre			
•						
	SUMMA	RY OF RATING				
Category based on FUNCTIONS provided b	y wetland:	[II	III	X	_ IV	
Category I = Score > 70		Score for Water Quality Fun	ctions		12	
Category II = Score 51 - 69		Score for Hydrologic Fun			12	7
Category III = Score 30 – 50		Score for Habitat Fun			18	1
Category IV = Score < 30		TOTAL Score for Fun			42	┪
category IV = Score \ 30		TO THE Score for I un	etions		72	_
Category based on SPECIAL CHARACTERIS	STICS of We	tland I II	D	oes not a	pply	X
Final Categ	ory (choose	the "highest" category from a	ibove")	I	III	1
Summary of basic i	nformation	about the wetland unit.				_
Wetland Unit has Special		Wetland HGM Class				
Characteristics		used for Rating				
Estuarine		Depressional	X			
Natural Heritage Wetland		Riverine	(x)			
Bog		Lake-fringe				
Mature Forest		Slope				
Old Growth Forest		Flats				
Coastal Lagoon		Freshwater Tidal				
Interdunal						
None of the above	X	Check if unit has multiple HGM classes present	X			
Does the wetland being rated meet any of the	e criteria bel	ow? If you answer YES to an	nv of the a	uestions h	pelow vo	on will

need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

	Check List for Wetlands that 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 1 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.

Classification of Vegetated Wetlands for 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 a Saltwater Tidal Fringe it is rated as an Estuarine wetland. Wetlands that were call 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 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 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) where at least 20 acres (8ha) in size; At least 30% of the open water area is deeper than 6.6 (2 m)? NO - go to 4 YES - The wetland class is Lake-fringe (Lacustrine Fringe)
4.	Does the entire wetland 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 types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep). NO - go to 5 YES - The wetland class is Slope
5.	Does the entire wetland 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 of 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 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 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	Treat as ESTUARINE under wetlands with special
freshwater wetland	characteristics

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

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score
D 1	Does the wetland have the potential to improve water quality?	$ \begin{array}{c} \text{per box})\\ (see p.38) \end{array} $
ע ז	D 1.1 Characteristics of surface water flows out of the wetland:	(see p.30)
	• Unit is a depression with no surface water leaving it (no outlet)	Figure
	• Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet points = 2	
	 Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 1 Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface 	1
	outflow and no obvious natural outlet and/or outlet is a man-made ditchpoints = 1	
	(If ditch is not permanently flowing treat unit as "intermittently flowing") Provide photo or drawing	
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions)	0
	YES points = 4 D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class):	
	• Wetland has persistent, ungrazed vegetation > = 95% of area	Figure
	• Wetland has persistent, ungrazed vegetation > = 1/2 of area points = 3	
	• Wetland has persistent, ungrazed vegetation > = 1/10 of area	5
	• Wetland has persistent, ungrazed vegetation < 1/10 of area	
	D 1.4 Characteristics of seasonal ponding or inundation: This is the area of the wetland that is ponded for at	
	least 2 months, but dries out sometime during the year. Do not count the area that is permanently	Figure
	ponded. Estimate area as the average condition 5 out of 10 years. • Area seasonally ponded is > 1/2 total area of wetland	
	• Area seasonally ponded is > 1/2 total area of wetland	0
	• Area seasonally ponded is < 1/4 total area of wetland	
	Map of Hydroperiods	
	Total for D 1 Add the points in the boxes above	
D 2	Does the wetland have the opportunity to improve water quality?	(see p. 44)
	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 or orchards within 150 ft. of wetland	
	A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed	
	fields, roads, or clear-cut logging	Multiplier
	X Residential, urban areas, golf courses are within 150 ft. of wetland Wetland is fed by groundwater high in phosphorus or nitrogen	Waterpries
	Other	X2
	YES multiplier is 2 NO multiplier is 1	
•	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1	12
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	
D 3	Does the wetland have the <u>potential</u> to reduce flooding and erosion?	(see p.46)
	D 3.1 Characteristics of surface water flows out of the wetland unit	
	• Unit is a depression with no surface water leaving it (no outlet)	
	 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface 	0
	outflow and no obvious natural outlet and/or outlet is a man-made ditchpoints = 1	
	(If ditch is not permanently flowing treat unit as "intermittently flowing")	
	• Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0	
	D 3.2 Depth of storage during wet periods. Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).	
	• Marks of ponding are 3 ft. or more above the surface or bottom of the outlet points = 7	
	• The wetland is a "headwater" wetland	3
	 Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet	
	• Warks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet	
_	• Marks of ponding less than 0.5 ft points = 0	
	D 3.3 Contribution of wetland unit 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 unitpoints = 5	
	• The area of the basin is 10 to 100 times the area of the unit points = 3	3
	• The area of the basin is more than 100 times the area of the unit	
	• Entire unit is in the FLATS class points = 5 Total for D 3 Add the points in the boxes above	└

D 4	Does the wetland have the <u>opportunity</u> to reduce flooding and erosion? Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. Note which of the following indicators of opportunity apply.	(see p. 49)	
	 Wetland is in a headwater of a river or stream that has flooding problems. Wetland drains to a river or stream that has flooding problems Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems Other 		
	YES multiplier is 2 NO multiplier is 1		
•	TOTAL – Hydrologic Functions Multiply the score from D3 by D4; then <i>add score to table on p. 1</i>	12	

Thes	se questions apply to wetlands of all HGM classes.	Points
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	(only 1 scor per box)
I 1	Does the wetland have the <u>potential</u> 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 i 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres. Aquatic Bed Emergent plants X Scrub/shrub (areas where shrubs have > 30% cover)	Figure
	X Forested (areas where trees have > 30% cover) If the unit has a forested class check if: X The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. Add the number of vegetation types that qualify. If you have: 4 structures or more points = 4 2 structures points = 1 1 structure points = 0	
	H 1.2 <u>Hydroperiods</u> (see p.73): Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to	Figure
	cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods). Permanently flooded or inundated Seasonally flooded or inundated Occasionally flooded or inundated Saturated only Permanently flowing stream or river in, or adjacent to, the wetland Seasonally flowing stream in, or adjacent to, the wetland Lake-fringe wetland	2
	H 1.3 Richness of Plant Species (see p. 75): Count the number of plant species in the wetland that cover at least 10 ft² (different patches of the same species can be combined to meet the size threshold) You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle. If you counted: > 19 species	1
	H 1.4 Interspersion of Habitats (see p. 76): Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.	F:
	None = 0 points Low = 1 point Moderate = 2 points Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high".	s Figure
	Use map of Cowardin classes [riparian braided channels]	2
	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 point you put into the next column. Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) X 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 (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned grey/brown) At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas tha	1
	are permanently or seasonally inundated (structures for egg-laying by amphibians) 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.	
	H 1 TOTAL Score – potential for providing habitat Add the points in the column above	10

H 2	Does t	he wetland have the opportunity to provide habitat for many species?	(only 1 score per box)
	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". 100m (330 ft) 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)	Figure
	Н 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 a 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 50 ft. 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 Lakefringe wetland, if it does not have an undisturbed corridor as in the question above? YES = 2 points (go to H 2.3) NO = go to 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 miles of a large field or pasture (> 40 acres) OR Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): (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 330 ft. (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%; 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). X 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). X Instream: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream firsh and wildlife resources. Nearshore: Relatively undisturbed nearshore habitats. These inc	3
	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 1/2 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 developmentpoints = 5 • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile	3
	TOTAL for H 1 from page 8	10
•	Total Score for Habitat Functions Add the points for H 1 and H 2; then record the result on p. 1	18
•	Add the points for 11 1 and fi 2, then record the result on p. 1	10

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.		
SC1			
301	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.		
	Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC	Cat. 1	
	332-30-151? YES = Category I NO = go to SC 1.2	Cat. 1	
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions?	+	
	YES = Category I NO = Category II	Cat. I	
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and ha	S	
	less than 10% cover of non-native plant species. If the non-native Spartina spp., are only species	Cat. II	
	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	0	
	with native species would be a Category 1. Do not, however, exclude the area of Spartina in		
	determining the size threshold of 1 acre. At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	Dual	
	or un-mowed grassland	Rating	
	The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	I/II	
0.03	Natural Heritage Wetlands (see p. 87)		
SC2	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 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 NOX		
	SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened	C-4 I	
	or endangered plant species? YES = Category 1 NO not a Heritage Wetland	Cat I	
0.02	Bogs (see p. 87)		
SC3	Does the wetland (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 function.		
	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 soil profile? (See Appendix B for a field key to)	
	identify organic soils)? YES = go to question 3 NO = go to question 2		
	Does the wetland 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 question 3 $\frac{1}{1000}$ 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 question 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.		
	4. 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)?	Cat. I	
	YES = Category I $NO = Is$ not a bog for purpose of rating	- Cut. 1	

SC4	Forested Wetlands (see p. 90)		
	Does the wetland 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 function.		
	Old-growth forests: (west of Cascade Crest) Stands of at least two three 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 an average diameters (dbh) exceeding 21 inches (53 cm); 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.	Cat. I	
	YES = Category I NO = X not a forested wetland with special characteristics	Cat. I	
G G =	Wetlands in Coastal Lagoons (see p. 91)		
SC5			
	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 \underline{X} not a wetland in a coastal lagoon		
	SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (here no diking disabing filling cultivation grazing) and here		
	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 3/4 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 ft.)		
	YES = Category I NO = Category II	Cat. II	
SC6	<u>Interdunal Wetlands</u> (see p. 93)		
	Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or		
	WBUO)?		
	YES = Go to SC 6.1 NO X 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		
1	• Grayland-Westport lands west of SR 105		
1	Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the matter decrease a large region in this content of the triangle of the content of		
1	SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? YES = Category II NO = go to SC 6.2		
	$YES = Category II \qquad NO = go to SC 6.2$		
	SC 6.2 Is the wetland 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. 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	NA	

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): 24B			Date of	f site visit:	09-25-13
Rated by: Colin Worsley / Matt Maynard Trained	by Ecolo	gy? Yes <u>X</u> No Do	ate of tra	aining: <u>11-20</u>	005 / 04-2006
SEC: 06 TOWNSHIP: 24N	RANGE:	06E Is S/T/R in App	endix D	? Yes	NoX
Map of wetland unit: Figu	ure	Estimated size 1	.75 acre		
S	SUMMAR	RY OF RATING			
Category based on FUNCTIONS provided by we	etland: I	II	_ III_	X	IV
Category I = Score > 70		Score for Water Quality Func	tions	12	2
Category II = Score 51 - 69		Score for Hydrologic Fund	tions	12	!
Category III = Score 30 – 50	Score for Habitat Functions 19)	
Category IV = Score < 30		TOTAL Score for Fund	tions	43	,
Category based on SPECIAL CHARACTERISTIC	CS of Wet	land I II	1	Does not app	plyX
Final Category	y (choose	the "highest" category from a	bove")	III	ī
Summary of basic info	rmation a	bout the wetland unit.			
Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating			
Estuarine		Depressional	X		
Natural Heritage Wetland		Riverine	(x)		
Bog		Lake-fringe			
Mature Forest		Slope			
Old Growth Forest		Flats			
Coastal Lagoon		Freshwater Tidal			
Interdunal					
None of the above	X	Check if unit has multiple HGM classes present	X		
Does the wetland being rated meet any of the cri	iteria bel	ow? If you answer YES to an	y of the	questions be	low you will

need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

	Check List for Wetlands that 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 1 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.

Classification of Vegetated Wetlands for 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 a Saltwater Tidal Fringe it is rated as an Estuarine wetland. Wetlands that were call 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 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 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) where at least 20 acres (8ha) in size; At least 30% of the open water area is deeper than 6.6 (2 m)? NO - go to 4 YES - The wetland class is Lake-fringe (Lacustrine Fringe)
4.	Does the entire wetland 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 types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep). NO - go to 5 YES - The wetland class is Slope
5.	Does the entire wetland 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 of 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 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 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	Treat as ESTUARINE under wetlands with special
freshwater wetland	characteristics

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

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score
D 1	Does the wetland have the potential to improve water quality?	$ \begin{array}{c} \text{per box})\\ (see p.38) \end{array} $
ע ז	D 1.1 Characteristics of surface water flows out of the wetland:	(see p.30)
	• Unit is a depression with no surface water leaving it (no outlet)	Figure
	• Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet points = 2	
	 Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 1 Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface 	1
	outflow and no obvious natural outlet and/or outlet is a man-made ditchpoints = 1	
	(If ditch is not permanently flowing treat unit as "intermittently flowing") Provide photo or drawing	
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions)	0
	YES points = 4 D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class):	
	• Wetland has persistent, ungrazed vegetation > = 95% of area	Figure
	• Wetland has persistent, ungrazed vegetation > = 1/2 of area points = 3	
	• Wetland has persistent, ungrazed vegetation > = 1/10 of area	5
	• Wetland has persistent, ungrazed vegetation < 1/10 of area	
	D 1.4 Characteristics of seasonal ponding or inundation: This is the area of the wetland that is ponded for at	
	least 2 months, but dries out sometime during the year. Do not count the area that is permanently	Figure
	ponded. Estimate area as the average condition 5 out of 10 years. • Area seasonally ponded is > 1/2 total area of wetland	
	• Area seasonally ponded is > 1/2 total area of wetland	0
	• Area seasonally ponded is < 1/4 total area of wetland	
	Map of Hydroperiods	
	Total for D 1 Add the points in the boxes above	
D 2	Does the wetland have the opportunity to improve water quality?	(see p. 44)
	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 or orchards within 150 ft. of wetland	
	A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed	
	fields, roads, or clear-cut logging	Multiplier
	X Residential, urban areas, golf courses are within 150 ft. of wetland Wetland is fed by groundwater high in phosphorus or nitrogen	Waterpries
	Other	X2
	YES multiplier is 2 NO multiplier is 1	
•	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1	12
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	
D 3	Does the wetland have the <u>potential</u> to reduce flooding and erosion?	(see p.46)
	D 3.1 Characteristics of surface water flows out of the wetland unit	
	• Unit is a depression with no surface water leaving it (no outlet)	
	 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface 	0
	outflow and no obvious natural outlet and/or outlet is a man-made ditchpoints = 1	
	(If ditch is not permanently flowing treat unit as "intermittently flowing")	
	• Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0	
	D 3.2 Depth of storage during wet periods. Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).	
	• Marks of ponding are 3 ft. or more above the surface or bottom of the outlet points = 7	
	• The wetland is a "headwater" wetland	3
	 Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet	
	• Warks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet	
	• Marks of ponding less than 0.5 ft points = 0	
	D 3.3 Contribution of wetland unit 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 unitpoints = 5	
	• The area of the basin is 10 to 100 times the area of the unit	3
	• The area of the basin is more than 100 times the area of the unit	
	• Entire unit is in the FLATS class	6

D 4	D 4 Does the wetland have the <u>opportunity</u> to reduce flooding and erosion? Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. Note which of the following indicators of opportunity apply.		
	Wetland is in a headwater of a river or stream that has flooding problems. X Wetland drains to a river or stream that has flooding problems Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems Other		
	YES multiplier is 2 NO multiplier is 1		
•	TOTAL – Hydrologic Functions Multiply the score from D3 by D4; then <i>add score to table on p. 1</i>	12	

HABITAT FUNCTIONS – Indicators that wetrand functions to provide important habitat.	These ques	tions apply to wetlands of all HGM classes.	Points
Figure Check the types of vegetation classes present (as defined by Cowardin) Size threshold for each class is I/4 acre or more than 10% of the area if unit is smaller than 2.5 acres. Aquatic Bed Aquatic Bed Emergent plants Secrub-Arribe (acress where trees have > 30% cover) Forested (caress where trees have > 30% cover) Forested (caress where trees have > 30% cover) 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 represent a quality. If you have: A structures points = 2 Structures points = 3 Present Pr	HAB	ITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	(only 1 scor per box)
Check the types of vegetation classes present (as defined by Cowardin) — Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres. Aquatic Bed Finergent plants Scrubshrib tareas where trees have > 30% cover) The forested class has 3 out of \$ strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. Add the number of vegetation types that qualify. If you have: 4 structures on more in the forested polygon. Add the number of vegetation types that qualify. If you have: 4 structures — points — 1 structure — points — 2 structures — points — 2 structure — points — 3 structures — points — 2 cover the past of the vertical	I 1 Does	the wetland have the <u>potential</u> to provide habitat for many species?	
The unit has a 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 vegetation classes of the number of vegetation vegetation vegetation classes and the number of vegetation vegetati	H 1.1	Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres. Aquatic Bed Emergent plants X Scrub/shrub (areas where shrubs have > 30% cover)	Figure
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 1/4 acre to count (see text for descriptions of hydroperiods). Permanently flooded or imundated Seasonally flooding stream or river in, or adjacent to, the wetland Lake-frigge wetland		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 types that qualify. If you have: 4 structures or more points = 4 Map of Cowardin vegetation classes 3 structures	
Cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods). X Permanently flooded or inundated Seasonally flooded or inundated Cocasionally flooded or inundated Saturated only Permanently flowing stream or river in, or adjacent to, the wetland Lake-frige wetland	H 1.2	Hydroperiods (see p.73):	
H 1.3 Richness of Plant Species (see p. 75): Count the number of plant species in the wetland that cover at least 10 ft² (different patches of the same species can be combined to meet the size threshold) You do not have to name the species. Do not include Eurasian Milifoil, reed canarygrass, purple loosestrife, Canadian Thistle. If you counted: 19 species		cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods). X Permanently flooded or inundated Seasonally flooded or inundated Occasionally flooded or inundated X Saturated only Permanently flowing stream or river in, or adjacent to, the wetland Seasonally flowing stream in, or adjacent to, the wetland Lake-fringe wetland	
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: If you counted: 19 species	H 1 3		
Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none. Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high". Use map of Cowardin classes. 1 Use map of Cowardin classes. 1 Use map of Cowardin classes. 2 Use map of Cowardin classes. 2 Use map of Cowardin classes. 2 Use map of Cowardin classes. 3 Ending snags (diameter at the bottom > 4 inches) in the wetland (> 4 in. diameter and 6 ft. long) 3 Estable steep downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) 4 Estanding snags (diameter at the bottom > 4 inches) in the wetland 5 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) 5 Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned grey/brown) At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated (structures for egg-laving by amphibians) 1 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.		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	2
High = 3 points High = 3 points High = 3 points High = 3 points Woderate = 2 points High = 3 points Wise map of Cowardin classes. Use map of Cowardin classes. Lowe application of Cowardin classes. Wise map of Cowardin classes. Lowe application classes. Wise map of Cowardin classes. Lowe application classes. Lowe application classes and open water, the rating is always "high". Use map of Cowardin classes. Lowe application classes. Lowe application classes and open water, the rating is always "high". Use map of Cowardin classes. Lowe application classes. Lowe application classes and open water, the rating is always "high". Use map of Cowardin classes. Lowe application classes. Lowe always "high". Lowe application classes and open water, the rating is always "high". Use map of Cowardin classes. Lowe always "high". Use map of Cowardin classes. Lowe always "high". Lowe always "high". Use map of Cowardin classes. Lowe always "high". Lowe always "high". Lowe map of Cowardin classes. Lowe always "high". Lowe always	H 1.4	Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or	
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. X Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) X 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 (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned grey/brown) At least 1/4 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) 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.		or 3 vegetation classes and open water, the rating is	
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. X Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) X 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 (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned grey/brown) At least 1/4 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) 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.		[riparian braided channels]	
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.	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. X Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) X 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 (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned grey/brown) At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that 	2
Thu me points in me commit upove 10		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.	10

Н 2	Does tl	he wetland have the opportunity to provide habitat for many species?	(only 1 score per box)
	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". 100m (330 ft) 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)	Figure
	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 a 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 50 ft. 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 Lakefringe wetland, if it does not have an undisturbed corridor as in the question above? YES = 2 points (go to H 2.3) NO = go to 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 miles of a large field or pasture (> 40 acres) OR Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

	 _X 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 (<i>full descriptions in WDFW PHS report p. 161</i>). _X Instream: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.	4
	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.	
	X Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of >	
	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)	
	 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 1/2 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 developmentpoints = 5	
	• The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 milepoints = 5	3
	• There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. points = 3	3
	• The wetland fringe on a lake with disturbance and there are 3 other lake-fringe wetlands within 1/2 milepoints = 3	
	• There is at least 1 wetland within 1/2 mile	
	• There are no wetlands within 1/2 milepoints = 0	
	H 2 TOTAL Score – opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4	9
	TOTAL for H 1 from page 8	10
♦	Total Score for Habitat Functions Add the points for H 1 and H 2; then record the result on p. 1	19

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.			
SC1	Estuarine wetlands? (see p.86)	1		
BCI	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.			
	Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC	Cat. 1		
	332-30-151? YES = Category I NO = go to SC 1.2	Cat. 1		
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions?	+		
	YES = Category I NO = Category II	Cat. I		
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has	Cat. 1		
	less than 10% cover of non-native plant species. If the non-native Spartina spp, are only species	Cat. II		
	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	0		
	with native species would be a Category 1. Do not, however, exclude the area of Spartina in			
	determining the size threshold of 1 acre. At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	Dual		
	or un-mowed grassland	Rating		
	The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	I/II		
0.03	Natural Heritage Wetlands (see p. 87)	+		
SC2	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 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 NOX			
	SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened	C-4 I		
	or endangered plant species? YES = Category 1 NO not a Heritage Wetland	Cat I		
0.02	Bogs (see p. 87)			
SC3	Does the wetland (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 function.			
	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 soil profile? (See Appendix B for a field key to)		
	identify organic soils)? YES = go to question 3 NO = go to question 2			
	Does the wetland 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 question 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 question 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.			
	4. 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)?	Cat. I		
	YES = Category I NO = Is not a bog for purpose of rating			

SC4	Forested Wetlands (see p. 90)				
	Does the wetland 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 function.				
	Old-growth forests: (west of Cascade Crest) Stands of at least two three 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 an average diameters (dbh) exceeding 21 inches (53 cm); 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.	Cat. I			
	YES = Category I NO = \underline{X} not a forested wetland with special characteristics				
SC5	Wetlands in Coastal Lagoons (see p. 91)				
203	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 \underline{X} not a wetland in a coastal lagoon				
	<u>——</u>				
	SC 5.1 Does the wetland meet all of the following three conditions?				
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).				
	At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland.				
	or un-mowed grassland. The wetland is larger than 1/10 acre (4350 square ft.)				
	YES = Category I NO = Category II	C 4 II			
		Cat. II			
SC6	Interdunal Wetlands (see p. 93)				
	Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or				
	WBUO)?				
	YES = Go to SC 6.1 NO \underline{X} 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 one acre or larger?				
	YES = Category II $\frac{1}{100}$ NO = go to SC 6.2	Cat. II			
	SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?	Cat. II			
	* •	Cat. III			
	Category of wetland based on Special Characteristics Chaose the "highest" rating if yetland falls into several agreeous and record on p. 1				
	Choose the "highest" rating if wetland falls into several categories, and record on p. 1.	N.T. 4			
1	If you answered NO for all types enter "Not Applicable" on p. 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): 24C			_ Date of	site visi	t: <u>09-</u> 2	25-13
Rated by: Colin Worsley / Matt Maynard Tra	ined by Ecol	ogy? Yes <u>X</u> No I	ate of tra	ining: <u>1</u>	1-2005 /	04-2006
SEC: 06 TOWNSHIP: 24N	RANGE	:06E Is S/T/R in Ap	pendix D'	Yes_		No_X_
		Estimated size			_	
wap of wetland unit.	rigure	Estimated size	9.10 acre			
	SUMMA	RY OF RATING				
Category based on FUNCTIONS provided b	oy wetland:	I II	III	X	IV_	
Category I = Score > 70		Score for Water Quality Fun	ctions		10	
Category II = Score 51 - 69		Score for Hydrologic Fun			10	
		Score for Habitat Fun				
Category III = Score 30 – 50		Score for Habitat Fun	ctions		14	
Category IV = Score < 30		TOTAL Score for Fun	ctions		34	
Category based on SPECIAL CHARACTERI	STICS of We	etland I II	I	oes not	apply_	X
Final Categ	ory (choose	e the "highest" category from	above")		III	\neg
Summary of basic	information	about the wetland unit.				_
Wetland Unit has Specia		Wetland HGM Class				
Characteristics		used for Rating				
Estuarine		Depressional	X			
Natural Heritage Wetland	l	Riverine	(x)			
Bog		Lake-fringe				
Mature Forest		Slope				
Old Growth Forest		Flats				
Coastal Lagoon		Freshwater Tidal				
Interdunal						
None of the above	X	Check if unit has multiple HGM classes present	X			
	_					

Does the wetland 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 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 1 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.

Classification of Vegetated Wetlands for 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 a Saltwater Tidal Fringe it is rated as an Estuarine wetland. Wetlands that were call 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 only source (>90%) of water to it. Groundwater and surface water
۷.	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 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) where at least 20 acres (8ha) in size; At least 30% of the open water area is deeper than 6.6 (2 m)? NO - go to 4 YES - The wetland class is Lake-fringe (Lacustrine Fringe)
4.	Does the entire wetland 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 types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep). NO – go to 5 YES – The wetland class is Slope
5.	Does the entire wetland 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 of
	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 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
0.	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	Treat as ESTUARINE under wetlands with special
freshwater wetland	characteristics

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

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
D 1	Does the wetland have the <u>potential</u> to improve water quality?	(see p.38)
<i>D</i> 1	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet)	Figure
	 Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 1 Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch	2
	(If ditch is not permanently flowing treat unit as "intermittently flowing") Provide photo or drawing D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions) YES points = 4 NO points = 0	0
	YES points = 4 D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area	Figure
	 Wetland has persistent, ungrazed vegetation > = 1/10 of area	3
	 D 1.4 Characteristics of seasonal ponding or inundation: This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years. Area seasonally ponded is > 1/2 total area of wetland	Figure
	 Area seasonally ponded is > 1/4 total area of wetland	0
	Total for D 1 Add the points in the boxes above	
D 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	(see p. 44)
	Tilled fields or orchards within 150 ft. of wetland A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging X Residential, urban areas, golf courses are within 150 ft. of wetland Wetland is fed by groundwater high in phosphorus or nitrogen Other YES multiplier is 2 NO multiplier is 1	Multiplier
•	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1	10
Ť	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	
D 3	Does the wetland have the <u>potential</u> to reduce flooding and erosion?	(see p.46)
	 D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet)	2
	D 3.2 Depth of storage during wet periods. Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry). • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet	0
	 Marks of ponding less than 0.5 ft	3

D 4	Does the wetland have the <u>opportunity</u> to reduce flooding and erosion? Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. Note which of the following indicators of opportunity apply. Wetland is in a headwater of a river or stream that has flooding problems.	(see p. 49)
	 X Wetland drains to a river or stream that has flooding problems Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems 	Multiplier
	Other	X2
	YES multiplier is 2 NO multiplier is 1	
•	TOTAL – Hydrologic Functions Multiply the score from D3 by D4; then <i>add score to table on p. 1</i>	10

Thes	se questions apply to wetlands of all HGM classes.	Points
	HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat.	(only 1 score
H 1	Does the wetland 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 1/4 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)	Figure
	X Forested (areas where trees have > 30% cover) If the unit has a forested class check if: X The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. Add the number of vegetation types that qualify. If you have: 4 structures or more points = 4 2 structures points = 1 1 structure points = 0	2
	H 1.2 Hydroperiods (see p.73):	Figure
	Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods). Permanently flooded or inundated Seasonally flooded or inundated Occasionally flooded or inundated Saturated only 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	2
	Freshwater tidal wetland = 2 points Map of hydroperiods 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	1
	H 1.4 Interspersion of Habitats (see p. 76): Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), 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 Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high".	Figure
	Use map of Cowardin classes [riparian braided channels]	. 1
	High = 3 points 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 (> 4 in. 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 (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned grey/brown)	0
	At least 1/4 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) 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.	

H 2	Does tl	he wetland have the opportunity to provide habitat for many species?	(only 1 score per box)
	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". 100m (330 ft) 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)	Figure
	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 a 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 50 ft. 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 Lakefringe wetland, if it does not have an undisturbed corridor as in the question above? YES = 2 points (go to H 2.3) NO = go to 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 miles of a large field or pasture (> 40 acres) OR Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): (see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdw.wa.gov/hab/pshist.htm) Which of the following priority habitats are within 330 ft. (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 2D 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%; 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). Z. 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). Z. 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 incl	3
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 1/2 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 developmentpoints = 5 • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 milepoints = 5 • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbedpoints = 3 • The wetland fringe on a lake with disturbance and there are 3 other lake-fringe wetlands within 1/2 milepoints = 3 • There is at least 1 wetland within 1/2 milepoints = 2 • There are no wetlands within 1/2 milepoints = 0 H 2 TOTAL Score – opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4	3
TOTAL for H 1 from page 8	6
◆ Total Score for Habitat Functions Add the points for H 1 and H 2; then record the result on p. 1	14

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.	
SC1	Estuarine wetlands? (see p.86)	
SCI	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 X 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	Cat. 1
	332-30-151? YES = Category I NO = go to SC 1.2	Cat. 1
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions?	
	YES = Category I NO = Category II	Cat. I
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has	Cat. 1
	less than 10% cover of non-native plant species. If the non-native <i>Spartina</i> spp., are only species	Cat. II
	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	0
	with native species would be a Category 1. Do not, however, exclude the area of Spartina in	
	determining the size threshold of 1 acre. At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	Dual
	or un-mowed grassland	Rating
	The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	I/II
SC2	Natural Heritage Wetlands (see p. 87)	
SCZ	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 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 X	
	<u> </u>	
	SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species?	Cat I
	YES = Category 1 NO not a Heritage Wetland	Cat 1
SC3	Bogs (see p. 87)	
SCS	Does the wetland (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 function.	
	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 soil profile? (See Appendix B for a field key to	
	identify organic soils)? YES = go to question 3 NO = go to question 2	
	Does the wetland 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 question 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 question 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. 4. 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)?	Cat. I
	YES = Category I NO = Is not a bog for purpose of rating	

SC4	Forested Wetlands (see p. 90)	
	Does the wetland 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 function.	
	Old-growth forests: (west of Cascade Crest) Stands of at least two three 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 an average diameters (dbh) exceeding 21 inches (53 cm); 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.	Cat. I
	YES = Category I NO = \underline{X} not a forested wetland with special characteristics	
SC5	Wetlands in Coastal Lagoons (see p. 91)	
505	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 X not a wetland in a coastal lagoon	
	SC 5.1 Does the wetland meet all of the following three conditions?	
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has	
	less than 20% cover of invasive plant species (see list of invasive species on p. 74).	
	At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	
	or un-mowed grassland.	Cat. I
	The wetland is larger than 1/10 acre (4350 square ft.)	Cut. 1
	YES = Category I NO = Category II	Cat. II
SC6	Interdunal Wetlands (see p. 93)	
SCO	Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or	
	WBUO)?	
	YES = Go to SC 6.1 NO X 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 westland one care on language as in it in a massing of westlands that in one care on language.	
	SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger?	a
	YES = Category II NO = go to SC 6.2	Cat. II
	SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?	a
	YES = Category III	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	NA

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

variie or w	vetland (if known): 25A			_ Date of	site visi	it: <u>09-</u>	25-13
ated by:	Colin Worsley / Matt Maynard Train	ed by Ecology? Ye	es <u>X</u> No 1	Date of tra	nining: <u>1</u>	1-2005 /	04-2006
EC:	32 TOWNSHIP: 25N	RANGE: 06E	_ Is S/T/R in Ap	pendix D	? Yes_		No <u>X</u>
	Map of wetland unit: Fi	gure	Estimated size	0.25 acre			
		<u> </u>					
		SUMMARY OF	RATING				
Category 1	based on FUNCTIONS provided by	wetland: I	II	III_	X	IV_	
	Category I = Score > 70	Score t	for Water Quality Fu	nctions		20	
	Category II = Score 51 - 69		re for Hydrologic Fu			12	
	Category III = Score 30 – 50		Score for Habitat Fu			14	\dashv
	category III = Score 30 30		Score for Habitat I al	ictions		17	_
	Cotogomy IV - Sooms < 20	-	TOTAL Cooms for Eur	nations		16	
	Category IV = Score < 30	,	TOTAL Score for Fu	nctions		46	
Category b	Category IV = Score < 30 Dased on SPECIAL CHARACTERIST				Does not	-	X
Category b	pased on SPECIAL CHARACTERIST	TICS of Wetland	I II	1	Does not	-	X
Category b	pased on SPECIAL CHARACTERIST Final Categor	ry (choose the "high	I II ghest" category from	1	Does not	t apply_	X
Category b	pased on SPECIAL CHARACTERIST Final Categor Summary of basic interpretations	TICS of Wetland TY (choose the "higher formation about the content of the conten	I II ghest" category from he wetland unit.	1	Does not	t apply_	<u>X</u>
Category b	Summary of basic in Wetland Unit has Special	ry (choose the "higher formation about the Western was about the w	I II ghest" category from he wetland unit. etland HGM Class	1	Does not	t apply_	<u>X</u>
ategory b	Summary of basic into Wetland Unit has Special Characteristics	ry (choose the "higher formation about the Western Street	I II I	1	Does not	t apply_	
Category b	Summary of basic into Wetland Unit has Special Characteristics Estuarine	ry (choose the "histormation about the Depresentation about the Deprese	IIIghest" category from he wetland unit. etland HGM Class used for Rating ssional	above")	Does not	t apply_	x
Category b	Summary of basic into Wetland Unit has Special Characteristics	ry (choose the "higher formation about the Western Street	ghest" category from he wetland unit. etland HGM Class used for Rating ssional	above")	Does not	t apply_	x
Category b	Summary of basic in Wetland Unit has Special Characteristics Estuarine Natural Heritage Wetland	ry (choose the "histormation about the Depresentation")	ghest" category from he wetland unit. etland HGM Class used for Rating ssional	above")	Does not	t apply_	<u>x</u>
Category b	Summary of basic into Wetland Unit has Special Characteristics Estuarine Natural Heritage Wetland Bog	ry (choose the "higher formation about the Depresentation about the Dep	ghest" category from he wetland unit. etland HGM Class used for Rating ssional	above")	Does not	t apply_	<u>X</u>
Category b	Summary of basic into Wetland Unit has Special Characteristics Estuarine Natural Heritage Wetland Bog Mature Forest	ry (choose the "histormation about the Depresentation about the Lake-to-Slope Flats	ghest" category from he wetland unit. etland HGM Class used for Rating ssional	above")	Does not	t apply_	<u>X</u>
Category b	Summary of basic into Wetland Unit has Special Characteristics Estuarine Natural Heritage Wetland Bog Mature Forest Old Growth Forest	ry (choose the "histormation about the Depresentation about the Lake-to-Slope Flats	III ghest" category from he wetland unit. etland HGM Class used for Rating ssional ine fringe	above")	Does not	t apply_	<u>X</u>

need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

	Check List for Wetlands that 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 1 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.

Classification of Vegetated Wetlands for 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.	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)
	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 a Saltwater Tidal Fringe it
	is rated as an Estuarine wetland. Wetlands that were call 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 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 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) where at least 20 acres (8ha) in size;
	At least 30% of the open water area is deeper than 6.6 (2 m)? NO – go to 4 YES – The wetland class is Lake-fringe (Lacustrine Fringe)
4.	Does the entire wetland 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 types of wetlands except occasionally in very small and
	shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep). NO – go to 5 YES – The wetland class is Slope
5.	Does the entire wetland 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
<i>c</i>	
6.	Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of 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 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 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

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	Treat as ESTUARINE under wetlands with special
freshwater wetland	characteristics

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

than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
D 1	Does the wetland have the <u>potential</u> to improve water quality?	$\begin{cases} see p.38 \end{cases}$
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet)	Figure
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions) YES points = 4 NO points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area points = 0 Map of Cowardin vegetation classes	Figure
	D 1.4 Characteristics of seasonal ponding or inundation: This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years. • Area seasonally ponded is > 1/2 total area of wetland points = 4 • Area seasonally ponded is > 1/4 total area of wetland points = 0 • Area seasonally ponded is < 1/4 total area of wetland points = 0 Map of Hydroperiods	Figure
	Total for D 1 Add the points in the boxes above	10
D 2	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 or orchards within 150 ft. of wetland A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging X Residential, urban areas, golf courses are within 150 ft. of wetland Wetland is fed by groundwater high in phosphorus or nitrogen Other YES multiplier is 2 NO multiplier is 1 TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1	(see p. 44) Multiplier
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	-
D 3	Does the wetland have the <u>potential</u> to reduce flooding and erosion?	(see p.46)
	 D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet)	0
	D 3.2 Depth of storage during wet periods. Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry). • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet	3
	 Marks of ponding less than 0.5 ft	3

D 4	Does the wetland have the opportunity to reduce flooding and erosion? Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. Note which of the following indicators of opportunity apply. Wetland is in a headwater of a river or stream that has flooding problems. Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems	(see p. 49) Multiplier
	stream that has flooding problems Other YES multiplier is 2 NO multiplier is 1	X2
♦	TOTAL – Hydrologic Functions Multiply the score from D3 by D4; then add score to table on p. 1	12

Thes	e questions apply to wetlands of all HGM classes.	Points
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	(only 1 scor per box)
H 1	Does the wetland have the <u>potential</u> 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 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres. Aquatic Bed Emergent plants	Figure
	Scrub/shrub (areas where shrubs have > 30% cover) X 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 types that qualify. If you have: 4 structures or more points = 4 2 structures points = 1 1 structure points =	2
	H 1.2 Hydroperiods (see p.73): Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to	Figure
	cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods). X Permanently flooded or inundated X Seasonally flooded or inundated Occasionally flooded or inundated Saturated only X Permanently flowing stream or river in, or adjacent to, the wetland Seasonally flowing stream in, or adjacent to, the wetland Lake-fringe wetland	2
	H 1.3 Richness of Plant Species (see p. 75): Count the number of plant species in the wetland that cover at least 10 ft² (different patches of the same species can be combined to meet the size threshold) You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle. If you counted: > 19 species	1
	H 1.4 Interspersion of Habitats (see p. 76): Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), 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 Note: If you have 4 or more class or 3 vegetation classes and open water, the rating is always "high".	
	Use map of Cowardin classed [riparian braided channels]	1
	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 poir you put into the next column. Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) X 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 (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned grey/brown) At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas the	1
	are permanently or seasonally inundated (structures for egg-laying by amphibians) 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.	
	H 1 TOTAL Score – potential for providing habitat Add the points in the column abov	e 6

H 2	Does t	he wetland have the opportunity to provide habitat for many species?	(only 1 score per box)
	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". 100m (330 ft) 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)	Figure
	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 a 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 50 ft. 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 Lakefringe wetland, if it does not have an undisturbed corridor as in the question above? YES = 2 points (go to H 2.3) NO = go to 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 miles of a large field or pasture (> 40 acres) OR Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

•	Total Score for Habitat Functions Add the points for H 1 and H 2; then <i>record the result on p. 1</i>	14
	TOTAL for H 1 from page 8	6
	H 2 TOTAL Score – opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4	8
	• There are no wetlands within 1/2 mile	
	• There is at least 1 wetland within 1/2 mile	
	• The wetland fringe on a lake with disturbance and there are 3 other lake-fringe wetlands within 1/2 milepoints = 3	
	disturbed	
	• There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are	3
	wetlands within 1/2 milepoints = 5	2
	• The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe	
	but connections should NOT be bisected by paved roads, fill, fields, or other developmentpoints = 5	
	 There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, 	
	H 2.4 Wetland Landscape: Choose the one description of the landscape around the wetland that best fits (see p. 84)	
	addressed in question H 2.4)	
	Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are	
	If wetland has 2 priority habitats = 3 points If wetland has 1 priority habitat = 1 point No habitats = 0 points	
	If wetland has 3 or more priority habitats = 4 points	
	end, and > 6 m (20 ft) long.	
	western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest	
	to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in	
	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	
	Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt,	
	Cliffs: Greater than 7.6 m (25 ft) high and occurring below 5000 ft.	
	rock, ice, or other geological formations and is large enough to contain a human.	
	Caves: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils,	
	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).	
	Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore,	
	provide functional life history requirements for instream fish and wildlife resources.	
	X Instream: The combination of physical, biological, and chemical processes and conditions that interact to	
	a wet prairie (full descriptions in WDFW PHS report p. 161).	3
	Westside Prairies: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or	
	X Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.	
	oak component is important (full descriptions in WDFW PHS report p. 158).	
	Oregon white Oak: Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the	
	generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.	
	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%; decay, decadence, numbers of snags, and quantity of large downed material is	
	multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in)	
	Old-growth/Mature forests: (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a	
	Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.	
	fish and wildlife (full descriptions in WDFW PHS report p. 152).	
	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	
	NOTE: the connections do not have to be relatively undisturbed.	
	Which of the following priority habitats are within 330 ft. (100m) of the wetland unit?	
	http://wdfw.wa.gov/hab/phslist.htm)	
	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): (see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report	
	II 2.2 Noon on adjacent to other priority hebitete listed by WDEW (see p. 92)) (see pay and complete	

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

		na Type – Cneck off any criteria that apply to the wetlana. Circle the Category when the appropriate		
~ c: :	criteria are met. Estuarine wetlands? (see p.86)			
SC1	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.		
	~~	$YES = Go to SC 1.1 \qquad NO \underline{X}$		
		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. 1	
	SC 1.2	Is the wetland at least 1 acre in size and meets at least two of the following conditions?		
		YES = Category I NO = Category II	Cat. I	
		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 <i>Spartina</i> spp, are 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 1. Do not, however, exclude the area of Spartina in	Cat. II	
		determining the size threshold of 1 acre.	Dual	
		At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	Rating	
		or un-mowed grassland The wetland has at least 2 of the following features: tidal channels, depressions with open water,	I/II	
		or contiguous freshwater wetlands.		
COA	Natura	l Heritage Wetlands (see p. 87)		
SC2	1141414	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 being rated in a Section/Township/Range that contains a natural heritage wetland? (This		
	50 2.1	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 NOX		
	SC 2.2	Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened		
	DC 2.2	or endangered plant species?	Cat I	
		YES = Category 1 NO not a Heritage Wetland	Cat 1	
	Dogg (ree p. 87)		
SC3	Dogs (S	Does the wetland (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 function.		
		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 soil profile? (See Appendix B for a field key to		
		identify organic soils)? YES = go to question 3 NO = go to question 2		
		2. Does the wetland 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 question 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 question 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.		
		4. 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)?	Cot I	
		YES = Category I NO = Is not a bog for purpose of rating	Cat. I	
		120 Category 1 100 = 15 not a bog for purpose of rating		

SC4	Forested Wetlands (see p. 90)			
	Does the wetland 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 function.			
	Old-growth forests: (west of Cascade Crest) Stands of at least two three 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 an average diameters (dbh) exceeding 21 inches (53 cm); 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.	Cat. I		
	YES = Category I NO = \underline{X} not a forested wetland with special characteristics	0		
COF	Wetlands in Coastal Lagoons (see p. 91)			
SC5	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.)			
	,			
	SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has			
	less than 20% cover of invasive plant species (see list of invasive species on p. 74).			
	At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed			
		Cat. I		
	The wetland is larger than 1/10 acre (4350 square ft.)			
	YES = Category I NO = Category II	Cat. II		
SC6	Interdunal Wetlands (see p. 93)			
	Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or			
	WBUO)?			
	YES = Go to SC 6.1 NO \underline{X} 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 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 one acre or larger?			
	YES = Category II $\frac{1}{100}$ NO = go to SC 6.2	Cat. II		
	SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?	Cat. 11		
	YES = Category III	Cat. III		
	Category of wetland based on Special Characteristics	Cat. 111		
	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	NA		
	if you allowed to for all types effect. Not repried to b. 1	INA.		

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): 25B		Date of	site visit: 09-25	5-13
Rated by: Colin Worsley / Matt Maynard Trained by Eco	ology? Yes X No D	ate of tra	ining: <u>11-2005 / 0</u> -	4-2006
SEC: 32 TOWNSHIP: 25N RANG	E: <u>06E</u> Is S/T/R in App	endix D	? Yes N	o X_
Map of wetland unit: Figure	Estimated size 0	.33 acre		
SUMM	ARY OF RATING			
Category based on FUNCTIONS provided by wetland:	: I II	_ III_	<u>X</u> IV	
Category I = Score > 70	Score for Water Quality Fund	tions	18	7
Category II = Score 51 - 69	Score for Hydrologic Func	tions	10	
Category III = Score 30 – 50	Score for Habitat Func	tions	18	7
Category IV = Score < 30	TOTAL Score for Fund	tions	46]
Category based on SPECIAL CHARACTERISTICS of W	Vetland I II	I	Does not apply	X
Final Category (choo	se the "highest" category from a	bove")	III	7
Summary of basic information	n about the wetland unit.			
Wetland Unit has Special	Wetland HGM Class			
Characteristics	used for Rating			
Estuarine	Depressional	X		
Natural Heritage Wetland	Riverine			
Bog	Lake-fringe			
Mature Forest	Slope			
Old Growth Forest	Flats			
Coastal Lagoon	Freshwater Tidal			
Interdunal				
None of the above X	Check if unit has multiple HGM classes present			
Does the wetland being rated meet any of the criteria b	pelow? If you answer YES to an	y of the o	- questions below yo	ou will

need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

	Check List for Wetlands that 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 1 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.

Classification of Vegetated Wetlands for 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 a Saltwater Tidal Fringe it
	is rated as an Estuarine wetland. Wetlands that were call 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 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 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) where at least 20 acres (8ha) in size;
	At least 30% of the open water area is deeper than 6.6 (2 m)?
	NO – go to 4 YES – The wetland class is Lake-fringe (Lacustrine Fringe)
4.	Does the entire wetland meet all of the following criteria?
т.	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 types of wetlands except occasionally in very small and
	shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).
	NO – go to 5 YES – The wetland class is Slope
5	Does the entire wetland meet all of the following criteria?
٠.	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 of
0.	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 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 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

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	Treat as ESTUARINE under wetlands with special
freshwater wetland	characteristics

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

than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
D 1	Does the wetland have the <u>potential</u> to improve water quality?	(see p.38)
D I	D 1.1 Characteristics of surface water flows out of the wetland:	
	• Unit is a depression with no surface water leaving it (no outlet)	Figure
	 Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 1 	2
	• Unit is a "flat" depression (0.7 on key), or in the Flats class, with permanent surface	2
	outflow and no obvious natural outlet and/or outlet is a man-made ditchpoints = 1	
	(If ditch is not permanently flowing treat unit as "intermittently flowing") Provide photo or drawing D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions)	
	YES points = 4 NO points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class):	Eigung
	• Wetland has persistent, ungrazed vegetation > = 95% of area points = 5	Figure
	 Wetland has persistent, ungrazed vegetation > = 1/2 of area	5
	• Wetland has persistent, ungrazed vegetation < 1/10 of area	
	Map of Cowardin vegetation classes D 1.4 Characteristics of seasonal ponding or inundation: This is the area of the wetland that is ponded for at	
	least 2 months, but dries out sometime during the year. Do not count the area that is permanently	Figure
	ponded. Estimate area as the average condition 5 out of 10 years.	
	 Area seasonally ponded is > 1/2 total area of wetland	
	• Area seasonally ponded is < 1/4 total area of wetland	2
	Map of Hydroperiods	
	Total for D 1 Add the points in the boxes above	
D 2	Does the wetland have the opportunity to improve water quality?	(see p. 44)
	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 or orchards within 150 ft. of wetland	
	A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed	
	fields, roads, or clear-cut logging X. Residential, urban areas, policourses are within 150 ft. of wetland	Multiplier
	 X Residential, urban areas, golf courses are within 150 ft. of wetland Wetland is fed by groundwater high in phosphorus or nitrogen 	1
	Other	X2
_	YES multiplier is 2 NO multiplier is 1	10
•	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1	18
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	7 , , , , ,
D 3	Does the wetland have the <u>potential</u> to reduce flooding and erosion?	(see p.46)
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	
	• Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2	
	• Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface	2
	outflow and no obvious natural outlet and/or outlet is a man-made ditch	
L	• Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0	
	D 3.2 Depth of storage during wet periods. Estimate the height of ponding above the bottom of the outlet. For	
	units with no outlet measure from the surface of permanent water or deepest part (if dry). • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet points = 7	
	• Marks of ponding are 3 ft. or more above the surface of bottom of the outlet	
	• Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outletpoints = 5	0
	• Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet	
	 Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft	
	D 3.3 Contribution of wetland unit 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 unit. The area of the basin is 10 to 100 times the area of the unit points = 3 	3
	• The area of the basin is more than 100 times the area of the unit	
ı	• Entire unit is in the FLATS class points = 5	L
	Total for D 3 Add the points in the boxes above	5

D 4	Does the wetland have the <u>opportunity</u> to reduce flooding and erosion? Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. Note which of the following indicators of opportunity apply. Wetland is in a headwater of a river or stream that has flooding problems.	(see p. 49)
	 X Wetland drains to a river or stream that has flooding problems Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems 	Multiplier
	Other	X2
	YES multiplier is 2 NO multiplier is 1	
•	TOTAL – Hydrologic Functions Multiply the score from D3 by D4; then <i>add score to table on p. 1</i>	10

Thes	se questions apply to wetlands of all HGM classes.	Points
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	(only 1 score per box)
H 1	Does the wetland have the <u>potential</u> 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 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres. Aquatic Bed X Emergent plants X Scrub/shrub (areas where shrubs have > 30% cover)	Figure
	X 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 types that qualify. If you have: 4 structures or more points = 4 2 structures	2
	H 1.2 <u>Hydroperiods</u> (see p.73):	Figure
	Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods). Permanently flooded or inundated Seasonally flooded or inundated Occasionally flooded or inundated Saturated only Permanently flowing stream or river in, or adjacent to, the wetland Seasonally flowing stream in, or adjacent to, the wetland Lake-fringe wetland Lake-fringe wetland	2
	Freshwater tidal wetland = 2 points Map of hydroperiods 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	1
	H 1.4 Interspersion of Habitats (<i>see p. 76</i>): Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.	
	None = 0 points Low = 1 point Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high".	Figure
	Use map of Cowardin classes [riparian braided channels]	3
	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. X Large, downed, woody debris within the wetland (> 4 in. 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 (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have	1
	not yet turned grey/brown) At least 1/4 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) 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.	
	H 1 TOTAL Score – potential for providing habitat Add the points in the column above	9

H 2	Does t	he wetland have the opportunity to provide habitat for many species?	(only 1 score per box)
	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". 100m (330 ft) 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)	Figure
	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 a 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 50 ft. 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 Lakefringe wetland, if it does not have an undisturbed corridor as in the question above? YES = 2 points (go to H 2.3) NO = go to 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 miles of a large field or pasture (> 40 acres) OR Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): (see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdb.w.w.g.ov/hab/phs/ist.htm) Which of the following priority habitats are within 330 ft. (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%; 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). X 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). X Instream: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. Nearshore: Relatively undisturbed nearshore habitats. These inc	4
addressed in question H 2.4) 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 1/2 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 developmentpoints = 5 • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 milepoints = 5	3
 There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. points = 3 The wetland fringe on a lake with disturbance and there are 3 other lake-fringe wetlands within 1/2 mile. points = 3 There is at least 1 wetland within 1/2 mile. points = 2 There are no wetlands within 1/2 mile. 	<i>3</i>
H 2 TOTAL Score – opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4	9
TOTAL for H 1 from page 8	9
◆ Total Score for Habitat Functions Add the points for H 1 and H 2; then record the result on p. 1	18

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.			
SC1				
BCI	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 X SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural			
	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. 1		
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions?			
	YES = Category I NO = Category II	Cat. I		
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has	Cat. 1		
	less than 10% cover of non-native plant species. If the non-native <i>Spartina</i> spp., are only species	Cat. II		
	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 1. Do not, however, exclude the area of Spartina in			
	determining the size threshold of 1 acre. At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	Dual		
	or un-mowed grassland	Rating		
	The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	I/II		
SC2	Natural Heritage Wetlands (see p. 87)			
SCZ	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 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			
	YESContact WNHP/DNR (see p. 79) and go to SC 2.2 NOX			
	SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species?	Cat I		
	YES = Category 1 NO not a Heritage Wetland	Cat 1		
002	Bogs (see p. 87)			
SC3	Does the wetland (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 function.			
	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 soil profile? (See Appendix B for a field key to			
	identify organic soils)? YES = go to question 3 NO = go to question 2			
	Does the wetland 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 question 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 question 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. 4. 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)?	Cat. I		
	YES = Category I NO = Is not a bog for purpose of rating			

SC4	Forested Wetlands (see p. 90)		
	Does the wetland 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 function.		
	Old-growth forests: (west of Cascade Crest) Stands of at least two three 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 an average diameters (dbh) exceeding 21 inches (53 cm); 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.	Cat. I	
	YES = Category I NO = \underline{X} not a forested wetland with special characteristics	Cut. 1	
0.05	Wetlands in Coastal Lagoons (see p. 91)		
SC5	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 \underline{X} not a wetland in a coastal lagoon		
	SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has		
	less than 20% cover of invasive plant species (see list of invasive species on p. 74).		
	At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed		
	or un-mowed grassland. The western die larger than 1/10 cere (4350 equare ft.)		
	The wetland is larger than 1/10 acre (4350 square ft.)		
	YES = Category I NO = Category II	Cat. II	
SC6	Interdunal Wetlands (see p. 93)		
	Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or		
	WBUO)?		
	YES = Go to SC 6.1 NO \underline{X} 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		
	 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 one acre or larger?		
	YES = Category II $\frac{1}{100}$ NO = go to SC 6.2	Cat. II	
	SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?	Cat. 11	
	YES = Category III	Cat. III	
	Category of wetland based on Special Characteristics	Cut. 111	
	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	NA	
	if you allowed to for all types effect. Not repried to b. 1	INA.	

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): 25C			_ Date of	site visit: 0	9-25-13
Rated by: Colin Worsley / Matt Maynard Tra	ined by Ecolo	gy? Yes X No I	Date of train	ining: <u>11-2005</u>	5 / 04-2006
SEC: 32 TOWNSHIP: 25N	RANGE:	Is S/T/R in Ap	pendix D?	Yes	No_X_
Map of wetland unit:	Figure	Estimated size	0.33 acre		
	SUMMAE	RY OF RATING			
Category based on FUNCTIONS provided b	y wetland: I	II	III	X IV	<i></i>
Category I = Score > 70		Score for Water Quality Fur	ections	14	
Category II = Score 51 - 69		Score for Hydrologic Fur	ections	14	
Category III = Score 30 – 50		Score for Habitat Fur	ictions	14	
Category IV = Score < 30		TOTAL Score for Fur	nctions	42	
Category based on SPECIAL CHARACTERIS	STICS of Wet	land I II	D	oes not apply	<u>X</u>
Final Categ	ory (choose	the "highest" category from	above")	III	
Summary of basic	information a	bout the wetland unit.			_
Wetland Unit has Specia	ıl	Wetland HGM Class			
Characteristics		used for Rating	X 7		
Estuarine Natural Heritage Wetland	, 	Depressional Riverine	X		
Bog		Lake-fringe			
Mature Forest		Slope			
Old Growth Forest		Flats			
Coastal Lagoon		Freshwater Tidal			
Interdunal		riesiiwatei ritar			
None of the above	X	Check if unit has multiple HGM classes present			
Does the wetland being rated meet any of th	e criteria hel	ow? If you answer VES to a	ny of the o	westions belov	w von will

Does the wetland 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 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 1 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.

Classification of Vegetated Wetlands for 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 a Saltwater Tidal Fringe it
	is rated as an Estuarine wetland. Wetlands that were call 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 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 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) where at least 20 acres (8ha) in size;
	At least 30% of the open water area is deeper than 6.6 (2 m)? NO – go to 4 YES – The wetland class is Lake-fringe (Lacustrine Fringe)
4	
4.	Does the entire wetland meet all of the following criteria? The wetland is on a slope (slope can be very gradual).
	The wettand is on a slope (<i>stope can be very gradual</i>). 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 types of wetlands except occasionally in very small and
	shallow depressions or behind hummocks (depressions are usually $\stackrel{?}{<}3$ ft diameter and less than 1 foot deep).
	NO – go to 5 YES – The wetland class is Slope
5.	Does the entire wetland 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 of
	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 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
Ω	•
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 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

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	Treat as ESTUARINE under wetlands with special
freshwater wetland	characteristics

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

than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score
D 1	Does the wetland have the <u>potential</u> to improve water quality?	$ \begin{array}{c} \text{per box})\\ (\text{see p.38}) \end{array} $
DI	D 1.1 Characteristics of surface water flows out of the wetland:	
	• Unit is a depression with no surface water leaving it (no outlet)	Figure
	 Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 1 	2
	• Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface	
	outflow and no obvious natural outlet and/or outlet is a man-made ditchpoints = 1 (If ditch is not permanently flowing treat unit as "intermittently flowing") Provide photo or drawing	
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions)	0
	YES points = 4 D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class):	0
	• Wetland has persistent, ungrazed vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area	Figure
	• Wetland has persistent, ungrazed vegetation > = 1/2 of area	_
	 Wetland has persistent, ungrazed vegetation > = 1/10 of area	5
	Map of Cowardin vegetation classes	
	D 1.4 Characteristics of seasonal ponding or inundation: This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently	Figure
	ponded. Estimate area as the average condition 5 out of 10 years.	riguit
	• Area seasonally ponded is > 1/2 total area of wetland	
	 Area seasonally ponded is > 1/4 total area of wetland points = 2 Area seasonally ponded is < 1/4 total area of wetland points = 0 	0
	Map of Hydroperiods	
	Total for D 1 Add the points in the boxes above	
D 2	Does the wetland have the opportunity to improve water quality?	(see p. 44)
	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 or orchards within 150 ft. of wetland A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed	
	fields, roads, or clear-cut logging	
	X Residential, urban areas, golf courses are within 150 ft. of wetland	Multiplier
	Wetland is fed by groundwater high in phosphorus or nitrogen Other	X2
	YES multiplier is 2 NO multiplier is 1	
•	<u>TOTAL</u> – Water Quality Functions Multiply the score from D1 by D2; then <i>add score to table on p. 1</i>	14
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	
D 3	Does the wetland have the <u>potential</u> to reduce flooding and erosion?	(see p.46)
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	
	• Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 4	
	• Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface	2
	outflow and no obvious natural outlet and/or outlet is a man-made ditch	
	• Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0	
	D 3.2 Depth of storage during wet periods. Estimate the height of ponding above the bottom of the outlet. For	·
	units with no outlet measure from the surface of permanent water or deepest part (if dry). • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet points = 7	
	• The wetland is a "headwater" wetland	0
	 Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet	
	• Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1	
	• Marks of ponding less than 0.5 ft points = 0	
	D 3.3 Contribution of wetland unit 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 unit	5
	• The area of the basin is 10 to 100 times the area of the unitpoints = 3	
	 The area of the basin is 10 to 100 times the area of the unit	

D 4	Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. <i>Note which of the following indicators of opportunity apply.</i> Wetland is in a headwater of a river or stream that has flooding problems.		
	X Wetland drains to a river or stream that has flooding problems Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems		
	Other		
	YES multiplier is 2 NO multiplier is 1		
•	TOTAL – Hydrologic Functions Multiply the score from D3 by D4; then <i>add score to table on p. 1</i>	14	

Thes	se questions apply to wetlands of all HGM classes.	Points
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	(only 1 score per box)
H 1	Does the wetland have the <u>potential</u> 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 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres. Aquatic Bed Emergent plants Scrub/shrub (areas where shrubs have > 30% cover)	Figure
	X Forested (areas where trees have > 30% cover) If the unit has a forested class check if: X The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. Add the number of vegetation types that qualify. If you have: 4 structures or more points = 4 2 structures points = 1 1 structure points = 0	2
	H 1.2 <u>Hydroperiods</u> (see p.73): Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to	Figure
	cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods). Permanently flooded or inundated 4 or more types present points = 3 Seasonally flooded or inundated 3 or more types present points = 2 Occasionally flooded or inundated 2 types present points = 1 X Saturated only 1 type present points = 1 Permanently flowing stream or river in, or adjacent to, the wetland Seasonally flowing stream in, or adjacent to, the wetland Lake-fringe wetland	1
	Freshwater tidal wetland = 2 points Map of hydroperiods	
	H 1.3 Richness of Plant Species (see p. 75): Count the number of plant species in the wetland that cover at least 10 ft² (different patches of the same species can be combined to meet the size threshold) You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle. If you counted: > 19 species	1
	H 1.4 Interspersion of Habitats (see p. 76): Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.	
	Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high".	
	Use map of Cowardin classes. [riparian braided channels]	1
	High = 3 points 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 (> 4 in. diameter and 6 ft. long) X 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 (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned grey/brown) At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that	1
	are permanently or seasonally inundated (structures for egg-laying by amphibians) 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. H 1 TOTAL Score – potential for providing habitat Add the points in the column above	6

H 2	Does t	he wetland have the opportunity to provide habitat for many species?	(only 1 score per box)
	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". 100m (330 ft) 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)	Figure
	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 a 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 50 ft. 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 Lakefringe wetland, if it does not have an undisturbed corridor as in the question above? YES = 2 points (go to H 2.3) NO = go to 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 miles of a large field or pasture (> 40 acres) OR Within 1 mile of a lake greater than 20 acres? NO = 0 points	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 1/2 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 developmentpoints = 5 • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile		H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): (see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wag.ov/hab/phslist.htm) Which of the following priority habitats are within 330 ft. (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%; 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). X 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). X Instream: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. Nearshore: Relatively undisturbed nearshore habitats. These incl	3
		 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 1/2 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 developmentpoints = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile points = 5 There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. points = 3 The wetland fringe on a lake with disturbance and there are 3 other lake-fringe wetlands within 1/2 mile points = 3 There is at least 1 wetland within 1/2 mile points = 2 There are no wetlands within 1/2 mile points = 0 	
◆ Total Score for Habitat Functions Add the points for H 1 and H 2; then record the result on p. 1 14		TOTAL for H 1 from page 8	6
	•	Total Score for Habitat Functions Add the points for H 1 and H 2; then record the result on p. 1	14

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

		na Type – Cneck off any criteria that apply to the wetlana. Circle the Category when the appropriate	
a c: .		are met.	
SC1	Estuar	ine 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.	
	~~	$YES = Go to SC 1.1 \qquad NO \underline{X}$	
		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. 1
	SC 1.2	Is the wetland at least 1 acre in size and meets at least two of the following conditions?	
		YES = Category I NO = Category II	Cat. I
		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 <i>Spartina</i> spp,, are 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 1. Do not, however, exclude the area of Spartina in	Cat. II
		determining the size threshold of 1 acre.	Dual
		At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	Rating
		or un-mowed grassland The wetland has at least 2 of the following features: tidal channels, depressions with open water,	I/II
		or contiguous freshwater wetlands.	
SC2	Natura	ll Heritage Wetlands (see p. 87)	
SCZ	1141414	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 being rated in a Section/Township/Range that contains a natural heritage wetland? (<i>This</i>	
	50 2.1	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 X	
	SC 2.2	Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened	
	SC 2.2	or endangered plant species?	Cot I
		YES = Category 1 NO not a Heritage Wetland	Cat I
	Desa (s		
SC3	bogs (S	ree p. 87)	
		Does the wetland (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 function.	
		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 soil profile? (See Appendix B for a field key to	
		identify organic soils)? YES = go to question 3 NO = go to question 2	
		2. Does the wetland 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 question 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 question 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.	
		4. 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	0
		component of the ground cover (> 30% coverage of the total shrub/herbaceous cover)?	Cat. I
L !		$YES = Category I \qquad NO = Is not a bog for purpose of rating$	

SC4	Forested Wetlands (see p. 90)	
	Does the wetland 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 function.	
	Old-growth forests: (west of Cascade Crest) Stands of at least two three 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 an average diameters (dbh) exceeding 21 inches (53 cm); 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.	Cat. I
	YES = Category I NO = \underline{X} not a forested wetland with special characteristics	Cut. 1
COF	Wetlands in Coastal Lagoons (see p. 91)	
SC5	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 \underline{X} not a wetland in a coastal lagoon	
	SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has	
	less than 20% cover of invasive plant species (see list of invasive species on p. 74). At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	
		G . T
	or un-mowed grassland. The westend is legger than 1/10 core (4350 square ft.)	Cat. I
	The wetland is larger than 1/10 acre (4350 square ft.)	G . TT
	YES = Category I NO = Category II	Cat. II
SC6	Interdunal Wetlands (see p. 93)	
	Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or	
	WBUO)?	
	YES = Go to SC 6.1 NO \underline{X} 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 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 one acre or larger?	
	YES = Category II $\frac{1}{100}$ NO = go to SC 6.2	Cat. II
	SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?	Cat. 11
	YES = Category III	Cat. III
	Category of wetland based on Special Characteristics	Cat. 111
	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	NA
	if you allowed to for all types effect. Not repried to b. 1	INA

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): 25F			Date of	site visit: 09-27-	13
Rated by: Colin Worsley / Matt Maynard Trained	d by Ecolo	gy? Yes <u>X</u> No D	ate of tra	ining: <u>11-2005 / 04-</u>	2006
SEC: 32 TOWNSHIP: 25N	RANGE:	06E Is S/T/R in App	pendix D'	YesNo	Χ_
Map of wetland unit: Fig	gure	Estimated size ().33 acre		
	SIIMMAT	RY OF RATING			
Category based on FUNCTIONS provided by v			III	IV	X
Category I = Score > 70		Score for Water Quality Fund	ctions	12	
Category II = Score 51 - 69		Score for Hydrologic Fund	ctions	6	
Category III = Score 30 – 50		Score for Habitat Fund	ctions	12	
Category IV = Score < 30		TOTAL Score for Fund	ctions	30	
Category based on SPECIAL CHARACTERISTI	CS of Wet	land I II	Г	Ooes not apply	X
Final Categor	y (choose	the "highest" category from a	bove")	III	
Summary of basic info	ormation a	about the wetland unit.			l
Wetland Unit has Special		Wetland HGM Class			
Characteristics		used for Rating	***		
Estuarine Natural Haritaga Watland	+	Depressional Riverine	X		
Natural Heritage Wetland Bog	+ -	Lake-fringe			
Mature Forest		Slope			
Old Growth Forest	+	Flats			
Coastal Lagoon		Freshwater Tidal			
Interdunal					
None of the above	X	Check if unit has multiple HGM classes present			
Does the wetland being rated meet any of the co	riteria hel	ow? If you answer YES to an	v of the o	uestions below you	will

Does the wetland 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 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 1 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.

Classification of Vegetated Wetlands for 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.	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 a Saltwater Tidal Fringe it is rated as an Estuarine wetland. Wetlands that were call 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 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 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) where at least 20 acres (8ha) in size; At least 30% of the open water area is deeper than 6.6 (2 m)? NO - go to 4 YES - The wetland class is Lake-fringe (Lacustrine Fringe)
4.	Does the entire wetland 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 types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep). NO - go to 5 YES - The wetland class is Slope
5.	Does the entire wetland 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 of 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 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 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

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	Treat as ESTUARINE under wetlands with special
freshwater wetland	characteristics

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

than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

D	Depressional and Flat Wetlands	Points
D		(only 1 score
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	per box)
D 1	Does the wetland have the <u>potential</u> to improve water quality?	(see p.38)
	 D 1.1 Characteristics of surface water flows out of the wetland: Unit is a depression with no surface water leaving it (no outlet)	Figure 1
	outflow and no obvious natural outlet and/or outlet is a man-made ditch	
	YES points = 4 NO points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area	Figure
	 Wetland has persistent, ungrazed vegetation > = 1/10 of area	5
	 D 1.4 Characteristics of seasonal ponding or inundation: This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years. Area seasonally ponded is > 1/2 total area of wetland	Figure
	 Area seasonally ponded is > 1/4 total area of wetland points = 2 Area seasonally ponded is < 1/4 total area of wetland points = 0 	0
	Map of Hydroperiods	
	Total for D 1 Add the points in the boxes above	6
D 2	Does the wetland have the <u>opportunity</u> 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	(see p. 44)
	 Untreated stormwater discharges to wetland Tilled fields or orchards within 150 ft. of wetland A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging X Residential, urban areas, golf courses are within 150 ft. of wetland Wetland is fed by groundwater high in phosphorus or nitrogen Other 	Multiplier
	YES multiplier is 2 NO multiplier is 1	
•	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1	12
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	7
D 3	Does the wetland have the <u>potential</u> to reduce flooding and erosion?	(see p.46)
	 D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet)	0
	D 3.2 Depth of storage during wet periods. Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry). • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet	
	D 3.3 Contribution of wetland unit 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 unit	3

D 4	Does the wetland have the opportunity to reduce flooding and erosion? Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. Note which of the following indicators of opportunity apply. Wetland is in a headwater of a river or stream that has flooding problems. Wetland drains to a river or stream that has flooding problems	(see p. 49)
	Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems Other	Multiplier
	YES multiplier is 2 NO multiplier is 1	<u> </u>
♦	TOTAL – Hydrologic Functions Multiply the score from D3 by D4; then <i>add score to table on p. 1</i>	6

	These ques	tions apply to wetlands of all HGM classes.	Points
H 1.2	HAB	TAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	(only 1 scor per box)
H 1.1 Vegetation structure (see P. 72): Check the types of vegetation classes present (as defined by Cowardin) Aquatic Bed Emergent plants Scrub's Arbuth (areas where shrubs have > 30% cover) Forested (areas where trees have > 30% cover) The forested class has 3 out of 5 strata (canpopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polyson. Add the number of vegetation types that qualify. If you have: A structures or more	I 1 Does	the wetland have the <u>potential</u> to provide habitat for many species?	
The unit has a prosested 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 types that qualify: If you have: Add the number of vegetation types that qualify: If you have: 2 structures		Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres. Aquatic Bed Emergent plants	Figure
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 1/4 acre to count (see text for descriptions of hydroperiods).		X 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 types that qualify. If you have: 4 structures or more points = 4 Map of Cowardin vegetation classes 3 structures points = 2	
cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods). Permanently flooded or inundated Seasonally flooded or inundated Seasonally flooded or inundated Seasonally flooding stream in, or adjacent to, the wetland Lake-fringe wetland	H 1.2	Hydroperiods (see p.73):	
H 1.3 Richness of Plant Species (see p. 75): Count the number of plant species in the wetland that cover at least 10 ft² (different patches of the same species can be combined to meet the size threshold) You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle. List species below if you want to: H 1.4 Interspersion of Habitats (see p. 76): Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none. None = 0 points None = 0 points 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. X Large, downed, woody debris within the wetland (> 4 in. 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 (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned grey/brown) At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated (structures for egg-laying by amphilibians)		cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods). Permanently flooded or inundated Seasonally flooded or inundated Occasionally flooded or inundated Saturated only Permanently flowing stream or river in, or adjacent to, the wetland Lake-fringe wetland	2
Count the number of plant species in the wetland that cover at least 10 ft² (different patches of the same species can be combined to meet the size threshold) You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle. If you counted:			
Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none. Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high". Use map of Cowardin classes. 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. X Large, downed, woody debris within the wetland (> 4 in. 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 3 ft. (10m) Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned grey/brown) At least 1/4 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) Invasive plants cover less than 25% of the wetland area in each stratum of plants		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	1
or 3 vegetation classes and open water, the rating is always "high". Use map of Cowardin classes. H 1.5 Special Habitat Features (see p. 77): Check the 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. X Large, downed, woody debris within the wetland (> 4 in. 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 (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned grey/brown) At least 1/4 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) Invasive plants cover less than 25% of the wetland area in each stratum of plants	H 1.4	Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or	
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. X Large, downed, woody debris within the wetland (> 4 in. 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 (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned grey/brown) At least 1/4 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) Invasive plants cover less than 25% of the wetland area in each stratum of plants		or 3 vegetation classes and open water, the rating is	Figure
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. X Large, downed, woody debris within the wetland (> 4 in. 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 (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned grey/brown) At least 1/4 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) Invasive plants cover less than 25% of the wetland area in each stratum of plants		[riparian braided channels]	
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.	Н 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. X Large, downed, woody debris within the wetland (> 4 in. 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 (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned grey/brown) At least 1/4 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) 	1
H 1 TOTAL Score – potential for providing habitat Add the points in the column above 4		NOTE: The 20% stated in early printings of the manual on page 78 is an error.	4

Н 2	Does tl	he wetland have the opportunity to provide habitat for many species?	(only 1 score per box)
	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". 100m (330 ft) 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)	Figure
	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 a 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 50 ft. 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 Lakefringe wetland, if it does not have an undisturbed corridor as in the question above? YES = 2 points (go to H 2.3) NO = go to 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 miles of a large field or pasture (> 40 acres) OR Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

•	Total Score for Habitat Functions Add the points for H 1 and H 2; then record the result on p. 1	12
	TOTAL for H 1 from page 8	4
	H 2 TOTAL Score – opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4	8
	•	0
	• There is at least 1 wettand within 1/2 mile points = 2 • There are no wetlands within 1/2 mile points = 0	
	within 1/2 mile	
	• The wetland fringe on a lake with disturbance and there are 3 other lake-fringe wetlands	
	disturbed. points = 3	
	• There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are	3
	• The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 milepoints = 5	
	but connections should NOT be bisected by paved roads, fill, fields, or other developmentpoints = 5	
	relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating,	
	• There are at least 3 other wetlands within 1/2 mile, and the connections between them are	
	addressed in question H 2.4) H 2.4 Wetland Landscape: Choose the one description of the landscape around the wetland that best fits (see p. 84)	
	Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are	
	If wetland has 1 priority habitat = 1 point No habitats = 0 points	
	If wetland has 2 priority habitats = 3 points	
	end, and > 6 m (20 ft) long. If wetland has 3 or more priority habitats = 4 points	
	western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest	
	to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in	
	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	
	Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt,	
	Cliffs: Greater than 7.6 m (25 ft) high and occurring below 5000 ft.	
	rock, ice, or other geological formations and is large enough to contain a human.	
	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,	
	and Puget Sound Nearshore. (full descriptions of habitats and the definition of relatively undisturbed are in	
	Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore,	
	provide functional life history requirements for instream fish and wildlife resources.	
	a wet prairie (full descriptions in WDFW PHS report p. 161). X Instream: The combination of physical, biological, and chemical processes and conditions that interact to	3
	Westside Prairies: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or	3
	terrestrial ecosystems which mutually influence each other.	
	X Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and	
	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).	
	generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.	
	cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is	
	dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown	
	multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in)	
	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	
	fish and wildlife (full descriptions in WDFW PHS report p. 152).	
	Biodiversity Areas and Corridors: Areas of habitat that are relatively important to various species of native	
	Aspen Stands: Pure or mixed stands of aspen greater than 0.4 ha (1 acre).	
	Which of the following priority habitats are within 330 ft. (100m) of the wetland unit? <i>NOTE: the connections do not have to be relatively undisturbed.</i>	
	http://wdfw.wa.gov/hab/phslist.htm)	
	descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report	
	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): (see new and complete	

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.	
SC1	Estuarine wetlands? (see p.86)	
BCI	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.	
	Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC	Cat. 1
	332-30-151? YES = Category I NO = go to SC 1.2	Cat. 1
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions?	
	YES = Category I NO = Category II	Cat. I
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has	Cat. 1
	less than 10% cover of non-native plant species. If the non-native Spartina spp, are only species	Cat. II
	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	3444 11
	with native species would be a Category 1. Do not, however, exclude the area of Spartina in	
	determining the size threshold of 1 acre. At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	Dual
	or un-mowed grassland	Rating
	The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	I/II
SC2	Natural Heritage Wetlands (see p. 87)	
SCZ	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 being rated in a Section/Township/Range that contains a natural heritage wetland? (<i>This</i>	
	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 X	
	SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species?	Cat I
	YES = Category 1 NO not a Heritage Wetland	Cat I
SC3	Bogs (see p. 87)	
303	Does the wetland (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 function.	
	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 soil profile? (See Appendix B for a field key to	
	identify organic soils)? YES = go to question 3 NO = go to question 2 2. Does the wetland 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 question 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 question 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. 4. 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)?	Cat. I
	$YES = Category I \qquad \qquad NO = Is not a bog for purpose of rating$	

SC4	Forested Wetlands (see p. 90)				
	Does the wetland 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 function.				
	Old-growth forests: (west of Cascade Crest) Stands of at least two three 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 an average diameters (dbh) exceeding 21 inches (53 cm); 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.	Cat. I			
	YES = Category I NO = \underline{X} not a forested wetland with special characteristics				
COF	Wetlands in Coastal Lagoons (see p. 91)				
SC5	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 X not a wetland in a coastal lagoon				
	SC 5.1 Does the wetland meet all of the following three conditions?				
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has				
	less than 20% cover of invasive plant species (see list of invasive species on p. 74).				
	At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed				
	The wetland is larger than 1/10 acre (4350 square ft.)	Cat. I			
	YES = Category I	Cat. II			
SC6	Interdunal Wetlands (see p. 93)				
	Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or				
	WBUO)?				
	YES = Go to SC 6.1 NO X 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 one acre or larger?				
	YES = Category II NO = go to SC 6.2	Cat. II			
	SC 6.2 Is the wetland 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. 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	NA			
$\overline{}$	- *** *** **				

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): 26A			Date of	site visit:	09-27-13
Rated by: Colin Worsley / Matt Maynard Trai	ned by Ecolo	gy? Yes <u>X</u> No D	ate of trai	ining: <u>11-200</u>	05 / 04-2006
SEC: 32 TOWNSHIP: 25N	RANGE:	06E Is S/T/R in App	pendix D?	Yes	NoX
Map of wetland unit: I	Figure	Estimated size 0	0.91 acre		
	SUMMAR	RY OF RATING			
Category based on FUNCTIONS provided by			_ III_	<u>X</u> 1	V
Category I = Score > 70		Score for Water Quality Fund	ctions	16	
Category II = Score 51 - 69		Score for Hydrologic Fund	ctions	12	
Category III = Score 30 – 50				19	
Category IV = Score < 30		TOTAL Score for Fund	ctions	47	
Category based on SPECIAL CHARACTERISTICS of Wetland I II Does not apply X					
Final Catego	Ory (choose	the "highest" category from a	bove")	III	
Summary of basic in	nformation a	bout the wetland unit.			
Wetland Unit has Special	1	Wetland HGM Class			
Characteristics		used for Rating	X 7		
Estuarine Natural Haritana Watland		Depressional	X		
Natural Heritage Wetland		Riverine Lake-fringe	(x)		
Bog Mature Forest		Slope			
Old Growth Forest		Flats			
Coastal Lagoon	 	Freshwater Tidal			
Interdunal		Treshwater ridar			
None of the above	X	Check if unit has multiple HGM classes present	X		
Does the wetland being rated meet any of the	e criteria held	ow? If you answer YES to an	v of the a	uestions belo	ow vou will

Does the wetland 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 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 1 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.

Classification of Vegetated Wetlands for 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.	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 a Saltwater Tidal Fringe it
	is rated as an Estuarine wetland. Wetlands that were call 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 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 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) where at least 20 acres (8ha) in size;
	At least 30% of the open water area is deeper than 6.6 (2 m)? NO – go to 4 YES – The wetland class is Lake-fringe (Lacustrine Fringe)
4.	Does the entire wetland 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 types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).
	NO – go to 5 YES – The wetland class is Slope
5.	Does the entire wetland 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 of
	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 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
Q	Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a
0.	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 place if the wetland weing the class that represents more than 00% of the total area.
	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	Treat as ESTUARINE under wetlands with special
freshwater wetland	characteristics

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

	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score
D 1		per box)
D 1	Does the wetland have the <u>potential</u> to improve water quality? D 1.1 Characteristics of surface water flows out of the wetland:	(see p.38)
	• Unit is a depression with no surface water leaving it (no outlet)	Figure
	• Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet points = 2	
	 Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 1 Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface 	1
	outflow and no obvious natural outlet and/or outlet is a man-made ditchpoints = 1	
	(If ditch is not permanently flowing treat unit as "intermittently flowing") Provide photo or drawing	
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions)	0
	YES points = 4 NO points = 0 D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class):	
	• Wetland has persistent, ungrazed vegetation > = 95% of area	Figure
	• Wetland has persistent, ungrazed vegetation > = 1/2 of area	
	• Wetland has persistent, ungrazed vegetation > = 1/10 of area	5
	• Wetland has persistent, ungrazed vegetation < 1/10 of area	
	D 1.4 Characteristics of seasonal ponding or inundation: This is the area of the wetland that is ponded for at	1
	least 2 months, but dries out sometime during the year. Do not count the area that is permanently	Figure
	ponded. Estimate area as the average condition 5 out of 10 years. • Area seasonally ponded is > 1/2 total area of wetland	
	• Area seasonally ponded is > 1/4 total area of wetlandpoints = 2	2
	• Area seasonally ponded is < 1/4 total area of wetland	
	Total for D 1 Map of Hydroperiods Add the points in the boxes above	8
D 2	Does the wetland have the opportunity to improve water quality?	(see p. 44)
	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 or orchards within 150 ft. of wetland	
	A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed	
	fields, roads, or clear-cut logging Y. Recidential, urban areas, golf courses are within 150 ft. of wetland	Multiplier
	X Residential, urban areas, golf courses are within 150 ft. of wetland Wetland is fed by groundwater high in phosphorus or nitrogen	1
	Other	X2
	YES multiplier is 2 NO multiplier is 1	
•	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1	
		16
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	16
D 3	Does the wetland have the <u>potential</u> to reduce flooding and erosion?	(see p.46)
D 3	Does the wetland have the <u>potential</u> to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit	1
D 3	Does the wetland have the <u>potential</u> to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	1
D 3	Does the wetland have the <u>potential</u> to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	1
D 3	Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	(see p.46)
D 3	Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	(see p.46)
D 3	Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	(see p.46)
D 3	Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	(see p.46)
D 3	Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	(see p.46)
D 3	Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	(see p.46)
D 3	Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	(see p.46)
D 3	Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	(see p.46)
D 3	Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	(see p.46)
D 3	Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	(see p.46)
D 3	Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	0 (see p.46)
D 3	Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	(see p.46)
D 3	Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	0 (see p.46)

D 4	Does the wetland have the opportunity to reduce flooding and erosion? Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. Note which of the following indicators of opportunity apply. Wetland is in a headwater of a river or stream that has flooding problems. Wetland drains to a river or stream that has flooding problems Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems Other	(see p. 49) Multiplier X2
	YES multiplier is 2 NO multiplier is 1	
♦	TOTAL – Hydrologic Functions Multiply the score from D3 by D4; then <i>add score to table on p. 1</i>	12

Thes	e questions apply to wetlands of all HGM classes.	Points
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	(only 1 score per box)
H 1	Does the wetland have the <u>potential</u> 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 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres. Aquatic Bed Emergent plants	Figure
	X Scrub/shrub (areas where shrubs have > 30% cover) X Forested (areas where trees have > 30% cover) If the unit has a forested class check if: X The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. Add the number of vegetation types that qualify. If you have: 4 structures or more points = 4 Map of Cowardin vegetation classes 3 structures	4
	Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to	Figure
	cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods). Permanently flooded or inundated Seasonally flooded or inundated Occasionally flooded or inundated Saturated only Permanently flowing stream or river in, or adjacent to, the wetland Lake-fringe wetland	3
	Freshwater tidal wetland = 2 points Map of hydroperiods 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	1
	H 1.4 Interspersion of Habitats (see p. 76): Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), 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 Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high".	
	Use map of Cowardin classes. [riparian braided channels]	3
	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 (> 4 in. 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 (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned grey/brown) At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that	0
	are permanently or seasonally inundated (structures for egg-laying by amphibians) 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.	
	H 1 TOTAL Score – potential for providing habitat Add the points in the column above	11

H 2	Does t	he wetland have the opportunity to provide habitat for many species?	(only 1 score per box)
	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". 100m (330 ft) 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)	Figure
	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 a 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 50 ft. 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 Lakefringe wetland, if it does not have an undisturbed corridor as in the question above? YES = 2 points (go to H 2.3) NO = go to 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 miles of a large field or pasture (> 40 acres) OR Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

_	Total Score for Habitat Functions Add the points for H 1 and H 2; then record the result on p. 1	19
	TOTAL for H 1 from page 8	11
	H 2 TOTAL Score – opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4	8
	• There are no wetlands within 1/2 milepoints = 0	
	within 1/2 mile	
	• The wetland fringe on a lake with disturbance and there are 3 other lake-fringe wetlands	
	disturbedpoints = 3	
	wetlands within 1/2 milepoints = 5 • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are	3
	The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe	
	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 developmentpoints = 5	
	• There are at least 3 other wetlands within 1/2 mile, and the connections between them are	
	addressed in question H 2.4) H 2.4 Wetland Landscape: Choose the one description of the landscape around the wetland that best fits (see p. 84)	
	Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are	
	If wetland has 2 priority habitats = 3 points If wetland has 1 priority habitat = 1 point No habitats = 0 points	
	If wetland has 3 or more priority habitats = 4 points	
	end, and > 6 m (20 ft) long.	
	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	
	Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics	
	andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
	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,	
	rock, ice, or other geological formations and is large enough to contain a human.	
	Caves: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils,	
	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).	
	Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore,	
	X Instream: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.	
	a wet prairie (full descriptions in WDFW PHS report p. 161).	3
	Westside Prairies: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or	
	X Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.	
	oak component is important (full descriptions in WDFW PHS report p. 158).	
	Oregon white Oak: Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the	
	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.	
	dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown	
	multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in)	
	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	
	fish and wildlife (full descriptions in WDFW PHS report p. 152).	
	Biodiversity Areas and Corridors: Areas of habitat that are relatively important to various species of native	
	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).	
	Which of the following priority habitats are within 330 ft. (100m) of the wetland unit?	
	http://wdfw.wa.gov/hab/phslist.htm)	
	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): (see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report	
	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): (see new and complete	

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.	
SC1	Estuarine wetlands? (see p.86)	1
BCI	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.	
	Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC	Cat. 1
	332-30-151? YES = Category I NO = go to SC 1.2	Cat. 1
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions?	+
	YES = Category I NO = Category II	Cat. I
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has	Cat. 1
	less than 10% cover of non-native plant species. If the non-native Spartina spp, are only species	Cat. II
	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	0
	with native species would be a Category 1. Do not, however, exclude the area of Spartina in	
	determining the size threshold of 1 acre. At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	Dual
	or un-mowed grassland	Rating
	The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	I/II
0.03	Natural Heritage Wetlands (see p. 87)	+
SC2	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 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 NOX	
	SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened	C-4 I
	or endangered plant species? YES = Category 1 NO not a Heritage Wetland	Cat I
0.02	Bogs (see p. 87)	
SC3	Does the wetland (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 function.	
	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 soil profile? (See Appendix B for a field key to)
	identify organic soils)? YES = go to question 3 NO = go to question 2	
	Does the wetland 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 question 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 question 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.	
	4. 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)?	Cat. I
	YES = Category I NO = Is not a bog for purpose of rating	

SC4	Forested Wetlands (see p. 90)				
	Does the wetland 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 function.				
	Old-growth forests: (west of Cascade Crest) Stands of at least two three 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 an average diameters (dbh) exceeding 21 inches (53 cm); 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.	Cat. I			
	YES = Category I NO = \underline{X} not a forested wetland with special characteristics	Cat. I			
G G =	Wetlands in Coastal Lagoons (see p. 91)				
SC5	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.)				
	$YES = Go \text{ to } SC \text{ 5.1} \qquad NO \underline{X} \text{ not a wetland in a coastal lagoon}$				
	SC 5.1 Does the wetland meet all of the following three conditions?				
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has				
	less than 20% cover of invasive plant species (see list of invasive species on p. 74).				
	At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed				
	or un-mowed grassland.	Cat. I			
	The wetland is larger than 1/10 acre (4350 square ft.)				
	YES = Category I NO = Category II	Cat. II			
SC6	<u>Interdunal Wetlands</u> (see p. 93)				
	Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or				
	WBUO)?				
	YES = Go to SC 6.1 NO X 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 westland one care on language as in it in a massing of westlands that in one care on language.				
	SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger?				
	$YES = Category II \qquad NO = go to SC 6.2$	Cat. II			
	SC 6.2 Is the wetland 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. 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	NA			

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 wetl	and (if known): 26B		:	Date of si	te visit: 03-2	20-14
Rated by: Col	lin Worsley / Matt Maynard Trained	d by Ecolo	ogy? Yes X No Date	of trainir	ng: 11-2005 / 0	04-2006
SEC: 32	TOWNSHIP: 25N	RANGE:	06E Is S/T/R in Appe	ndix D?	Yes N	lo <u>X</u>
	Map of wetland unit: Fig	ure	Estimated size _0.	02 acre		
		SUMMAI	RY OF RATING			
Category bas	sed on FUNCTIONS provided by w			III	IV	X
outingory was	ou on i errorioria province ay w	-				
	Category I = Score > 70		Score for Water Quality Functi	ions	4	
	Category II = Score 51 - 69		Score for Hydrologic Functi	ions	0	
(Category III = Score 30 – 50		Score for Habitat Functi	ions	8	
(Category IV = Score < 30		TOTAL Score for Functi	ions	12	7
Category base	ed on SPECIAL CHARACTERISTO	CS of Wetl	and I II	Do	es not apply	X
	Final Categor	V (choose	the "highest" category from abo	ove")	IV	
	9	-				_
		ormanon a	about the wetland unit.			
	Wetland Unit has Special		Wetland HGM Class			
	Characteristics Estuarine		used for Rating Depressional			
	Natural Heritage Wetland		Riverine			
			Lake-fringe			
	Bog Mature Forest		Slope	X		
	Old Growth Forest		Flats	Λ		
	Coastal Lagoon		Freshwater Tidal			
	Interdunal		Freshwater Fidai			
	None of the above	X	Check if unit has multiple HGM classes present			
Does the wet	land heing rated meet any of the cr	ritaria bal	ow? If you answer VES to any	of the av	actions balow w	ou will

Does the wetland 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 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 1 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.

Classification of Vegetated Wetlands for 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 a Saltwater Tidal Fringe it
	is rated as an Estuarine wetland. Wetlands that were call 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 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 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) where at least 20 acres (8ha) in size;
	At least 30% of the open water area is deeper than 6.6 (2 m)?
	NO – go to 4 YES – The wetland class is Lake-fringe (Lacustrine Fringe)
4.	Does the entire wetland meet all of the following criteria?
••	X The wetland is on a slope (slope can be very gradual).
	X The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may
	flow subsurface, as sheetflow, or in a swale without distinct banks.
	X The water leaves the wetland without being impounded?
	NOTE: Surface water does not pond in these types of wetlands except occasionally in very small and
	shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).
	NO - go to 5 YES - The wetland class is Slope
5	Does the entire wetland meet all of the following criteria?
۶.	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 of
	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 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 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

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	Treat as ESTUARINE under wetlands with special
freshwater wetland	characteristics

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

than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

S	Slope Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
S 1	Does the wetland have the <u>potential</u> 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)	2
	S 1.2 The soil 2 inches below the surface (or duff layer) is clay, organic (<i>Use NRCS definitions</i>). 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	Figure
	 are higher than 6 inches. Dense, uncut, herbaceous vegetation > 90% of the wetland area	0
	Aerial photo or map with vegetation polygons	
	Total for S 1 Add the points in the boxes above	2
S 2	Does the wetland have the opportunity to improve water quality?	(see p. 67)
	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	Multiplier
	Other	<u>X2</u>
	YES multiplier is 2 NO multiplier is 1 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 <u>potential</u> to reduce flooding and stream crosion?	(see p.68)
33	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).	(see p.00)
	 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	0
	Add the points in the boxes above	0
S 4	Does the wetland have the <u>opportunity</u> 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? <i>Note which of the following conditions apply.</i>	(see p. 70)
	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 recognition of water discount fact is an	Multiplier
	(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	<u>X1</u>
•	TOTAL – Hydrologic Functions Multiply the score from S3 by S4; then <i>add score to table on p. 1</i>	0

Comments: Wetland A is adjacent to estuarine wetland but separate in that Wetland A is not influenced by salt water. Freshwater flows through Wetland A in one direction and enters North Bay.

Thes	se questions apply to wetlands of all HGM classes.	Points
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	(only 1 scor per box)
H 1	Does the wetland have the <u>potential</u> 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 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres. Aquatic Bed Emergent plants	Figure
	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 types that qualify. If you have: 4 structures or more points = 4 2 structures	0
	H 1.2 <u>Hydroperiods</u> (see p.73): Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to	Figure
	cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods). Permanently flooded or inundated 4 or more types present points = 3 Seasonally flooded or inundated 3 or more types presentpoints = 2 Occasionally flooded or inundated 2 types presentpoints = 1 X Saturated only Permanently flowing stream or river in, or adjacent to, the wetland Seasonally flowing stream in, or adjacent to, the wetland Lake-fringe wetland	0
	H 1.3 Richness of Plant Species (see p. 75): Count the number of plant species in the wetland that cover at least 10 ft² (different patches of the same species can be combined to meet the size threshold) You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle. If you counted: > 19 species	0
	H 1.4 Interspersion of Habitats (see p. 76): Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none. Note: If you have 4 or more classes	Figure
	or 3 vegetation classes and open water, the rating is always "high".	
	Use map of Cowardin classes [riparian braided channels]	0
	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.	5
	you put into the next column. Large, downed, woody debris within the wetland (> 4 in. 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 (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have	0
I	not yet turned grey/brown)	
	At least 1/4 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) 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.	

H 2	Does t	he wetland have the opportunity to provide habitat for many species?	(only 1 score per box)
	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". 100m (330 ft) 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)	Figure
	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 a 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 50 ft. 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 Lakefringe wetland, if it does not have an undisturbed corridor as in the question above? YES = 2 points (go to H 2.3) NO = go to 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 miles of a large field or pasture (> 40 acres) OR Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

H 2 TOTAL Score – opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4 TOTAL for H 1 from page 8	8
H 2 TOTAL Score – opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4	8
• There are no wetlands within 1/2 milepoints = 0	
• There is at least 1 wetland within 1/2 milepoints = 2	
within 1/2 milepoints = 3	
• The wetland fringe on a lake with disturbance and there are 3 other lake-fringe wetlands	
• There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbedpoints = 3	5
wetlands within 1/2 milepoints = 5	3
• The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe	
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 developmentpoints = 5	
• There are at least 3 other wetlands within 1/2 mile, and the connections between them are	
H 2.4 Wetland Landscape: Choose the one description of the landscape around the wetland that best fits (see p. 84)	
addressed in question H 2.4)	
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	
If wetland has 2 priority habitats = 3 points	
If wetland has 3 or more priority habitats = 4 points	
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.	
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	
Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics	
andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt,	
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.	
Caves: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils,	
WDFW report: pp. 167-169 and glossary in Appendix A).	
and Puget Sound Nearshore. (full descriptions of habitats and the definition of relatively undisturbed are in	
provide functional life history requirements for instream fish and wildlife resources. Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore,	
X Instream: The combination of physical, biological, and chemical processes and conditions that interact to	
a wet prairie (full descriptions in WDFW PHS report p. 161).	3
Westside Prairies: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or	
X Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.	
oak component is important (full descriptions in WDFW PHS report p. 158).	
Oregon white Oak: Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the	
generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.	
cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is	
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	
Old-growth/Mature forests: (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a	
Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.	
fish and wildlife (full descriptions in WDFW PHS report p. 152).	
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	
NOTE: the connections do not have to be relatively undisturbed.	
Which of the following priority habitats are within 330 ft. (100m) of the wetland unit?	
http://wdfw.wa.gov/hab/phslist.htm)	
H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): (see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report	

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.	
SC1	Estuarine wetlands? (see p.86)	٦
SCI	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 X SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natura	
	Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC	Cat. 1
	332-30-151? YES = Category I NO = go to SC 1.2	Cat. 1
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions?	+
	YES = Category I NO = Category II	Cat. I
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and ha	S
	less than 10% cover of non-native plant species. If the non-native Spartina spp., are only species	Cat. II
	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 1. Do not, however, exclude the area of Spartina in	
	determining the size threshold of 1 acre. At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	Dual
	or un-mowed grassland	Rating I/II
	The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	1/11
SC2	Natural Heritage Wetlands (see p. 87)	
3C2	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 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 NOX	
	SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened	
	or endangered plant species?	Cat I
	YES = Category 1 NO not a Heritage Wetland	Cut 1
SC3	Bogs (see p. 87)	
503	Does the wetland (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 function.	
	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 soil profile? (See Appendix B for a field key t identify organic soils)? YES = go to question 3 NO = go to question 2)
	2. Does the wetland 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 question 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 question 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.	
	4. 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)?	Cat. I
	YES = Category I NO = Is not a bog for purpose of rating	

Forested Wetlands (see p. 90)
and Wildlife's forests as priority habitats? If you answer yes you will still need to rate the wetland based on its function. Old-growth forests: (west of Cascade Crest) Stands of at least two three 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 an average diameters (dbh) exceeding 21 inches (53 cm); 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. YES = Category I NO = X not a forested wetland with special characteristics 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 X not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).
based on its function. Old-growth forests: (west of Cascade Crest) Stands of at least two three 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 an average diameters (dbh) exceeding 21 inches (53 cm); 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. YES = Category I NO = X not a forested wetland with special characteristics 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 X not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).
Old-growth forests: (west of Cascade Crest) Stands of at least two three 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 an average diameters (dbh) exceeding 21 inches (53 cm); 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. YES = Category I NO = X not a forested wetland with special characteristics 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 X not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).
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.
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.
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.
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.
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.
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.
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 an average diameters (dbh) exceeding 21 inches (53 cm); 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. YES = Category I NO = X not a forested wetland with special characteristics 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 X not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).
OR have an average diameters (dbh) exceeding 21 inches (53 cm); 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. YES = Category I NO = X not a forested wetland with special characteristics SC5 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 X not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).
100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. YES = Category I
less than that found in old-growth. YES = Category I NO = X not a forested wetland with special characteristics 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 X not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).
SC5 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 _X_ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).
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 X not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).
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 X not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).
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 X not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).
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 X not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).
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 X not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).
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 X not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).
bottom.) YES = Go to SC 5.1 NO X not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).
YES = Go to SC 5.1 NO X not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).
SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).
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).
less than 20% cover of invasive plant species (see list of invasive species on p. 74).
At least 3/4 of the landward edge of the wetland has a 100 ft, buffer of shrub, forest, or un-grazed 1
or un-mowed grassland.
The wetland is larger than 1/10 acre (4350 square ft.)
YES = Category I NO = Category II Cat. 1
SC6 Interdunal Wetlands (see p. 93)
Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or
WBUO)?
YES = Go to SC 6.1 NO \underline{X} 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 one acre or larger?
YES = Category II NO = go to SC 6.2 Cat. 1
SC 6.2 Is the wetland 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. I
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

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): 26C			_ Date of s	ite visit: 03-20	0-14
Rated by: Colin Worsley / Matt Maynard Tra	ined by Ecolo	gy? Yes <u>X</u> No D	ate of trair	ning: <u>11-2005 / 0</u>	4-2006
SEC: 32 TOWNSHIP: 25N	RANGE:	06E Is S/T/R in Ap	pendix D?	Yes N	lo <u>X</u> _
Map of wetland unit:	Figure	Estimated size ().91 acre		
	SUMMAF	RY OF RATING			
Category based on FUNCTIONS provided b	oy wetland: I	II	III	IV	X
Category I = Score > 70		Score for Water Quality Fun	ctions	4	
Category II = Score 51 - 69		Score for Hydrologic Fun	ctions	12	
Category III = Score 30 – 50		Score for Habitat Fun	ctions	11	
Category IV = Score < 30		TOTAL Score for Fun	ctions	27	7
Category based on SPECIAL CHARACTERI	STICS of Wet	land I II	Do	es not apply	X
Final Categ	ory (choose	the "highest" category from a	ibove")	IV	1
Summary of basic	information a	bout the wetland unit.			
Wetland Unit has Specia	al	Wetland HGM Class			
Characteristics		used for Rating			
Estuarine		Depressional	X		
Natural Heritage Wetland	1	Riverine			
Bog Mature Forest		Lake-fringe			
Old Growth Forest		Slope			
		Flats Freshwater Tidal			
Coastal Lagoon Interdunal		r resilwater Tidai			
None of the above	X	Check if unit has multiple HGM classes present			
Does the wetland being rated meet any of th	ne criteria hel	ow? If you answer VFS to ar	ov of the au	uestions below w	ou will

Does the wetland 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 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 1 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.

Classification of Vegetated Wetlands for 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 a Saltwater Tidal Fringe it
	is rated as an Estuarine wetland. Wetlands that were call 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 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 also if ind as a "Flats" wetland was the form for Depressional wetlands
_	If your wetland can be classified as a "Flats" wetland, use the form for Depressional wetlands.
3.	Does the entire wetland 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) where at least 20 acres (8ha) in size;
	At least 30% of the open water area is deeper than 6.6 (2 m)?
	NO – go to 4 YES – The wetland class is Lake-fringe (Lacustrine Fringe)
4.	Does the entire wetland 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 types of wetlands except occasionally in very small and
	shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep). NO – go to 5 YES – The wetland class is Slope
5.	Does the entire wetland meet all of the following criteria?
٥.	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 of
	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 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
0	· · · · · · · · · · · · · · · · · · ·
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 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

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	Treat as ESTUARINE under wetlands with special
freshwater wetland	characteristics

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

than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score
D 4		per box)
D 1	Does the wetland have the <u>potential</u> to improve water quality? D 1.1 Characteristics of surface water flows out of the wetland:	(see p.38)
	• Unit is a depression with no surface water leaving it (no outlet)	Figure
	• Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet points = 2	
	• Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 1	1
	• Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch	
	(If ditch is not permanently flowing treat unit as "intermittently flowing") Provide photo or drawing	
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions)	0
	YES points = 4 NO points = 0 D 1 2 Characteristics of participant vacatation (arrangent along)	
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area	Figure
	• Wetland has persistent, ungrazed vegetation > = 1/2 of area	
	• Wetland has persistent, ungrazed vegetation $> 1/10$ of area	1
	• Wetland has persistent, ungrazed vegetation < 1/10 of area	
	D 1.4 Characteristics of seasonal ponding or inundation: This is the area of the wetland that is ponded for at	
	least 2 months, but dries out sometime during the year. Do not count the area that is permanently	Figure
	ponded. Estimate area as the average condition 5 out of 10 years. • Area seasonally ponded is > 1/2 total area of wetland	
	• Area seasonally ponded is > 1/4 total area of wetland	0
	• Area seasonally ponded is < 1/4 total area of wetland	
	Total for D 1 Map of Hydroperiods Add the points in the boxes above	<u> </u>
D 2	Does the wetland have the opportunity to improve water quality?	(see p. 44)
	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 or orchards within 150 ft. of wetland	
	A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed	
	fields, roads, or clear-cut logging X. Residential, urban areas, golf courses are within 150 ft, of wetland	Multiplier
	X Residential, urban areas, golf courses are within 150 ft. of wetland Wetland is fed by groundwater high in phosphorus or nitrogen	_
	Other	X2
	YES multiplier is 2 NO multiplier is 1	
<u> </u>	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1	4
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	1
D 3	Does the wetland have the <u>potential</u> to reduce flooding and erosion?	(see p.46)
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	
	• Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2	
	• Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface	1
	outflow and no obvious natural outlet and/or outlet is a man-made ditch	
	(If ditch is not permanently flowing treat unit as "intermittently flowing") • Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0	
	D 3.2 Depth of storage during wet periods. Estimate the height of ponding above the bottom of the outlet. For	
	units with no outlet measure from the surface of permanent water or deepest part (if dry).	
	• Marks of ponding are 3 ft. or more above the surface or bottom of the outlet	
	• The wetland is a "headwater" wetland	0
	 The wetland is a "headwater" wetland	0
	 The wetland is a "headwater" wetland	0
	 The wetland is a "headwater" wetland	0
	 The wetland is a "headwater" wetland	0
	 The wetland is a "headwater" wetland	
	 The wetland is a "headwater" wetland	5
	 The wetland is a "headwater" wetland	

D 4	Does the wetland have the opportunity to reduce flooding and erosion? Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. Note which of the following indicators of opportunity apply.	(see p. 49)
	 Wetland is in a headwater of a river or stream that has flooding problems. Wetland drains to a river or stream that has flooding problems Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems Other 	Multiplier X2
	YES multiplier is 2 NO multiplier is 1	
•	TOTAL – Hydrologic Functions Multiply the score from D3 by D4; then <i>add score to table on p. 1</i>	12

Thes	questions apply to wetlands of all HGM classes.	Points
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	(only 1 score per box)
H 1	Does the wetland have the <u>potential</u> to provide habitat for many species?	1
	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 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres. Aquatic Bed Emergent plants	Figure
	X 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 types that qualify. If you have: 4 structures or more points = 4 2 structures points = 1 1 structure points = 0	
	H 1.2 <u>Hydroperiods</u> (see p.73): Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to	Figure
	cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods). Permanently flooded or inundated Seasonally flooded or inundated Occasionally flooded or inundated Saturated only 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	0
	H 1.3 Richness of Plant Species (see p. 75): Count the number of plant species in the wetland that cover at least 10 ft² (different patches of the same species can be combined to meet the size threshold) You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle. If you counted: > 19 species	1
	H 1.4 Interspersion of Habitats (see p. 76): Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none. Note: If you have 4 or more classe or 3 vegetation classes and	s Figure
	None = 0 points Low = 1 point Moderate = 2 points of 3 vegetation classes and open water, the rating is always "high".	
	Use map of Cowardin classes [riparian braided channels]	1
	High = 3 points 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 point you put into the next column. Large, downed, woody debris within the wetland (> 4 in. 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 (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have	
	not yet turned grey/brown) At least 1/4 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)	t
	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.	

H 2	Does t	he wetland have the opportunity to provide habitat for many species?	(only 1 score per box)
	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". 100m (330 ft) 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)	Figure
	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 a 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 50 ft. 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 Lakefringe wetland, if it does not have an undisturbed corridor as in the question above? YES = 2 points (go to H 2.3) NO = go to 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 miles of a large field or pasture (> 40 acres) OR Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

		na Type – Cneck off any criteria that apply to the wetlana. Circle the Category when the appropriate	
		are met.	
SC1	Estuar	ine 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.	
		$YES = Go \text{ to } SC 1.1 \qquad \qquad NO \underline{X}$	
		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. 1
	SC 1.2	Is the wetland at least 1 acre in size and meets at least two of the following conditions?	
		YES = Category I NO = Category II	Cat. I
		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 <i>Spartina</i> spp,, are 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 1. Do not, however, exclude the area of Spartina in	Cat. II
		determining the size threshold of 1 acre.	Dual
		At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	Rating
		or un-mowed grassland The western does at least 2 of the fellowing feetures, tidal charges, degrees in a with one motor	I/II
		The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	
0.00	Natura	Il Heritage Wetlands (see p. 87)	
SC2	1144414	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 being rated in a Section/Township/Range that contains a natural heritage wetland? (<i>This</i>	
	SC 2.1	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 X	
	9000		
	SC 2.2	Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened	~
		or endangered plant species?	Cat I
		YES = Category 1 NO not a Heritage Wetland	
SC3	Bogs (s	see p. 87)	
		Does the wetland (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 function.	
		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 soil profile? (See Appendix B for a field key to identify organic soils)? YES = go to question 3	
		2. Does the wetland 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 question 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 question 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.	
		4. 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)?	Cat. I
		$YES = Category I \qquad NO = Is not a bog for purpose of rating$	

SC4	Forested Wetlands (see p. 90)	
	Does the wetland 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 function.	
	Old-growth forests: (west of Cascade Crest) Stands of at least two three 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 an average diameters (dbh) exceeding 21 inches (53 cm); 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.	Cat. I
	YES = Category I NO = \underline{X} not a forested wetland with special characteristics	
COF	Wetlands in Coastal Lagoons (see p. 91)	
SC5	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 \underline{X} not a wetland in a coastal lagoon	
	SC 5.1 Does the wetland meet all of the following three conditions?	
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has	
	less than 20% cover of invasive plant species (see list of invasive species on p. 74).	
	At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	
	or un-mowed grassland.	Cat. I
	The wetland is larger than 1/10 acre (4350 square ft.)	
	YES = Category I NO = Category II	Cat. II
SC6	Interdunal Wetlands (see p. 93)	
	Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or	
	WBUO)?	
	YES = Go to SC 6.1 NO X 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 SP 105	
	 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 one acre or larger?	
	YES = Category II NO = go to SC 6.2	Cat II
	SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?	Cat. II
		C-4 TTT
<u> </u>	YES = Category III	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	NA

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): 26D			Date o	f site visit: 03-19	9-14
Rated by: Colin Worsley	_ Trained b	y Ecology? Yes X No	_ Date	of training: 11-	2005
SEC: 32 TOWNSHIP: 25N	RNGE:_	06E Is S/T/R in App	endix D	9? Yes N	To <u>X</u> _
Map of wetland unit: F	igure	Estimated size	0.13 ac	re	
	SUMMA	RY OF RATING			
Category based on FUNCTIONS provided by			_ III_	XIV	
Category I = Score > 70		Score for Water Quality Func	tions	16	
Category II = Score 51 - 69		Score for Hydrologic Func	tions	18	
Category III = Score 30 – 50		Score for Habitat Func	tions	14	
Category IV = Score < 30		TOTAL Score for Func	tions	48	1
Category based on SPECIAL CHARACTERIST	ΓCS of Wet	land I II		Does not apply	X
Final Catego	ry (choose	the "highest" category from al	oove")	III	7
Summary of basic in	formation	about the wetland unit.			_
Wetland Unit has Special		Wetland HGM Class		1	
Characteristics Estuarine		used for Rating Depressional		4	
Natural Heritage Wetland		Riverine	X	-	
Bog		Lake-fringe	(x)	-	
Mature Forest		Slope	(A)	_	
Old Growth Forest		Flats		_	
Coastal Lagoon		Freshwater Tidal		-	
Interdunal					
None of the above	X	Check if unit has multiple HGM classes present	X]	
Does the wetland being rated meet any of the	criteria be	low? If you answer YES to any	y of the	questions below yo	ou will

need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

	Check List for Wetlands that 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 1 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.

Classification of Vegetated Wetlands for 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.

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	e called Salt editions, and ept. Please water
If your wetland can be classified as a Freshwater Tidal Fringe use the forms for Riverine wetlands. If it is a Saltwater T is rated as an Estuarine wetland. Wetlands that were call estuarine in the first and second editions of the rating system a Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlie this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is 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 only source (>90%) of water to it. Groundwater and surface runoff are NOT sources of water to the unit. NO _ go to 3	e called Salt editions, and ept. Please water
is rated as an Estuarine wetland. Wetlands that were call estuarine in the first and second editions of the rating system a Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlie this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is 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 only source (>90%) of water to it. Groundwater and surface 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 meet both of the following criteria? — The vegetated part of the wetland is on the shores of a body of permanent open water (without a vegetation on the surface) where at least 20 acres (8ha) in size; — At least 30% of the open water area is deeper than 6.6 (2 m)? NO = go to 4 YES = The wetland class is Lake-fringe (Lacustrine Fringe) 4. Does the entire wetland 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 se 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 types of wetlands except occasionally in very small shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than NO = go to 5 YES = The wetland class is Slope 5. Does the entire wetland meet all of the following criteria? — The unit is in a valley or stream channel where it gets inundated by overbank flooding from that river. — The overbank flooding occurs at least once every two years. NOTE: The riverine unit can contain depressions that are filled with	e called Salt editions, and ept. Please water
Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlie this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p	editions, and ept. Please water
this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p	water
2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface 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 meet both of the following criteria? The vegetated part of the wetland is on the shores of a body of permanent open water (without a vegetation on the surface) where at least 20 acres (8ha) in size; At least 30% of the open water area is deeper than 6.6 (2 m)? NO - go to 4 YES - The wetland class is Lake-fringe (Lacustrine Fringe) 4. Does the entire wetland meet all of the following criteria? The water flows through the wetland in one direction (unidirectional) and usually comes from se 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 types of wetlands except occasionally in very small shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than NO - go to 5 YES - The wetland class is Slope 5. Does the entire wetland meet all of the following criteria? The unit is in a valley or stream channel where it gets inundated by overbank flooding from that 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 no NO - go to 6 YES - The wetland class is Riverine	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 meet both of the following criteria? The vegetated part of the wetland is on the shores of a body of permanent open water (without a vegetation on the surface) where at least 20 acres (8ha) in size; At least 30% of the open water area is deeper than 6.6 (2 m)? NO - go to 4 YES - The wetland class is Lake-fringe (Lacustrine Fringe) 4. Does the entire wetland 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 se 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 types of wetlands except occasionally in very small shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than NO - go to 5 YES - The wetland class is Slope 5. Does the entire wetland meet all of the following criteria? The unit is in a valley or stream channel where it gets inundated by overbank flooding from that 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 no NO - go to 6 YES - The wetland class is Riverine	
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 meet both of the following criteria? The vegetated part of the wetland is on the shores of a body of permanent open water (without a vegetation on the surface) where at least 20 acres (8ha) in size; At least 30% of the open water area is deeper than 6.6 (2 m)? NO - go to 4 YES - The wetland class is Lake-fringe (Lacustrine Fringe) 4. Does the entire wetland 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 se 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 types of wetlands except occasionally in very small shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than NO - go to 5 YES - The wetland class is Slope 5. Does the entire wetland meet all of the following criteria? The unit is in a valley or stream channel where it gets inundated by overbank flooding from that 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 no NO - go to 6 YES - The wetland class is Riverine	
If your wetland can be classified as a "Flats" wetland, use the form for Depressional wetlands. Does the entire wetland meet both of the following criteria? The vegetated part of the wetland is on the shores of a body of permanent open water (without a vegetation on the surface) where at least 20 acres (8ha) in size; At least 30% of the open water area is deeper than 6.6 (2 m)? NO – go to 4 YES – The wetland class is Lake-fringe (Lacustrine Fringe) 4. Does the entire wetland meet all of the following criteria? The water flows through the wetland in one direction (unidirectional) and usually comes from se 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 types of wetlands except occasionally in very small shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than NO – go to 5 YES – The wetland class is Slope 5. Does the entire wetland meet all of the following criteria? The unit is in a valley or stream channel where it gets inundated by overbank flooding from that 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 no NO – go to 6 YES – The wetland class is Riverine	
3. Does the entire wetland meet both of the following criteria? The vegetated part of the wetland is on the shores of a body of permanent open water (without a vegetation on the surface) where at least 20 acres (8ha) in size; At least 30% of the open water area is deeper than 6.6 (2 m)? NO - go to 4 YES - The wetland class is Lake-fringe (Lacustrine Fringe) 4. Does the entire wetland 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 see 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 types of wetlands except occasionally in very small shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than NO - go to 5 YES - The wetland class is Slope 5. Does the entire wetland meet all of the following criteria? The unit is in a valley or stream channel where it gets inundated by overbank flooding from that 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 no NO - go to 6 YES - The wetland class is Riverine	
The vegetated part of the wetland is on the shores of a body of permanent open water (without a vegetation on the surface) where at least 20 acres (8ha) in size; At least 30% of the open water area is deeper than 6.6 (2 m)? NO - go to 4 YES - The wetland class is Lake-fringe (Lacustrine Fringe) 4. Does the entire wetland 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 se 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 types of wetlands except occasionally in very small shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than NO - go to 5 YES - The wetland class is Slope 5. Does the entire wetland meet all of the following criteria? The unit is in a valley or stream channel where it gets inundated by overbank flooding from that 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 no NO - go to 6 YES - The wetland class is Riverine	
vegetation on the surface) where at least 20 acres (8ha) in size; At least 30% of the open water area is deeper than 6.6 (2 m)? NO - go to 4 YES - The wetland class is Lake-fringe (Lacustrine Fringe) 4. Does the entire wetland 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 se 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 types of wetlands except occasionally in very small shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than NO - go to 5 YES - The wetland class is Slope 5. Does the entire wetland meet all of the following criteria? The unit is in a valley or stream channel where it gets inundated by overbank flooding from that 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 no NO - go to 6 YES - The wetland class is Riverine	
At least 30% of the open water area is deeper than 6.6 (2 m)? NO - go to 4 YES - The wetland class is Lake-fringe (Lacustrine Fringe) 4. Does the entire wetland 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 se 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 types of wetlands except occasionally in very small shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than NO - go to 5 YES - The wetland class is Slope 5. Does the entire wetland meet all of the following criteria? The unit is in a valley or stream channel where it gets inundated by overbank flooding from that 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 no NO - go to 6 YES - The wetland class is Riverine	У
4. Does the entire wetland 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 se 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 types of wetlands except occasionally in very small shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than NO - go to 5 YES - The wetland class is Slope 5. Does the entire wetland meet all of the following criteria? The unit is in a valley or stream channel where it gets inundated by overbank flooding from that 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 no NO - go to 6 YES - The wetland class is Riverine	
 4. Does the entire wetland 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 see 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 types of wetlands except occasionally in very small shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than NO - go to 5 YES - The wetland class is Slope 5. Does the entire wetland meet all of the following criteria? The unit is in a valley or stream channel where it gets inundated by overbank flooding from that 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 no NO - go to 6 YES - The wetland class is Riverine 	
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 see 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 types of wetlands except occasionally in very small shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than NO - go to 5 YES - The wetland class is Slope 5. Does the entire wetland meet all of the following criteria? The unit is in a valley or stream channel where it gets inundated by overbank flooding from that 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 no NO - go to 6 YES - The wetland class is Riverine	
The water flows through the wetland in one direction (unidirectional) and usually comes from see 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 types of wetlands except occasionally in very small shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than NO - go to 5 YES - The wetland class is Slope 5. Does the entire wetland meet all of the following criteria? The unit is in a valley or stream channel where it gets inundated by overbank flooding from that 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 no NO - go to 6 YES - The wetland class is Riverine	
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 types of wetlands except occasionally in very small shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than NO – go to 5 YES – The wetland class is Slope 5. Does the entire wetland meet all of the following criteria? The unit is in a valley or stream channel where it gets inundated by overbank flooding from that 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 no NO – go to 6 YES – The wetland class is Riverine	Τ.
The water leaves the wetland without being impounded? NOTE: Surface water does not pond in these types of wetlands except occasionally in very small shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than NO - go to 5 YES - The wetland class is Slope 5. Does the entire wetland meet all of the following criteria? The unit is in a valley or stream channel where it gets inundated by overbank flooding from that 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 no NO - go to 6 YES - The wetland class is Riverine	ps. It may
NOTE: Surface water does not pond in these types of wetlands except occasionally in very small shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than NO – go to 5 YES – The wetland class is Slope 5. Does the entire wetland meet all of the following criteria? The unit is in a valley or stream channel where it gets inundated by overbank flooding from that 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 no NO – go to 6 YES – The wetland class is Riverine	
shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than NO – go to 5 YES – The wetland class is Slope 5. Does the entire wetland meet all of the following criteria? The unit is in a valley or stream channel where it gets inundated by overbank flooding from that 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 no NO – go to 6 YES – The wetland class is Riverine	and
5. Does the entire wetland meet all of the following criteria? The unit is in a valley or stream channel where it gets inundated by overbank flooding from that 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 no NO – go to 6 YES – The wetland class is Riverine	
 Does the entire wetland meet all of the following criteria? The unit is in a valley or stream channel where it gets inundated by overbank flooding from that 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 no NO - go to 6 YES - The wetland class is Riverine 	joor deep /.
The unit is in a valley or stream channel where it gets inundated by overbank flooding from that 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 no NO - go to 6 YES - The wetland class is Riverine	
riverThe 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 no NO - go to 6 YES - The wetland class is Riverine	stream or
NOTE: The riverine unit can contain depressions that are filled with water when the river is no NO – go to 6 YES – The wetland class is Riverine	
NO – go to 6 YES – The wetland class is Riverine	
	flooding
6. Is the entire wetland unit in a tonographic depression in which water names are is entureded to the confecs of a	
6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at s	me time of
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 located in a very flat area with no obvious depression and no overbank flooding. The un	
pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area	
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	The
slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its significant to the stream of the stream within a depressional wetland has a zone of flooding along its significant to the stream within a depressional wetland has a zone of flooding along its significant to the stream within a depressional wetland has a zone of flooding along its significant to the stream within a depressional wetland has a zone of flooding along its significant to the stream within a depressional wetland has a zone of flooding along its significant to the stream within a depressional wetland has a zone of flooding along its significant to the stream within a depressional wetland has a zone of flooding along its significant to the stream within a depressional wetland has a zone of flooding along its significant to the stream within a depressional wetland has a zone of flooding along its significant to the stream within a depression of the	The the base of a
BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO I	The the base of a es. GO
AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to	The t the base of a es. GO IFFERENT
rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is retained 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 co	The t the base of a es. GO IFFERENT use for the

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	Treat as ESTUARINE under wetlands with special
freshwater wetland	characteristics

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

than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

R	Riverine and Freshwater Tidal Fringe Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
R 1	Does the wetland have the <u>potential</u> to improve water quality? (see p.52)	
	R 1.1 Area of surface depressions within the riverine wetland that can trap sediments during a flooding event: • Depressions cover > 3/4 area of wetland	Figure
	 Depressions present but cover < 1/2 area of wetland. No depressions present points = 0 	2
	R 1.2 Characteristics of the vegetation in the unit (areas with >90% cover at person height): • Trees or shrubs > 2/3 area of the unit	Figure
	 Ungrazed herbaceous plants > 1/3 area of unit	6
	Add the points in the boxes above	8
R 2	Does the wetland have the opportunity to improve water quality?	(see p. 53)
	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 or orchards within 150 ft. of wetland A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging X Residential, urban areas, golf courses are within 150 ft. of wetland	
	The river or stream linked to the wetland has a contributing basin where human activities have raised levels of sediment, toxic compounds or nutrients in the river water above standards for	Multiplier
	water quality. Other	X2
	YES multiplier is 2 NO multiplier is 1 TOTAL – Water Quality Functions Multiply the score from R1 by R2; then add score to table on p. 1	16
	HYDROLOGIC FUNCTIONS – Indicators that wetland functions to reduce flooding and stream erosion.	10
R 3	Does the wetland have the <u>potential</u> to reduce flooding and erosion?	(see p.54)
	R 3.1 Characteristics of the overbank storage the wetland provides: Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of unit) / (average width of stream between banks).	
	• If the ratio is more than 20 points = 9 • If the ratio is between $10-20$. points = 6 • If the ratio is $5-<10$. points = 4 • If the ratio is $1-<5$. points = 2 • If the ratio is <1 . points = 1 Aerial photo or map showing average widths	2
	R 3.2 Characteristics of vegetation that slow down water velocities during floods: Treat large woody debris as "forest or shrub". Choose the points appropriate for the best description. (polygons need to have >90% cover at person height NOT Cowardin classes):	Figure
	R 3.2 Characteristics of vegetation that slow down water velocities during floods: Treat large woody debris as "forest or shrub". Choose the points appropriate for the best description. (polygons need to have >90% cover at person height NOT Cowardin classes): • Forest or shrub for > 1/3 area OR herbaceous plants > 2/3 area points = 7 • Forest or shrub for > 1/10 area OR herbaceous plants > 1/3 area points = 4 • Vegetation does not meet above criteria points = 0 Aerial photo or map showing polygons of different vegetation types	Figure
D 4	R 3.2 Characteristics of vegetation that slow down water velocities during floods: Treat large woody debris as "forest or shrub". Choose the points appropriate for the best description. (polygons need to have >90% cover at person height NOT Cowardin classes): • Forest or shrub for > 1/3 area OR herbaceous plants > 2/3 area points = 7 • Forest or shrub for > 1/10 area OR herbaceous plants > 1/3 area points = 4 • Vegetation does not meet above criteria points = 0 Aerial photo or map showing polygons of different vegetation types	7 9
R 4	R 3.2 Characteristics of vegetation that slow down water velocities during floods: Treat large woody debris as "forest or shrub". Choose the points appropriate for the best description. (polygons need to have >90% cover at person height NOT Cowardin classes): • Forest or shrub for > 1/3 area OR herbaceous plants > 2/3 area	7 7 9 (see p.57)
R 4	R 3.2 Characteristics of vegetation that slow down water velocities during floods: Treat large woody debris as "forest or shrub". Choose the points appropriate for the best description. (polygons need to have >90% cover at person height NOT Cowardin classes): • Forest or shrub for > 1/3 area OR herbaceous plants > 2/3 area	7 9 (see p.57)

11100	se quest	ions apply to wetlands of all HGM classes.		Points
	HABI	TAT FUNCTIONS – Indicators that wetland functions to provide in	mportant habitat.	(only 1 sco per box)
[1	Does t	he wetland have the <u>potential</u> to provide habitat for many speci	ies?	
	Н 1.1	Vegetation structure (see P. 72): Check the types of vegetation classes present (as defined by Cowal 1/4 acre or more than 10% of the area if unit is smaller than 2.5 Aquatic Bed X Emergent plants		Figure
		X 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 cover) that each cover 20% within the forested polygon. Add the number of vegetation types that qualify. If you have: 4 structures or more points = 4 2 structures points = 1	y, shrubs, herbaceous, moss/ground- Map of Cowardin vegetation classes 3 structures points = 2 1 structure points = 0	1
	Н 1.2	Hydroperiods (see p.73): Check the types of water regimes (hydroperiods) present within the cover more than 10% of the wetland or 1/4 acre to count (see text).	he wetland. The water regime has to t for descriptions of hydroperiods).	Figure
		Seasonally flooded or inundated Occasionally flooded or inundated Saturated only Permanently flowing stream or river in, or adjacent to, the Seasonally flowing stream in, or adjacent to, the wetland Lake-fringe wetland		2
		Freshwater tidal wetland = 2 points	Map of hydroperiods	
	H 1.3	5 –		1
	H 1.4	Interspersion of Habitats (see p. 76): Decided from the diagrams below whether interspersion between Cov the classes and unvegetated areas (can include open water or mudflats)		Figure
		None = 0 points Low = 1 point Moderate = 2 points	open water, the rating is always "high".	
	(MW &	Use map of Cowardin classes.	1
		[riparian braided channels]		
	H 1.5	High = 3 points		
	H 1.5	Special Habitat Features (see p. 77): Check the habitat features that are present in the wetland. The n you put into the next column. X Large, downed, woody debris within the wetland (> 4 in. di Standing snags (diameter at the bottom > 4 inches) in the w Undercut banks are present for at least 6.6 ft. (2m) and/or of 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with stable steep banks of fine material that might be used by be (> 30 degree slope) OR signs of recent beaver activity are present.	iameter and 6 ft. long) vetland overhanging vegetation extends at least the unit, for at least 33 ft. (10m) eaver or muskrat for denning	1
	H 1.5	High = 3 points Special Habitat Features (see p. 77): Check the habitat features that are present in the wetland. The n you put into the next column. X Large, downed, woody debris within the wetland (> 4 in. di Standing snags (diameter at the bottom > 4 inches) in the w Undercut banks are present for at least 6.6 ft. (2m) and/or o 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with stable steep banks of fine material that might be used by be	itameter and 6 ft. long) vetland overhanging vegetation extends at least the unit, for at least 33 ft. (10m) eaver or muskrat for denning present (cut shrubs or trees that have woody branches are present in areas that g-laying by amphibians) each stratum of plants	1

H 2	Does t	he wetland have the opportunity to provide habitat for many species?	(only 1 score per box)
	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". 100m (330 ft) 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)	Figure
	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 a 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 50 ft. 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 Lakefringe wetland, if it does not have an undisturbed corridor as in the question above? YES = 2 points (go to H 2.3) NO = go to 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 miles of a large field or pasture (> 40 acres) OR Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

TOTAL for H 1 from page 8	6
H 2 TOTAL Score – opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4	8
• There are no wetlands within 1/2 mile	
• There is at least 1 wetland within 1/2 mile	
• The wetland fringe on a lake with disturbance and there are 3 other lake-fringe wetlands within 1/2 milepoints = 3	
disturbed	
• There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are	3
wetlands within 1/2 milepoints = 5	2
• The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe	
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 developmentpoints = 5	
• There are at least 3 other wetlands within 1/2 mile, and the connections between them are	
H 2.4 Wetland Landscape: Choose the one description of the landscape around the wetland that best fits (see p. 84)	
addressed in question H 2.4)	
Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are	
If wetland has 2 priority habitats = 3 points If wetland has 1 priority habitat = 1 point No habitats = 0 points	
If wetland has 3 or more priority habitats = 4 points	
end, and > 6 m (20 ft) long.	
western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest	
to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in	
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	
Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt,	
Cliffs: Greater than 7.6 m (25 ft) high and occurring below 5000 ft.	
rock, ice, or other geological formations and is large enough to contain a human.	
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,	
and Puget Sound Nearshore. (full descriptions of habitats and the definition of relatively undisturbed are in	
Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore,	
provide functional life history requirements for instream fish and wildlife resources.	
X Instream: The combination of physical, biological, and chemical processes and conditions that interact to	
a wet prairie (full descriptions in WDFW PHS report p. 161).	3
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	
X Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and	
oak component is important (full descriptions in WDFW PHS report p. 158).	
Oregon white Oak: Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the	
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.	
dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown	
multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in)	
Old-growth/Mature forests: (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a	
Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.	
Biodiversity Areas and Corridors : Areas of habitat that are relatively important to various species of native fish and wildlife (<i>full descriptions in WDFW PHS report p. 152</i>).	
Aspen Stands: Pure or mixed stands of aspen greater than 0.4 ha (1 acre).	
NOTE: the connections do not have to be relatively undisturbed.	
Which of the following priority habitats are within 330 ft. (100m) of the wetland unit?	
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)	
H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): (see new and complete	

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.	
SC1	Estuarine wetlands? (see p.86)	
301	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.	
	Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC	Cat. 1
	332-30-151? YES = Category I NO = go to SC 1.2	Cat. 1
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions?	
	YES = Category I $NO = Category II$	Cat. I
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has	2 1
	less than 10% cover of non-native plant species. If the non-native <i>Spartina</i> spp., are 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	Cat. II
	with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre.	ъ.
	At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	Dual Rating
	or un-mowed grassland	I/II
	The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	
SC2	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 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 X	
	SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened	
	or endangered plant species?	Cat I
	YES = Category 1 NO not a Heritage Wetland	
SC3	Bogs (see p. 87)	
	Does the wetland (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 function.	
	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 soil profile? (See Appendix B for a field key to identify organic soils)? YES = go to question 3 NO = go to question 2	
	2. Does the wetland 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 question 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 question 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.	
	4. 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)?	Cat. I
	$YES = Category I \qquad \qquad NO = Is not a bog for purpose of rating$	

SC4	Forested Wetlands (see p. 90)	
	Does the wetland 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 function.	
	Old-growth forests: (west of Cascade Crest) Stands of at least two three 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 an average diameters (dbh) exceeding 21 inches (53 cm); 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.	Cat. I
	YES = Category I $NO = X$ not a forested wetland with special characteristics	040.1
0.05	Wetlands in Coastal Lagoons (see p. 91)	
SC5	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.)	
	$YES = Go \text{ to } SC 5.1 \qquad NO \underline{X} \text{ not a wetland in a coastal lagoon}$	
	SC 5.1 Does the wetland meet all of the following three conditions?	
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has	
	less than 20% cover of invasive plant species (see list of invasive species on p. 74).	
	At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	
	or un-mowed grassland.	Cat. I
	The wetland is larger than 1/10 acre (4350 square ft.)	
	$YES = Category I \qquad \qquad NO = Category II$	Cat. II
SC6	<u>Interdunal Wetlands</u> (see p. 93)	
	Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or	
	WBUO)?	
	YES = Go to SC 6.1 NO X 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 one acre or larger?	
	$YES = Category II \qquad \qquad NO = go to SC 6.2$	Cat. II
	SC 6.2 Is the wetland 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. 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	NA

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): 28A			_ Date of	f site visit: 09-27-13
Rated by: Colin Worsley / Matt Maynard Train	ned by Ecolog	y? Yes <u>X</u> No D	ate of tra	aining: <u>11-2005 / 04-2006</u>
SEC: 29 TOWNSHIP: 25N	RANGE:_	06E Is S/T/R in Ap	pendix D	? Yes NoX_
Map of wetland unit: F	igure	Estimated size	0.09 acre	
	SUMMAR	Y OF RATING		
Category based on FUNCTIONS provided by			III_	IV_X
Category I = Score > 70	9	Score for Water Quality Fun	ctions	8
Category II = Score 51 - 69		Score for Hydrologic Fun	ctions	6
Category III = Score 30 – 50		Score for Habitat Fun	ctions	13
Category IV = Score < 30		TOTAL Score for Fun	ctions	27
Category based on SPECIAL CHARACTERIS	TICS of Wetla	and I II		Does not apply X
Final Catego	ory (choose the	ne "highest" category from a	above")	IV
Summary of basic in	nformation ak	out the wetland unit.		
Wetland Unit has Special		Wetland HGM Class		
Characteristics		used for Rating	X	
Estuarine Natural Heritage Wetland		Depressional Riverine	(x)	
Bog		Lake-fringe	(A)	
Mature Forest		Slope		
Old Growth Forest		Flats		
Coastal Lagoon		Freshwater Tidal		
Interdunal				
None of the above	1 X	Check if unit has multiple HGM classes present	X	
Does the wetland being rated meet any of the	critaria bala	w? If you answer VES to ar	ov of the	questions below you will

Does the wetland 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 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 1 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.

Classification of Vegetated Wetlands for 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 a Saltwater Tidal Fringe it is rated as an Estuarine wetland. Wetlands that were call 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 only source (>90%) of water to it. Groundwater and surface water
۷.	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 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) where at least 20 acres (8ha) in size; At least 30% of the open water area is deeper than 6.6 (2 m)? NO - go to 4 YES - The wetland class is Lake-fringe (Lacustrine Fringe)
4.	Does the entire wetland 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 types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep). NO – go to 5 YES – The wetland class is Slope
5.	Does the entire wetland 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 of 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 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 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	Treat as ESTUARINE under wetlands with special
freshwater wetland	characteristics

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

	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score
D 1	Does the wetland have the <u>potential</u> to improve water quality?	per box)
D 1	D 1.1 Characteristics of surface water flows out of the wetland:	(see p.38)
	• Unit is a depression with no surface water leaving it (no outlet)points = 3	Figure
	• Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet points = 2	
	 Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 1 Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface 	1
	outflow and no obvious natural outlet and/or outlet is a man-made ditchpoints = 1	
	(If ditch is not permanently flowing treat unit as "intermittently flowing") Provide photo or drawing	
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions) YES points = 4 NO points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class):	
	• Wetland has persistent, ungrazed vegetation > = 95% of area	Figure
	 Wetland has persistent, ungrazed vegetation > = 1/2 of area points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 	3
	• Wetland has persistent, ungrazed vegetation < 1/10 of area	3
	Map of Cowardin vegetation classes	
	D 1.4 Characteristics of seasonal ponding or inundation: This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently	Figure
	ponded. Estimate area as the average condition 5 out of 10 years.	
	 Area seasonally ponded is > 1/2 total area of wetland	
	• Area seasonally ponded is < 1/4 total area of wetlandpoints = 0	0
	Map of Hydroperiods	
	Total for D 1 Add the points in the boxes above	4 4
D 2	Does the wetland have the opportunity to improve water quality?	(see p. 44)
	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 or orchards within 150 ft. of wetland	
	A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed	
	fields, roads, or clear-cut logging X Residential, urban areas, golf courses are within 150 ft. of wetland	Multiplier
	X Residential, urban areas, golf courses are within 150 ft. of wetland Wetland is fed by groundwater high in phosphorus or nitrogen	_
	Other	X2
_	YES multiplier is 2 NO multiplier is 1	
•	YES multiplier is 2 NO multiplier is 1 TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1	
♦	YES multiplier is 2 NO multiplier is 1 TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1 HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	8
• D 3	YES multiplier is 2 NO multiplier is 1 TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1 HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation. Does the wetland have the potential to reduce flooding and erosion?	
• D 3	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1 HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation. Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit	8
• D 3	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1 HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation. Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet) — points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet — points = 2	8 (see p.46)
b D 3	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1 HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation. Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet) — points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet — points = 2 Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface	(see p.46)
• D 3	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1 HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation. Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet) — points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet — points = 2 Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch — points = 1	8 (see p.46)
D 3	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1 HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation. Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch points = 1 (If ditch is not permanently flowing treat unit as "intermittently flowing") Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0	(see p.46)
D 3	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1 HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation. Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch points = 1 (If ditch is not permanently flowing treat unit as "intermittently flowing") Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0 D 3.2 Depth of storage during wet periods. Estimate the height of ponding above the bottom of the outlet. For	(see p.46)
D 3	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1 HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation. Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch points = 1 (If ditch is not permanently flowing treat unit as "intermittently flowing") Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0 D 3.2 Depth of storage during wet periods. Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).	(see p.46)
♦ D 3	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1 HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation. Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	8 (see p.46) 0
D 3	TOTAL - Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1 HYDROLOGIC FUNCTIONS - Indicators that wetland unit functions to reduce flooding and stream degradation. Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet) points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch points = 1 (If ditch is not permanently flowing treat unit as "intermittently flowing") • Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0 D 3.2 Depth of storage during wet periods. Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry). • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet points = 5	(see p.46)
D 3	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1 HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation. Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	8 (see p.46) 0
• D 3	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1 HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation. Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	8 (see p.46) 0
D 3	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1 HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation. Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	8 (see p.46) 0
D 3	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1 HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation. Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	8 (see p.46) 0
D 3	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1 HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation. Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	8 (see p.46) 0
D 3	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1 HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation. Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	8 (see p.46) 0

D 4	Does the wetland have the opportunity to reduce flooding and erosion? Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. Note which of the following indicators of opportunity apply. Wetland is in a headwater of a river or stream that has flooding problems.	(see p. 49)
	Wetland drains to a river or stream that has flooding problems Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems	Multiplier
	Other	X2
	YES multiplier is 2 NO multiplier is 1	
♦	TOTAL – Hydrologic Functions Multiply the score from D3 by D4; then <i>add score to table on p. 1</i>	6

Thes	questions apply to wetlands of all HGM classes.	Points
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	(only 1 scor per box)
H 1	Does the wetland have the <u>potential</u> 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 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres. Aquatic Bed Emergent plants	is Figure
	Scrub/shrub (areas where shrubs have > 30% cover) X Forested (areas where trees have > 30% cover) If the unit has a forested class check if: X The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. Add the number of vegetation types that qualify. If you have: 4 structures or more points = 4 2 structures	2
	H 1.2 <u>Hydroperiods</u> (see p.73): Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to	Figure
	cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods). X Permanently flooded or inundated Seasonally flooded or inundated Occasionally flooded or inundated Y Saturated only Y Permanently flowing stream or river in, or adjacent to, the wetland Seasonally flowing stream in, or adjacent to, the wetland Lake-fringe wetland Treshwater tidal wetland = 2 points Freshwater tidal wetland = 2 points Map of hydroperiod	2
	H 1.3 Richness of Plant Species (see p. 75): Count the number of plant species in the wetland that cover at least 10 ft² (different patches of the sam 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	1
	H 1.4 Interspersion of Habitats (see p. 76): Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none. Note: If you have 4 or more class or 3 vegetation classes and	es Figure
	None = 0 points Low = 1 point Moderate = 2 points open water, the rating is always "high".	
	Use map of Cowardin classed [riparian braided channels]	es. 1
	High = 3 points 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 point you put into the next column. Large, downed, woody debris within the wetland (> 4 in. 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	
	 (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned grey/brown) At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas th 	o.t
	are permanently or seasonally inundated (structures for egg-laying by amphibians) 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.	at

H 2	Does t	he wetland have the opportunity to provide habitat for many species?	(only 1 score per box)
	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". 100m (330 ft) 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)	Figure
	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 a 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 50 ft. 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 Lakefringe wetland, if it does not have an undisturbed corridor as in the question above? YES = 2 points (go to H 2.3) NO = go to 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 miles of a large field or pasture (> 40 acres) OR Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

♦	Total Score for Habitat Functions Add the points for H 1 and H 2; then <i>record the result on p. 1</i>	13
	TOTAL for H 1 from page 8	5
	H 2 TOTAL Score – opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4	8
	• There are no wetlands within 1/2 mile	
	• There is at least 1 wetland within 1/2 mile	
	• The wetland fringe on a lake with disturbance and there are 3 other lake-fringe wetlands within 1/2 milepoints = 3	
	disturbed. points = 3	
	• There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are	3
	wetlands within 1/2 milepoints = 5	
	• The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe	
	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 developmentpoints = 5	
	• There are at least 3 other wetlands within 1/2 mile, and the connections between them are	
	H 2.4 Wetland Landscape: Choose the one description of the landscape around the wetland that best fits (see p. 84)	
	addressed in question H 2.4)	
	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	
	If wetland has 2 priority habitats = 3 points No habitate = 0 points	
	If wetland has 3 or more priority habitats = 4 points	
	end, and > 6 m (20 ft) long.	
	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	
	Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics	
	andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
	Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt,	
	Cliffs: Greater than 7.6 m (25 ft) high and occurring below 5000 ft.	
	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.	
	WDFW report: pp. 167-169 and glossary in Appendix A).	
	and Puget Sound Nearshore. (full descriptions of habitats and the definition of relatively undisturbed are in	
	Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore,	
	provide functional life history requirements for instream fish and wildlife resources.	
	X Instream: The combination of physical, biological, and chemical processes and conditions that interact to	3
	Westside Prairies: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (<i>full descriptions in WDFW PHS report p. 161</i>).	3
	terrestrial ecosystems which mutually influence each other.	
	X Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and	
	oak component is important (full descriptions in WDFW PHS report p. 158).	
	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	
	cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is	
	dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown	
	multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in)	
	Old-growth/Mature forests: (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a	
	fish and wildlife (<i>full descriptions in WDFW PHS report p. 152</i>). Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.	
	Biodiversity Areas and Corridors: Areas of habitat that are relatively important to various species of native	
	Aspen Stands: Pure or mixed stands of aspen greater than 0.4 ha (1 acre).	
	NOTE: the connections do not have to be relatively undisturbed.	
	http://wdfw.wa.gov/hab/phslist.htm) Which of the following priority habitats are within 330 ft. (100m) of the wetland unit?	
	descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report	
	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): (see new and complete	

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

		nd Type – Check off any criteria that apply to the wetland. Circle the Category when the appropriate are met.	
SC1		ine 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.	
		$YES = Go \text{ to } SC 1.1 \qquad NO \underline{X}$	
	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	Cat. 1
		332-30-151? YES = Category I $NO = go \text{ to } SC 1.2$	
	SC 1.2	Is the wetland at least 1 acre in size and meets at least two of the following conditions?	
		YES = Category I NO = Category II	Cat. I
		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 <i>Spartina</i> spp., are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II).	Cat. II
		The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh	
		with native species would be a Category 1. Do not, however, exclude the area of Spartina in	
		determining the size threshold of 1 acre.	Dual
		At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland	Rating
		The wetland has at least 2 of the following features: tidal channels, depressions with open water,	I/II
		or contiguous freshwater wetlands.	
SC2	<u>Natura</u>	l 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 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 NOX	
	SC 2.2	Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened	
		or endangered plant species?	Cat I
		YES = Category 1 NO not a Heritage Wetland	
SC3	Bogs (s	ree p. 87)	
		Does the wetland (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 function.	
		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 soil profile? (See Appendix B for a field key to	
		identify organic soils)? YES = go to question 3 NO = go to question 2	
		2. Does the wetland 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 question 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 question 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.	
		4. 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)?	Cat. I
		YES = Category I NO = Is not a bog for purpose of rating	Cat. I
\Box		. To subspace of faring	

SC4	Forested Wetlands (see p. 90)	
	Does the wetland 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 function.	
	Old-growth forests: (west of Cascade Crest) Stands of at least two three 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 an average diameters (dbh) exceeding 21 inches (53 cm); 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.	Cat. I
	YES = Category I NO = \underline{X} not a forested wetland with special characteristics	
SC5	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 X not a wetland in a coastal lagoon	
	SC 5.1 Does the wetland meet all of the following three conditions?	
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has	
	less than 20% cover of invasive plant species (see list of invasive species on p. 74).	
	At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	
	or un-mowed grassland.	Cat. I
	The wetland is larger than 1/10 acre (4350 square ft.) YES = Category I NO = Category II	C 4 II
	· · · · · · · · · · · · · · · · · · ·	Cat. II
SC6	Interdunal Wetlands (see p. 93) Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or	
	WBUO)?	
	YES = Go to SC 6.1 NO \underline{X} 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 one acre or larger?	
	YES = Category II NO = go to SC 6.2	Cat. II
	SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?	Cuv. 11
	YES = Category III	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	NA

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): 28B			Date of s	ite visit: 09-2	27-13
Rated by: Colin Worsley / Matt Maynard Train	ned by Ecolo	gy? Yes <u>X</u> No D	ate of train	ning: <u>11-2005 /</u>	04-2006
SEC: 32 TOWNSHIP: 25N	RANGE:	<u>06E</u> Is S/T/R in Ap	pendix D?	Yes	No <u>X</u> _
Map of wetland unit: I	Figure	Estimated size (0.03 acre		
	<i>g.</i>				
	SUMMAI	RY OF RATING			
Category based on FUNCTIONS provided by	y wetland: I	II	III	IV	X
Category I = Score > 70		Score for Water Quality Fun	ctions	12	
		•		3	
Category II = Score 51 - 69		Score for Hydrologic Fun			
Category III = Score 30 – 50		Score for Habitat Fun	ctions	6	
Category IV = Score < 30		TOTAL Score for Fun	ctions	21	
Category based on SPECIAL CHARACTERIS	TICS of Wet	land I II	Do	oes not apply_	X
Final Catego	Ory (choose	the "highest" category from a	ibove")	IV	
Summary of basic in	nformation a	about the wetland unit.			
Wetland Unit has Special		Wetland HGM Class			
Characteristics		used for Rating			
Estuarine		Depressional	X		
Natural Heritage Wetland		Riverine			
Bog		Lake-fringe			
Mature Forest		Slope	(x)		
Old Growth Forest		Flats			
Coastal Lagoon		Freshwater Tidal			
Interdunal					
None of the above	X	Check if unit has multiple HGM classes present	X		
Does the wetland being rated meet any of the	criteria bel	ow? If you answer YES to ar	ny of the qu	uestions below y	you will

need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

	Check List for Wetlands that 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 1 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.

Classification of Vegetated Wetlands for 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 a Saltwater Tidal Fringe it
	is rated as an Estuarine wetland. Wetlands that were call 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 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 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) where at least 20 acres (8ha) in size; At least 30% of the open water area is deeper than 6.6 (2 m)?
	NO – go to 4 YES – The wetland class is Lake-fringe (Lacustrine Fringe)
4.	Does the entire wetland 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 types of wetlands except occasionally in very small and
	shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep). NO – go to 5 YES – The wetland class is Slope
5	
5.	Does the entire wetland 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 of
	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 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
0	
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 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

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	Treat as ESTUARINE under wetlands with special
freshwater wetland	characteristics

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

than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score
D 1		per box)
D 1	Does the wetland have the <u>potential</u> to improve water quality? D 1.1 Characteristics of surface water flows out of the wetland:	(see p.38)
	• Unit is a depression with no surface water leaving it (no outlet)	Figure
	• Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet points = 2	
	• Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 1	1
	• Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditchpoints = 1	
	(If ditch is not permanently flowing treat unit as "intermittently flowing") Provide photo or drawing	
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions)	0
	YES points = 4	ļ ,
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area	Figure
	• Wetland has persistent, ungrazed vegetation > = 1/2 of area	
	• Wetland has persistent, ungrazed vegetation > = 1/10 of areapoints = 1	5
	• Wetland has persistent, ungrazed vegetation < 1/10 of area	
	Map of Cowardin vegetation classes D 1.4 Characteristics of seasonal ponding or inundation: This is the area of the wetland that is ponded for at	
	least 2 months, but dries out sometime during the year. Do not count the area that is permanently	Figure
	ponded. Estimate area as the average condition 5 out of 10 years.	
	 Area seasonally ponded is > 1/2 total area of wetland	
	• Area seasonally ponded is < 1/4 total area of wetland points = 0	0
	Map of Hydroperiods	
	Total for D 1 Add the points in the boxes above	6
D 2	Does the wetland have the opportunity to improve water quality?	(see p. 44)
	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 or orchards within 150 ft. of wetland A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed	
	fields, roads, or clear-cut logging	
	X Residential, urban areas, golf courses are within 150 ft. of wetland Wetland is fed by groundwater high in phosphorus or nitrogen	Multiplier
	Wetland is fed by groundwater high in phosphorus or nitrogen	V2
	Other Other	X2
•	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1	12
<u> </u>	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	12
D 2	T] (see n 16)
D 3	Does the wetland have the <u>potential</u> to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit	(see p.46)
	• Unit is a depression with no surface water leaving it (no outlet)	
	• Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2	
	• Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface	0
	outflow and no obvious natural outlet and/or outlet is a man-made ditch	
	 (If ditch is not permanently flowing treat unit as "intermittently flowing") Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0 	
	D 3.2 Depth of storage during wet periods. Estimate the height of ponding above the bottom of the outlet. For	
	units with no outlet measure from the surface of permanent water or deepest part (if dry).	
	• Marks of ponding are 3 ft. or more above the surface or bottom of the outlet points = 7	
	 The wetland is a "headwater" wetland	0
	• Marks of pointing between 2 ft. to < 3 ft. from surface of bottom of outlet	
	• Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1	
	• Marks of ponding less than 0.5 ft points = 0	
	D 3.3 Contribution of wetland unit 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 unitpoints = 5	
	• The area of the basin is 10 to 100 times the area of the unit	3
	• The area of the basin is more than 100 times the area of the unit	
		L

D 4	Does the wetland have the opportunity to reduce flooding and erosion? Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. Note which of the following indicators of opportunity apply. Wetland is in a headwater of a river or stream that has flooding problems. Wetland drains to a river or stream that has flooding problems Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems Other	(see p. 49) Multiplier X1
	YES multiplier is 2 NO multiplier is 1	
•	TOTAL – Hydrologic Functions Multiply the score from D3 by D4; then <i>add score to table on p. 1</i>	3

Thes	se questions apply to wetlands of all HGM classes.	Points
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	(only 1 scor per box)
H 1	Does the wetland have the <u>potential</u> 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 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres. Aquatic Bed Emergent plants	Figure
	X 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 types that qualify. If you have: 4 structures or more points = 4 2 structures	0
	H 1.2 <u>Hydroperiods</u> (see p.73):	Figure
	Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods). Permanently flooded or inundated Seasonally flooded or inundated Occasionally flooded or inundated Saturated only Permanently flowing stream or river in, or adjacent to, the wetland Seasonally flowing stream in, or adjacent to, the wetland Lake-fringe wetland	0
	Freshwater tidal wetland = 2 points Map of hydroperiods H 1.3 Richness of Plant Species (see p. 75):	
	Count the number of plant species in the wetland that cover at least 10 ft² (different patches of the same species can be combined to meet the size threshold) You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle. If you counted: > 19 species	1
	H 1.4 Interspersion of Habitats (see p. 76): Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), 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 Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high".	Figure
	Use map of Cowardin classes [riparian braided channels]	0
	High = 3 points 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 (> 4 in. 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 (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned grey/brown) At least 1/4 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) Invasive plants cover less than 25% of the wetland area in each stratum of plants	0
	NOTE: The 20% stated in early printings of the manual on page 78 is an error.	
	H 1 TOTAL Score – potential for providing habitat Add the points in the column above	1

H 2	Does t	he wetland have the opportunity to provide habitat for many species?	(only 1 score per box)
	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". 100m (330 ft) 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)	Figure
	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 a 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 50 ft. 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 Lakefringe wetland, if it does not have an undisturbed corridor as in the question above? YES = 2 points (go to H 2.3) NO = go to 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 miles of a large field or pasture (> 40 acres) OR Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

•	Total Score for Habitat Functions Add the points for H 1 and H 2; then record the result on p. 1	6
	TOTAL for H 1 from page 8	1
	H 2 TOTAL Score – opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4	5
	•	
	• There are no wetlands within 1/2 mile	
	• There is at least 1 wetland within 1/2 mile	
	• The wetland fringe on a lake with disturbance and there are 3 other lake-fringe wetlands within 1/2 milepoints = 3	
	disturbed	
	• There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are	3
	wetlands within 1/2 milepoints = 5	2
	• The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe	
	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 developmentpoints = 5	
	• There are at least 3 other wetlands within 1/2 mile, and the connections between them are	
	H 2.4 Wetland Landscape: Choose the one description of the landscape around the wetland that best fits (see p. 84)	
	addressed in question H 2.4)	
	Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are	
	If wetland has 2 priority habitats = 3 points If wetland has 1 priority habitat = 1 point No habitats = 0 points	
	If wetland has 3 or more priority habitats = 4 points	
	end, and > 6 m (20 ft) long.	
	western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest	
	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	
	andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
	Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt,	
	Cliffs: Greater than 7.6 m (25 ft) high and occurring below 5000 ft.	
	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.	
	WDFW report: pp. 167-169 and glossary in Appendix A). Cover: A naturally occurring cavity recass youd or system of interconnected passages under the earth in soils	
	and Puget Sound Nearshore. (full descriptions of habitats and the definition of relatively undisturbed are in	
	Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore,	
	provide functional life history requirements for instream fish and wildlife resources.	
	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	0
	Westside Prairies: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or	0
	terrestrial ecosystems which mutually influence each other.	
	Riparian : The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and	
	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).	
	generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.	
	cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is	
	dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown	
	multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in)	
	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	
	fish and wildlife (full descriptions in WDFW PHS report p. 152).	
	Biodiversity Areas and Corridors: Areas of habitat that are relatively important to various species of native	
	Aspen Stands: Pure or mixed stands of aspen greater than 0.4 ha (1 acre).	
	Which of the following priority habitats are within 330 ft. (100m) of the wetland unit? <i>NOTE: the connections do not have to be relatively undisturbed.</i>	
	http://wdfw.wa.gov/hab/phslist.htm)	
	descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report	
	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): (see new and complete	

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.	
SC1	Estuarine wetlands? (see p.86)	
SCI	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.	
	Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC	C-4 1
	332-30-151? YES = Category I NO = go to SC 1.2	Cat. 1
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions?	
	YES = Category I NO = Category II	Cat. I
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has	Cat. I
	less than 10% cover of non-native plant species. If the non-native <i>Spartina</i> spp., are only species	Cat. II
	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	3444 11
	with native species would be a Category 1. Do not, however, exclude the area of Spartina in	
	determining the size threshold of 1 acre. At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	Dual
	or un-mowed grassland	Rating
	The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	I/II
CCA	Natural Heritage Wetlands (see p. 87)	
SC2	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 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 NOX	
	SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened	C-4 T
	or endangered plant species? YES = Category 1 NO not a Heritage Wetland	Cat I
CC2	Bogs (see p. 87)	
SC3	Does the wetland (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 function.	
	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 soil profile? (See Appendix B for a field key to	
	identify organic soils)? YES = go to question 3 NO = go to question 2	
	2. Does the wetland 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 question 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 question 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. 4. 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)?	Cat. I
	YES = Category I NO = Is not a bog for purpose of rating	

SC4	Forested Wetlands (see p. 90)	
	Does the wetland 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 function.	
	Old-growth forests: (west of Cascade Crest) Stands of at least two three 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 an average diameters (dbh) exceeding 21 inches (53 cm); 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.	Cat. I
	YES = Category I NO = \underline{X} not a forested wetland with special characteristics	
SC5	Wetlands in Coastal Lagoons (see p. 91)	
SCS	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 \underline{X} not a wetland in a coastal lagoon	
	<u>——</u>	
	SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has	
	less than 20% cover of invasive plant species (see list of invasive species on p. 74).	
	At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	
		G . T
	or un-mowed grassland. The wetland is larger than 1/10 acre (4350 square ft.)	Cat. I
	YES = Category I NO = Category II	C 4 II
		Cat. II
SC6	Interdunal Wetlands (see p. 93)	
	Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or	
	WBUO)?	
	YES = Go to SC 6.1 NO \underline{X} 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 one acre or larger?	
	YES = Category II $\frac{1}{100}$ NO = go to SC 6.2	Cat. II
	SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?	Cat. II
	YES = Category III	Cot III
	* •	Cat. III
	Category of wetland based on Special Characteristics Chaose the "highest" rating if yetland falls into several agreeous and record on pull.	
	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.T. 4
1	ii you answered NO for all types effer Not Applicable on p. 1	NA

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): 28C			_ Date of si	te visit: 09-27	7-13
Rated by: Colin Worsley / Matt Maynard Train	ned by Ecolog	gy? Yes <u>X</u> No D	ate of train	ing: <u>11-2005 / 0</u> -	4-2006
SEC: 29 TOWNSHIP: 25N	RANGE:_	06E Is S/T/R in App	pendix D?	Yes N	o X_
Map of wetland unit:	Figure	Estimated size ().09 acre		
	SUMMAR	Y OF RATING			
Category based on FUNCTIONS provided b			III	IV	X
Category I = Score > 70		Score for Water Quality Fun	ctions	12	
Category II = Score 51 - 69		Score for Hydrologic Fun	ctions	3	
Category III = Score 30 – 50		Score for Habitat Fun	ctions	13	
Category IV = Score < 30		TOTAL Score for Fun	ctions	28	1
Category based on SPECIAL CHARACTERIS	STICS of Wetl	and I II	Do	es not apply	X
Final Categ	ory (choose	the "highest" category from a	ibove")	IV	7
Summary of basic i	nformation a	bout the wetland unit.			_
Wetland Unit has Specia	1	Wetland HGM Class			
Characteristics		used for Rating			
Estuarine Natural Heritage Wetland		Depressional Riverine	X		
Bog		Lake-fringe			
Mature Forest		Slope			
Old Growth Forest		Flats			
Coastal Lagoon		Freshwater Tidal			
Interdunal					
None of the above	X	Check if unit has multiple HGM classes present	П		
Does the wetland being rated meet any of the		·			

Does the wetland 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 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 1 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.

Classification of Vegetated Wetlands for 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.	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 a Saltwater Tidal Fringe it is rated as an Estuarine wetland. Wetlands that were call 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
2	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 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 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) where at least 20 acres (8ha) in size; At least 30% of the open water area is deeper than 6.6 (2 m)? NO - go to 4 YES - The wetland class is Lake-fringe (Lacustrine Fringe)
4.	Does the entire wetland 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 types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep). NO - go to 5 YES - The wetland class is Slope
5.	Does the entire wetland 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 of 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 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 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

, ,	
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	Treat as ESTUARINE under wetlands with special
freshwater wetland	characteristics

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

than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
D 1	Does the wetland have the <u>potential</u> to improve water quality?	see p.38
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet)	Figure
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions) YES points = 4 NO points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area	Figure
	D 1.4 Characteristics of seasonal ponding or inundation: This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years. • Area seasonally ponded is > 1/2 total area of wetland points = 4 • Area seasonally ponded is > 1/4 total area of wetland points = 0 • Area seasonally ponded is < 1/4 total area of wetland points = 0 Map of Hydroperiods	Figure
	Total for D 1 Add the points in the boxes above	
D 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 or orchards within 150 ft. of wetland A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging X Residential, urban areas, golf courses are within 150 ft. of wetland Wetland is fed by groundwater high in phosphorus or nitrogen Other YES multiplier is 2 NO multiplier is 1	Multiplier X2
•	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1	12
D 3	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation. Does the wetland have the <u>potential</u> to reduce flooding and erosion?	(see p.46)
<u>v</u> 3	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	0
	D 3.2 Depth of storage during wet periods. Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry). • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet	0
	D 3.3 Contribution of wetland unit 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 unit	3

D 4	Does the wetland have the <u>opportunity</u> to reduce flooding and erosion? Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. Note which of the following indicators of opportunity apply.	(see p. 49)
	 Wetland is in a headwater of a river or stream that has flooding problems. Wetland drains to a river or stream that has flooding problems Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems Other 	Multiplier X1
	YES multiplier is 2 NO multiplier is 1	
•	TOTAL – Hydrologic Functions Multiply the score from D3 by D4; then <i>add score to table on p. 1</i>	5

Thes	e questions apply to wetlands of all HGM classes.	Points
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	(only 1 scor per box)
H 1	Does the wetland have the <u>potential</u> 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 i 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres. Aquatic Bed Emergent plants	Figure
	X 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 types that qualify. If you have: 4 structures or more points = 4 2 structures	
	H 1.2 Hydroperiods (see p.73): Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to	Figure
	cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods). Permanently flooded or inundated Seasonally flooded or inundated Occasionally flooded or inundated Saturated only Permanently flowing stream or river in, or adjacent to, the wetland Seasonally flowing stream in, or adjacent to, the wetland Lake-fringe wetland	2
	H 1.3 Richness of Plant Species (see p. 75): Count the number of plant species in the wetland that cover at least 10 ft² (different patches of the same species can be combined to meet the size threshold) You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle. If you counted: > 19 species	1
	H 1.4 Interspersion of Habitats (see p. 76): Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.	E2
	None = 0 points Low = 1 point Moderate = 2 points Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high".	
	Use map of Cowardin classes [riparian braided channels]	1
	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 point you put into the next column. Large, downed, woody debris within the wetland (> 4 in. 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 (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned grey/brown)	0
	At least 1/4 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) 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.	t

H 2 Doo	es the wetland have the opportunity to provide habitat for many species?	(only 1 score per box)
H 2	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". 100m (330 ft) 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)	
H 2	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 a 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 50 ft. 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 Lakefringe wetland, if it does not have an undisturbed corridor as in the question above? YES = 2 points (go to H 2.3) NO = go to H 2.2.3 H. 2.2.3 Is the wetland: Within 5 mi (8km) of a brackish or salt water estuary OR Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): (see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdw.wa.gov/hab/psis.thm) Which of the following priority habitats are within 330 ft. (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%; 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). X 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). X Instream: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. Nearshore: Relatively undisturbed nearshore habitats. These include	3
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 1/2 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 developmentpoints = 5 • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile	3
TOTAL for H 1 from page 8	5
◆ Total Score for Habitat Functions Add the points for H 1 and H 2; then record the result on p. 1	13

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.	
SC1	Estuarine wetlands? (see p.86)	
BCI	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 X 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	Cat. 1
	332-30-151? YES = Category I NO = go to SC 1.2	Cat. 1
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions?	
	YES = Category I NO = Category II	Cat. I
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has	Cat. 1
	less than 10% cover of non-native plant species. If the non-native <i>Spartina</i> spp., are only species	Cat. II
	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	0 22
	with native species would be a Category 1. Do not, however, exclude the area of Spartina in	
	determining the size threshold of 1 acre. At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	Dual
	or un-mowed grassland	Rating
	The wetland has at least 2 of the following features: tidal channels, depressions with open water,	I/II
	or contiguous freshwater wetlands.	
SC2	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 being rated in a Section/Township/Range that contains a natural heritage wetland? (<i>This</i>	
	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 NOX	
	SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened	
	or endangered plant species?	Cat I
	YES = Category 1 NO not a Heritage Wetland	
SC3	Bogs (see p. 87) Does the wetland (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 function.	
	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 soil profile? (See Appendix B for a field key to	
	identify organic soils)? YES = go to question 3 NO = go to question 2	
	2. Does the wetland 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 question 3 NO = is not a bog for purpose of rating	
	pond? YES = go to question 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 question 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.	
	4. 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)?	Cat. I
	YES = Category I NO = Is not a bog for purpose of rating	Cat. I

SC4	Forested Wetlands (see p. 90)					
	Does the wetland 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 function.					
	Old-growth forests: (west of Cascade Crest) Stands of at least two three 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 an average diameters (dbh) exceeding 21 inches (53 cm); 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.	Cat. I				
	YES = Category I NO = \underline{X} not a forested wetland with special characteristics					
SC5	Wetlands in Coastal Lagoons (see p. 91)					
505	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 X not a wetland in a coastal lagoon					
	SC 5.1 Does the wetland meet all of the following three conditions?					
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has					
	less than 20% cover of invasive plant species (see list of invasive species on p. 74).					
	At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed					
	or un-mowed grassland.	Cat. I				
	The wetland is larger than 1/10 acre (4350 square ft.)					
	YES = Category I NO = Category II	Cat. II				
SC6	Interdunal Wetlands (see p. 93)					
DCU	Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or					
	WBUO)?					
	YES = Go to SC 6.1 NO X 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 one acre or larger?					
	YES = Category II NO = go to SC 6.2	C-4 TT				
	SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?	Cat. II				
	YES = Category III	C-4 III				
\vdash	<u> </u>	Cat. III				
	Category of wetland based on Special Characteristics Chaose the "highest" rating if yetland falls into several agreeous and record on p. 1					
▼	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	NA				

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): 28D			_ Date of s	ite visit: 09-27	7-13
Rated by: Colin Worsley / Matt Maynard Train	ined by Ecolog	gy? Yes <u>X</u> No I	Date of train	ning: <u>11-2005 / 0</u>	4-2006
SEC: 29 TOWNSHIP: 25N	RANGE:_	06E Is S/T/R in Ap	pendix D?	Yes N	o X_
Map of wetland unit:	Figure	Estimated size	<0.01 acre		
	SUMMAR	Y OF RATING			
Category based on FUNCTIONS provided b			III	IV	X
Category I = Score > 70		Score for Water Quality Fur	actions	2	7
Category II = Score 51 - 69		Score for Hydrologic Fur	ections	5	
Category III = Score 30 – 50		Score for Habitat Fur	ections	9	
Category IV = Score < 30		TOTAL Score for Fur	nctions	16	1
Category based on SPECIAL CHARACTERISTICS of Wetland I II Does not apply X				X	
Final Categ	ory (choose	the "highest" category from	above")	IV	7
Summary of basic i	information a	bout the wetland unit.			
Wetland Unit has Specia	1	Wetland HGM Class			
Characteristics		used for Rating	X		
Estuarine Natural Heritage Wetland		Depressional Riverine	A		
Bog		Lake-fringe			
Mature Forest		Slope			
Old Growth Forest		Flats			
Coastal Lagoon		Freshwater Tidal			
Interdunal		110511111111111111111111111111111111111			
None of the above	X	Check if unit has multiple HGM classes present			
Does the wetland being rated meet any of the	e criteria held	w? If you answer VES to a	ny of the au	estions below vo	nı will

Does the wetland 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 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 1 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.

Classification of Vegetated Wetlands for 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.	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 a Saltwater Tidal Fringe it is rated as an Estuarine wetland. Wetlands that were call 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 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 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) where at least 20 acres (8ha) in size;
	At least 30% of the open water area is deeper than 6.6 (2 m)? NO – go to 4 YES – The wetland class is Lake-fringe (Lacustrine Fringe)
4.	Does the entire wetland 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 types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep). NO – go to 5 YES – The wetland class is Slope
5.	Does the entire wetland meet all of the following criteria?
J.	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 of
	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	·
7.	Is the entire wetland 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 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

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	Treat as ESTUARINE under wetlands with special
freshwater wetland	characteristics

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

than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
D 1	Does the wetland have the <u>potential</u> to improve water quality?	(see p.38)
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet)	Figure
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions) YES points = 4 NO points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area	Figure
	D 1.4 Characteristics of seasonal ponding or inundation: This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years. • 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 Map of Hydroperiods	Figure
	Total for D 1 Add the points in the boxes above	1
D 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 or orchards within 150 ft. of wetland A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging X Residential, urban areas, golf courses are within 150 ft. of wetland	(see p. 44) Multiplier
	Wetland is fed by groundwater high in phosphorus or nitrogen Other YES multiplier is 2 NO multiplier is 1	X2
*	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then add score to table on p. 1	2
D 0	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	1 (40)
D 3	Does the wetland have the potential to reduce flooding and erosion? D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)	(see p.46)
	D 3.2 Depth of storage during wet periods. Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry). • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet	0
	 Marks of ponding less than 0.5 ft	5

D 4	Does the wetland have the opentunity to reduce flooding and erosion? Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. Note which of the following indicators of opportunity apply.	(see p. 49)
	 Wetland is in a headwater of a river or stream that has flooding problems. Wetland drains to a river or stream that has flooding problems Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems Other 	
	YES multiplier is 2 NO multiplier is 1	
♦	TOTAL – Hydrologic Functions Multiply the score from D3 by D4; then <i>add score to table on p. 1</i>	5

Thes	se questions apply to wetlands of all HGM classes.	Points
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	(only 1 scor per box)
H 1	Does the wetland have the <u>potential</u> 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 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres. Aquatic Bed Emergent plants	Figure
	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 types that qualify. If you have: 4 structures or more points = 4 2 structures	0
	H 1.2 <u>Hydroperiods</u> (see p.73): Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to	Figure
	cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods). X Permanently flooded or inundated Seasonally flooded or inundated Occasionally flooded or inundated X Saturated only Permanently flowing stream or river in, or adjacent to, the wetland Seasonally flowing stream in, or adjacent to, the wetland Lake-fringe wetland	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 ft² (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	1
	H 1.4 Interspersion of Habitats (<i>see p. 76</i>): Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), 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 Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high".	Figure
	Use map of Cowardin classes [riparian braided channels]	0
	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 (> 4 in. 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 (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have	0
	not yet turned grey/brown)	1
	At least 1/4 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) 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.	

H 2	Does t	he wetland have the opportunity to provide habitat for many species?	(only 1 score per box)
	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". 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed plant human use)	Figure
	Н 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 a 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 50 ft. 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 Lakefringe wetland, if it does not have an undisturbed corridor as in the question above? YES = 2 points (go to H 2.3) NO = go to 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 miles of a large field or pasture (> 40 acres) OR Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

•	Total Score for Habitat Functions Add the points for H 1 and H 2; then record the result on p. 1	9
	TOTAL for H 1 from page 8	2
	H 2 TOTAL Score – opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4	7
	·	7
	• There is at least 1 wettand within 1/2 mile points = 2 • There are no wetlands within 1/2 mile points = 0	
	• There is at least 1 wetland within 1/2 mile	
	• The wetland fringe on a lake with disturbance and there are 3 other lake-fringe wetlands within 1/2 milepoints = 3	
	disturbed. points = 3	
	• There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are	3
	wetlands within 1/2 milepoints = 5	-
	 but connections should NOT be bisected by paved roads, fill, fields, or other developmentpoints = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe 	
	relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating,	
	• There are at least 3 other wetlands within 1/2 mile, and the connections between them are	
	H 2.4 Wetland Landscape: Choose the one description of the landscape around the wetland that best fits (see p. 84)	
	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)	
	If wetland has 1 priority habitat = 1 point No habitats = 0 points	
	If wetland has 2 priority habitats = 3 points	
	end, and > 6 m (20 ft) long. If wetland has 3 or more priority habitats = 4 points	
	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.	
	to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in	
	Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics	
	andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
	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,	
	rock, ice, or other geological formations and is large enough to contain a human.	
	Caves: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils,	
	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).	
	Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore,	
	provide functional life history requirements for instream fish and wildlife resources.	
	X Instream: The combination of physical, biological, and chemical processes and conditions that interact to	3
	Westside Prairies: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (<i>full descriptions in WDFW PHS report p. 161</i>).	3
	terrestrial ecosystems which mutually influence each other.	
	X Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and	
	oak component is important (<i>full descriptions in WDFW PHS report p. 158</i>).	
	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	
	cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is	
	dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown	
	multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in)	
	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	
	fish and wildlife (full descriptions in WDFW PHS report p. 152).	
	Biodiversity Areas and Corridors: Areas of habitat that are relatively important to various species of native	
	Aspen Stands: Pure or mixed stands of aspen greater than 0.4 ha (1 acre).	
	Which of the following priority habitats are within 330 ft. (100m) of the wetland unit? <i>NOTE: the connections do not have to be relatively undisturbed.</i>	
	http://wdfw.wa.gov/hab/phslist.htm)	
	descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report	
	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): (see new and complete	

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.	
SC1	Estuarine wetlands? (see p.86)	7
301	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.	
	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. 1
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions?	1
	YES = Category I NO = Category II	Cat. I
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and ha	.S
	less than 10% cover of non-native plant species. If the non-native Spartina spp., are only species	Cat. II
	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	0 22
	with native species would be a Category 1. Do not, however, exclude the area of Spartina in	
	determining the size threshold of 1 acre. At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	Dual
	or un-mowed grassland	T/TT
	The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	I/II
C C C	Natural Heritage Wetlands (see p. 87)	+
SC2	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 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 NOX	.
	SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened	C-4 I
	or endangered plant species? YES = Category 1 NO not a Heritage Wetland	Cat I
g g g	Bogs (see p. 87)	+
SC3	Does the wetland (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 function.	
	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 soil profile? (See Appendix B for a field key t)
	identify organic soils)? YES = go to question 3 NO = go to question 2	
	Does the wetland 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 question 3 $\frac{1}{1000}$ 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,	1
	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 question 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.	· [
	4. 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)?	Cat. I
	$YES = Category I \qquad \qquad NO = Is not a bog for purpose of rating$	

SC4	Forested Wetlands (see p. 90)	
	Does the wetland 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? <i>If you answer yes you will still need to rate the wetland</i>	
	based on its function.	
	Old-growth forests: (west of Cascade Crest) Stands of at least two three 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 an average diameters (dbh) exceeding 21 inches (53 cm); 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.	Cat. I
	YES = Category I NO = X not a forested wetland with special characteristics	Cut. I
SC5	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 X not a wetland in a coastal lagoon	
	SC 5.1 Does the wetland meet all of the following three conditions?	
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).	
	At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	
	or un-mowed grassland.	Cat. I
	The wetland is larger than 1/10 acre (4350 square ft.)	Cut. I
	$YES = Category I \qquad \qquad NO = Category II$	Cat. II
SC6	Interdunal Wetlands (see p. 93)	
	Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)?	
	YES = Go to SC 6.1 NO X 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 103 • 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 one acre or larger?	
	$YES = Category II \qquad \qquad NO = go to SC 6.2$	Cat. II
	SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?	C 4 III
-	YES = Category III Category of wetland based on Special Characteristics	Cat. III
•	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	NA

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 we	tland (if known): 28E			_ Date of si	te visit: 11-01	-13
Rated by: Co	olin Worsley / Matt Maynard Train	ned by Ecolo	ogy? Yes <u>X</u> No I	Date of train	ing: <u>11-2005 / 0</u> 4	4-2006
SEC:	29 TOWNSHIP: 25N	RANGE:	Is S/T/R in Ap	pendix D?	YesN	oX _
	Map of wetland unit:	Figure	Estimated siz	e <u>0.02 acre</u>	<u>2</u>	
		SUMMAI	RY OF RATING			
Category ba	ased on FUNCTIONS provided by			Ш	IV	X
category at	ased on I cive II on sprovided by	West and a				- 11
	Category I = Score > 70		Score for Water Quality Fun	ctions	16	
	Category II = Score 51 - 69		Score for Hydrologic Fun	ctions	18	
	Category III = Score 30 – 50		Score for Habitat Fun	ctions	8	
	Category IV = Score < 30		TOTAL Score for Fun	ctions	42	1
Category ba	sed on SPECIAL CHARACTERIST	TICS of We	tland I II	Do	es not apply	X
	Final Catego	PV (choose	the "highest" category from	above")	III	7
		·				
		iformation a	about the wetland unit.			
	Wetland Unit has Special		Wetland HGM Class			
	Characteristics		used for Rating	**		
	Estuarine		Depressional	X		
	Natural Heritage Wetland		Riverine			
	Bog Mature Forest		Lake-fringe			
	Old Growth Forest		Slope			
	Old Growth Forest		Flats			
	Coastal Lagoon		Freshwater Tidal			
	Coastal Lagoon	X	Check if unit has multiple HGM classes present			

Does the wetland 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 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 1 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.

Classification of Vegetated Wetlands for 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 a Saltwater Tidal Fringe it
	is rated as an Estuarine wetland. Wetlands that were call 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 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.
2	·
3.	Does the entire wetland 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) where at least 20 acres (8ha) in size;
	At least 30% of the open water area is deeper than 6.6 (2 m)?
	NO – go to 4 YES – The wetland class is Lake-fringe (Lacustrine Fringe)
4.	Does the entire wetland 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 types of wetlands except occasionally in very small and
	shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep). NO – go to 5 YES – The wetland class is Slope
5.	
٥.	Does the entire wetland 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 of
	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 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 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

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	Treat as ESTUARINE under wetlands with special
freshwater wetland	characteristics

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

than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

D	Depressional and Flat Wetlands	Points
D	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score
		per box)
D 1	Does the wetland have the <u>potential</u> to improve water quality?	(see p.38)
	 D 1.1 Characteristics of surface water flows out of the wetland: Unit is a depression with no surface water leaving it (no outlet) points = 3 	Figure
	 Unit is a depression with no surface water leaving it (no outlet)	3
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions) YES points = 4 NO points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class):	Figure
	 Wetland has persistent, ungrazed vegetation > = 95% of area	Figure 5
	D 1.4 Characteristics of seasonal ponding or inundation: This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years. • Area seasonally ponded is > 1/2 total area of wetland	Figure
	 Area seasonally ponded is > 1/4 total area of wetland	0
	Total for D 1 Map of Hydroperiods Add the points in the boxes above	8
D 2	Does the wetland have the opportunity to improve water quality?	(see p. 44)
	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 or orchards within 150 ft. of wetland A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed	
	fields, roads, or clear-cut logging X Residential, urban areas, golf courses are within 150 ft. of wetland Wetland is fed by groundwater high in phosphorus or nitrogen Other	Multiplier X2
	YES multiplier is 2 NO multiplier is 1	
•	<u>TOTAL</u> – Water Quality Functions Multiply the score from D1 by D2; then <i>add score to table on p. 1</i>	16
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	_
D 3	Does the wetland have the <u>potential</u> to reduce flooding and erosion?	(see p.46)
	 D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet)	4
	D 3.2 Depth of storage during wet periods. Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry). • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet	
	D 3.3 Contribution of wetland unit 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 unit	5

D 4	Does the wetland have the opportunity to reduce flooding and erosion?	(see p. 49)
	Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. <i>Note which of the following indicators of opportunity apply.</i> Wetland is in a headwater of a river or stream that has flooding problems.	
	Wetland drains to a river or stream that has flooding problems Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems Other	Multiplier X2
	YES multiplier is 2 NO multiplier is 1	
♦	TOTAL – Hydrologic Functions Multiply the score from D3 by D4; then <i>add score to table on p. 1</i>	18

	se questi	ions apply to wetlands of all HGM classes.		Points
	HABIT	TAT FUNCTIONS – Indicators that wetland functions to provide is	mportant habitat.	(only 1 scor per box)
H 1	Does t	he wetland have the <u>potential</u> to provide habitat for many spec	ies?	• ′
	Н 1.1	Vegetation structure (see P. 72): Check the types of vegetation classes present (as defined by Cow 1/4 acre or more than 10% of the area if unit is smaller than 2.5 Aquatic Bed Emergent plants Sorphylophylo (gross where shrubs have > 20% cover)		Figure
		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 cover) that each cover 20% within the forested polygon. Add the number of vegetation types that qualify. If you have: 4 structures or more points = 4 2 structures	y, shrubs, herbaceous, moss/ground- Map of Cowardin vegetation classes 3 structures points = 2 1 structure points = 0	0
	H 1.2	<u>Hydroperiods</u> (see p.73): Check the types of water regimes (hydroperiods) present within t	the wetland. The water regime has to	Figure
		Seasonally flooded or inundated Occasionally flooded or inundated	4 or more types present points = 3 3 or more types present points = 2 2 types present points = 1 1 type present points = 0	0
	H 1.3	5 -		0
	H 1.4	Interspersion of Habitats (see p. 76): Decided from the diagrams below whether interspersion between Cotthe classes and unvegetated areas (can include open water or mudflat		Figure
			open water, the rating is	
		None = 0 points Low = 1 point Moderate = 2 points	always "high".	
	([riparian braided channels]		0
	H 1.5	High = 3 points Special Habitat Features (see p. 77): Check the habitat features that are present in the wetland. The manyou put into the next column. Large, downed, woody debris within the wetland (> 4 in. d. Standing snags (diameter at the bottom > 4 inches) in the wetland (> 4 in. d. Standing snags (diameter at the bottom > 4 inches) in the wetland (> 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with stable steep banks of fine material that might be used by be	always "high". Use map of Cowardin classes. number of checks is the number of points iameter and 6 ft. long) vetland overhanging vegetation extends at least the unit, for at least 33 ft. (10m) eaver or muskrat for denning	0
	H 1.5	Special Habitat Features (see p. 77): Check the habitat features that are present in the wetland. The many put into the next column. Large, downed, woody debris within the wetland (> 4 in. degree of the standing snags (diameter at the bottom > 4 inches) in the wetland (> 4 in. degree of the standing snags (diameter at the bottom > 4 inches) in the wetland (> 4 in. degree of the standing snags (diameter at the bottom > 4 inches) in the wetland (> 4 in. degree of the standing snags (diameter at the bottom > 4 inches) in the wetland (> 4 in. degree of the standing snags (diameter at the bottom) = 4 inches) in the wetland (> 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with	always "high". Use map of Cowardin classes. number of checks is the number of points iameter and 6 ft. long) vetland overhanging vegetation extends at least the unit, for at least 33 ft. (10m) eaver or muskrat for denning present (cut shrubs or trees that have woody branches are present in areas that g-laying by amphibians) each stratum of plants	0

H 2	Does t	he wetland have the opportunity to provide habitat for many species?	(only 1 score per box)
	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". 100m (330 ft) 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)	Figure
	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 a 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 50 ft. 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 Lakefringe wetland, if it does not have an undisturbed corridor as in the question above? YES = 2 points (go to H 2.3) NO = go to 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 miles of a large field or pasture (> 40 acres) OR Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

•	Total Score for Habitat Functions Add the points for H 1 and H 2; then record the result on p. 1	8
	TOTAL for H 1 from page 8	0
		8
	H 2 TOTAL Score – opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4	ρ
	• There are no wetlands within 1/2 mile	
	• There is at least 1 wetland within 1/2 mile	
	• The wetland fringe on a lake with disturbance and there are 3 other lake-fringe wetlands within 1/2 milepoints = 3	
	disturbed. points = 3	
	• There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are	3
	wetlands within 1/2 milepoints = 5	2
	• The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe	
	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 developmentpoints = 5	
	• There are at least 3 other wetlands within 1/2 mile, and the connections between them are	
	H 2.4 Wetland Landscape: Choose the one description of the landscape around the wetland that best fits (see p. 84)	
	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)	
	If wetland has 1 priority habitat = 1 point No habitats = 0 points Note: All veseted watlands are by definition a priority habitat but are not included in this list. Nearby watlands are	
	If wetland has 2 priority habitats = 3 points	
	If wetland has 3 or more priority habitats = 4 points	
	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.	
	to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in	
	Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics	
	andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
	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,	
	rock, ice, or other geological formations and is large enough to contain a human.	
	Caves: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils,	
	WDFW report: pp. 167-169 and glossary in Appendix A).	
	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	
	provide functional life history requirements for instream fish and wildlife resources.	
	X Instream: The combination of physical, biological, and chemical processes and conditions that interact to	
	a wet prairie (full descriptions in WDFW PHS report p. 161).	3
	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	
	X Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and	
	oak component is important (full descriptions in WDFW PHS report p. 158).	
	Oregon white Oak: Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the	
	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.	
	dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown	
	multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in)	
	Old-growth/Mature forests: (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a	
	Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.	
	Biodiversity Areas and Corridors : Areas of habitat that are relatively important to various species of native fish and wildlife (<i>full descriptions in WDFW PHS report p. 152</i>).	
	Aspen Stands: Pure or mixed stands of aspen greater than 0.4 ha (1 acre).	
	NOTE: the connections do not have to be relatively undisturbed.	
	http://wdfw.wa.gov/hab/phslist.htm) Which of the following priority habitats are within 330 ft. (100m) of the wetland unit?	
	descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report	
	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): (see new and complete	

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.	
SC1	Estuarine wetlands? (see p.86)	
BCI	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.	
	Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC	Cat. 1
	332-30-151? YES = Category I NO = go to SC 1.2	Cat. 1
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions?	
	YES = Category I NO = Category II	Cat. I
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has	Cat. 1
	less than 10% cover of non-native plant species. If the non-native Spartina spp, are only species	Cat. II
	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	3444 11
	with native species would be a Category 1. Do not, however, exclude the area of Spartina in	
	determining the size threshold of 1 acre. At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	Dual
	or un-mowed grassland	Rating
	The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	I/II
SC2	Natural Heritage Wetlands (see p. 87)	
SCZ	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 being rated in a Section/Township/Range that contains a natural heritage wetland? (<i>This</i>	
	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 X	
	SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species?	Cat I
	YES = Category 1 NO not a Heritage Wetland	Cat I
SC3	Bogs (see p. 87)	
303	Does the wetland (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 function.	
	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 soil profile? (See Appendix B for a field key to	
	identify organic soils)? YES = go to question 3 NO = go to question 2 2. Does the wetland 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 question 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 question 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. 4. 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)?	Cat. I
	$YES = Category I \qquad \qquad NO = Is not a bog for purpose of rating$	

SC4	Forested Wetlands (see p. 90)					
	Does the wetland 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 function.					
	Old-growth forests: (west of Cascade Crest) Stands of at least two three 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 an average diameters (dbh) exceeding 21 inches (53 cm); 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.	Cat. I				
	YES = Category I NO = \underline{X} not a forested wetland with special characteristics	C utt 1				
SC5	Wetlands in Coastal Lagoons (see p. 91)					
363	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 \underline{X} not a wetland in a coastal lagoon					
	SC 5.1 Does the wetland meet all of the following three conditions?					
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has					
	less than 20% cover of invasive plant species (see list of invasive species on p. 74).					
	At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed					
	or un-mowed grassland.	Cat. I				
	The wetland is larger than 1/10 acre (4350 square ft.)					
	YES = Category I NO = Category II	Cat. II				
SC6	Interdunal Wetlands (see p. 93)					
	Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or					
	WBUO)? YES = Go to SC 6.1 NO \underline{X} 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 one acre or larger?					
	YES = Category II NO = go to SC 6.2	Cat. II				
	SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?	G . ****				
	YES = Category III	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	NA				

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 we	etland (if known): 29B			Date of s	ite visit: 03-	20-14
Rated by: C	Colin Worsley / Matt Maynard Traine	d by Ecolo	ogy? Yes <u>X</u> No Dat	e of traini	ng: <u>11-2005</u> /	04-2006
SEC:	29 TOWNSHIP: 25N	RANGE:	06E Is S/T/R in App	endix D?	Yes	NoX
	Map of wetland unit: Fig	gure	Estimated size _0	.02 acre		
		SUMMAI	RY OF RATING			
Category b	ased on FUNCTIONS provided by v	wetland: 1	I II	_ III	IV	X
	Category I = Score > 70		Score for Water Quality Func	tions	2	
	Category II = Score 51 - 69		Score for Hydrologic Func	tions	0	
	Category III = Score 30 – 50		Score for Habitat Func	tions	5	
	Category IV = Score < 30		TOTAL Score for Func		7	
Category ba	ased on SPECIAL CHARACTERIST	CS of Wetl	and I II	Do	es not apply_	X
	Final Categor	'V (choose	the "highest" category from al	oove")	IV	
			about the wetland unit.	,		_
	Wetland Unit has Special		Wetland HGM Class			
	Characteristics		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	X	Check if unit has multiple HGM classes present			
Doog the w	etland heing rated meet any of the c	witania hal	•	of the gu	unationa halous	.ou will

Does the wetland 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 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 1 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.

Classification of Vegetated Wetlands for 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.	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 a Saltwater Tidal Fringe it
	is rated as an Estuarine wetland. Wetlands that were call 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 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 meet both of the following criteria?
٥.	The vegetated part of the wetland is on the shores of a body of permanent open water (without any
	vegetation on the surface) where at least 20 acres (8ha) in size;
	At least 30% of the open water area is deeper than 6.6 (2 m)?
4	NO – go to 4 YES – The wetland class is Lake-fringe (Lacustrine Fringe)
4.	Does the entire wetland meet all of the following criteria? X The wetland is on a slope (slope can be very gradual).
	X The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may
	flow subsurface, as sheetflow, or in a swale without distinct banks.
	X The water leaves the wetland without being impounded?
	NOTE: Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).
	NO - go to 5 YES - The wetland class is Slope
5.	Does the entire wetland 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 of
	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 located in a very flat area with no obvious depression and no overbank flooding. The unit does not
٠.	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 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

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	Treat as ESTUARINE under wetlands with special
freshwater wetland	characteristics

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

than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

S	Slope Wetlands	Points		
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)		
S 1	Does the wetland have the <u>potential</u> 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)	1		
	S 1.2 The soil 2 inches below the surface (or duff layer) is clay, organic (<i>Use NRCS definitions</i>). 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	Figure		
	 are higher than 6 inches. Dense, uncut, herbaceous vegetation > 90% of the wetland area	0		
	Aerial photo or map with vegetation polygons	L		
	Total for S 1 Add the points in the boxes above	2		
S 2	Does the wetland have the opportunity to improve water quality?	(see p. 67)		
	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	Multiplier		
	Other	<u>X2</u>		
	YES multiplier is 2 NO multiplier is 1			
	TOTAL – Water Quality Functions Multiply the score from S1 by S2; then <i>add score to table on p. 1</i> HYDROLOGIC FUNCTIONS – Indicators that wetland functions to reduce flooding and stream erosion.	2		
S 3	Does the wetland have the <u>potential</u> to reduce flooding and stream erosion?	(see p.68)		
33	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	(see p.00)		
	 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	0		
	Add the points in the boxes above	0		
S 4	Does the wetland have the <u>opportunity</u> 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? <i>Note which of the following conditions apply.</i>	(see p. 70)		
	Wetland has surface runoff that drains to a river or stream that has flooding problems Other	Multiplier		
	(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	<u>X1</u>		
•	<u>TOTAL</u> – Hydrologic Functions Multiply the score from S3 by S4; then <i>add score to table on p. 1</i>	0		

Comments: Wetland A is adjacent to estuarine wetland but separate in that Wetland A is not influenced by salt water. Freshwater flows through Wetland A in one direction and enters North Bay.

Thes	e questions apply to wetlands of all HGM classes.	Points
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	(only 1 score per box)
H 1	Does the wetland have the <u>potential</u> to provide habitat for many species?] per box)
	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 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres. Aquatic Bed X Emergent plants	Figure
	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 types that qualify. If you have: 4 structures or more points = 4 2 structures	0
	H 1.2 <u>Hydroperiods</u> (see p.73):	Figure
	Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods). Permanently flooded or inundated 4 or more types present points = 3 Seasonally flooded or inundated 3 or more types present points = 2 Cocasionally flooded or inundated 2 types present points = 1 X Saturated only 1 type present points = 1 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	0
	Freshwater tidal wetland = 2 points Map of hydroperiods	
	H 1.3 Richness of Plant Species (see p. 75): Count the number of plant species in the wetland that cover at least 10 ft² (different patches of the same species can be combined to meet the size threshold) You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle. If you counted: > 19 species	1
	H 1.4 Interspersion of Habitats (<i>see p. 76</i>): Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.	
	None = 0 points Low = 1 point Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high".	Figure
	Use map of Cowardin classes [riparian braided channels]	. 0
	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 (> 4 in. 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 (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned grey/brown) At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that	0
	are permanently or seasonally inundated (structures for egg-laying by amphibians) 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 points in the column above	I

H 2	Does t	he wetland have the opportunity to provide habitat for many species?	(only 1 score per box)
	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". 100m (330 ft) 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)	Figure
	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 a 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 50 ft. 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 Lakefringe wetland, if it does not have an undisturbed corridor as in the question above? YES = 2 points (go to H 2.3) NO = go to 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 miles of a large field or pasture (> 40 acres) OR Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

•	Total Score for Habitat Functions Add the points for H 1 and H 2; then record the result on p. 1	5
	TOTAL for H 1 from page 8	1
	H 2 TOTAL Score – opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4	4
		1
	• There are no wetlands within 1/2 mile	
	• There is at least 1 wetland within 1/2 mile	
	• The wetland fringe on a lake with disturbance and there are 3 other lake-fringe wetlands within 1/2 milepoints = 3	
	disturbedpoints = 3	
	• There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are	3
	wetlands within 1/2 milepoints = 5	3
	The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe	
	but connections should NOT be bisected by paved roads, fill, fields, or other developmentpoints = 5	
	• There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating,	
	H 2.4 Wetland Landscape: Choose the one description of the landscape around the wetland that best fits (see p. 84)	
	addressed in question H 2.4)	
	Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are	
	If wetland has 2 priority habitat = 3 points If wetland has 1 priority habitat = 1 point No habitats = 0 points	
	If wetland has 3 or more priority habitats = 4 points If wetland has 2 priority habitats = 3 points	
	end, and > 6 m (20 ft) long.	
	western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest	
	to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in	
	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	
	Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt,	
	Cliffs: Greater than 7.6 m (25 ft) high and occurring below 5000 ft.	
	rock, ice, or other geological formations and is large enough to contain a human.	
	Caves: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils,	
	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).	
	Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Pugat Sound Nearshore. (full descriptions of habitats and the definition of relatively undisturbed are in	
	provide functional life history requirements for instream fish and wildlife resources.	
	Instream: The combination of physical, biological, and chemical processes and conditions that interact to	
	a wet prairie (full descriptions in WDFW PHS report p. 161).	0
	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	
	Riparian : The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and	
	oak component is important (full descriptions in WDFW PHS report p. 158).	
	Oregon white Oak: Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the	
	generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.	
	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%; decay, decadence, numbers of snags, and quantity of large downed material is	
	multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in)	
	Old-growth/Mature forests: (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a	
	Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.	
	fish and wildlife (full descriptions in WDFW PHS report p. 152).	
	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	
	NOTE: the connections do not have to be relatively undisturbed.	
	Which of the following priority habitats are within 330 ft. (100m) of the wetland unit?	
	http://wdfw.wa.gov/hab/phslist.htm)	
	descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report	
	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): (see new and complete	

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.				
SC1	Estuarine wetlands? (see p.86)	1 l			
301	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.				
	Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC	Cat. 1			
	332-30-151? YES = Category I NO = go to SC 1.2	Cat. 1			
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions?	+			
	YES = Category I NO = Category II	Cat. I			
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has	S Cat. 1			
	less than 10% cover of non-native plant species. If the non-native Spartina spp., are only species	Cat. II			
	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	0			
	with native species would be a Category 1. Do not, however, exclude the area of Spartina in				
	determining the size threshold of 1 acre. At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	Dual			
	or un-mowed grassland	Rating			
	The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	I/II			
0.03	Natural Heritage Wetlands (see p. 87)	+			
SC2	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 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 NOX				
	SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened	C-4 I			
	or endangered plant species? YES = Category 1 NO not a Heritage Wetland	Cat I			
0.02	Bogs (see p. 87)	_			
SC3	Does the wetland (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 function.				
	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 soil profile? (See Appendix B for a field key to)			
	identify organic soils)? YES = go to question 3 NO = go to question 2				
	Does the wetland 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 question 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 question 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.				
	4. 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)?	Cat. I			
	YES = Category I NO = Is not a bog for purpose of rating	J 1			

SC4	Forested Wetlands (see p. 90)					
	Does the wetland 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 function.					
	Old-growth forests: (west of Cascade Crest) Stands of at least two three 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 an average diameters (dbh) exceeding 21 inches (53 cm); 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.	Cat. I				
	YES = Category I $NO = X$ not a forested wetland with special characteristics	2 2				
SC5	Wetlands in Coastal Lagoons (see p. 91)					
363	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.)					
	SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has					
	less than 20% cover of invasive plant species (see list of invasive species on p. 74).					
	At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed					
	or un-mowed grassland.	C 4 T				
	The wetland is larger than 1/10 acre (4350 square ft.)	Cat. I				
	YES = Category I NO = Category II	Cot II				
		Cat. II				
SC6	Interdunal Wetlands (see p. 93)					
	Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or					
	WBUO)?					
	YES = Go to SC 6.1 NO \underline{X} 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 103 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 one acre or larger?					
	YES = Category II NO = go to SC 6.2					
	SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?					
	Category of wetland based on Special Characteristics	Cat. III				
	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	NI A				
	if you answered to for an types enter that Applicable on p. 1	NA				

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): 29C			Date o	f site visit: 03	3-20-14
Rated by: Colin Worsley / Matt Maynard	Trained by	Ecology? Yes <u>X</u> No	Date of tra	nining: 11-2005	/ 04-2006
SEC: 29 TWNSHP: 25N	RNGE:_	06E Is S/T/R in	Appendix D?	Yes 1	No_X_
Map of wetland unit	: Figure	Estimated size	ze 0.05 acre		
	SUMMA	RY OF RATING			
Category based on FUNCTIONS provided	l by wetland:	I II	III	X IV	
Category I = Score > 70		Score for Water Quality	Functions	18	
Category II = Score 51 - 69		Score for Hydrologic	Functions	12	
Category III = Score 30 – 50		Score for Habitat	Functions	15	
Category IV = Score < 30		TOTAL Score for	Functions	45	7
Category based on SPECIAL CHARACTEI	– RISTCS of Wet	land I II_	D	oes not apply X	
Final Cate	egory (choose	e the "highest" category fro	om above")	III	7
Summary of basi	c information	about the wetland unit.			
Wetland Unit has Spec	cial	Wetland HGM Clas	S		
Characteristics		used for Rating			
Estuarine Natural Heritage Wetlan	nd	Depressional Riverine			
Bog	ilu	Lake-fringe	X		
Mature Forest		Slope Slope	(x)		
Old Growth Forest		Flats	(A)		
Coastal Lagoon		Freshwater Tidal			
Interdunal					
None of the above	X	Check if unit has multipl HGM classes present	e X		
Does the wetland being rated meet any of	the criteria be	low? If you answer YES t	o any of the q	iestions below v	ou will

Does the wetland 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 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 1 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.

Classification of Vegetated Wetlands for 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 a Saltwater Tidal Fringe it
	is rated as an Estuarine wetland. Wetlands that were call 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 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 placed in a confined as a "Flats" wetland was the form for Depressional wetlands.
_	If your wetland can be classified as a "Flats" wetland, use the form for Depressional wetlands.
3.	Does the entire wetland meet both of the following criteria?
	X The vegetated part of the wetland is on the shores of a body of permanent open water (without any
	vegetation on the surface) where at least 20 acres (8ha) in size;
	X At least 30% of the open water area is deeper than 6.6 (2 m)? NO – go to 4 YES – The wetland class is Lake-fringe (Lacustrine Fringe)
4	
4.	Does the entire wetland meet all of the following criteria? The wetland is on a slope (slope can be very gradual).
	The wettand is on a slope (stope 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 types of wetlands except occasionally in very small and
	shallow depressions or behind hummocks (depressions are usually < 3 ft diameter and less than 1 foot deep).
	NO – go to 5 YES – The wetland class is Slope
5.	Does the entire wetland 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 of
	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 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 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.
	man 10/0 of the thin, classify the wettand using the class that represents inote 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	Treat as ESTUARINE under wetlands with special
freshwater wetland	characteristics

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

L	Lake-fringe Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that the wetland unit functions to improve water quality.	only 1 score
L 1	Does the wetland unit have the <u>potential</u> to improve water quality? (see p.59)	per box)
	L 1.1 Average width of vegetation along the lakeshore (use polygons of Cowardin classes):	12.
	• Vegetation is more than 33 ft. (10m) wide	Figure
	• Vegetation is more than 16 ft.(5m) wide and < 33 ft	6
	• Vegetation is less than 6 ft. wide	0
	 Vegetation is more than 6 ft. (2m) wide and < 16 ft points = 1 Vegetation is less than 6 ft. wide points = 0 Map of Cowardin classes with widths marked 	
	L 1.2 Characteristics of the vegetation in the wetland: Choose the appropriate description that results in the highest	Figure
	points, and do not include any open water in your estimate of coverage. The herbaceous plants can be either the	_
	dominant form or as an understory in a shrub or forest community. These are not Cowardin classes. Area of Cover is total cover in the unit, but it can be in patches. NOTE: Herbaceous does not include aquatic bed.	
	• Cover of herbaceous plants is > 90% of the vegetated area	
	• Cover of herbaceous plants is > 2/3 of the vegetated area points = 4	3
	• Cover of herbaceous plants is > 1/3 of the vegetated area	
	 Other vegetation that is not aquatic bed or herbaceous covers > 2/3 of the unit points = 3 Other vegetation that is not aquatic bed in > 1/3 vegetated area points = 1 	
	• Aquatic bed cover and open water > 2/3 of the unit	
	Map with polygons of different vegetation types	
	Add the points in the boxes above	9
L 2	Does the wetland have the opportunity to improve water quality?	(see p.61)
	Answer YES if you know or believe there are pollutants in the lake water, or polluted surface water flowing	
	through the unit to the lake. 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.	
	 Wetland is along the shores of a lake or reservoir that does not meet water quality standards Grazing in the wetland or within 150 ft 	
	Polluted water discharges to wetland along upland edge	
	Tilled fields or orchards within 150 ft. of wetland	
	X Residential or urban areas are within 150 ft. of wetland Parks with grassy areas that are maintained, ballfields, golf courses (all within 150 ft. of lake shore)	Multiplier
	X Power boats with gasoline or diesel engines use the lake	
	Other	X2
_	YES multiplier is 2 NO multiplier is 1	10
<u> </u>	TOTAL – Water Quality Functions Multiply the score from L1 by L2; then add score to table on p. 1	18
	HYDROLOGIC FUNCTIONS – Indicators that wetland functions to reduce shoreline erosion.	٦
L 3	Does the wetland have the <u>potential</u> to reduce shoreline erosion?	(see p.62)
	L 3 Average width and characteristics of vegetation along the lakeshore (do not include aquatic bed):	Figure
	(choose the highest scoring description that matches conditions in the wetland) • 3/4 of distance is shrubs or forest at least 33 ft. (10m) wide	rigure
	• 3/4 of distance is shrubs or forest at least 53 ft. (10hr) wide points = 0 • 3/4 of distance is shrubs or forest at least 6 ft. (2m) wide points = 4	
	• 1/4 of distance is shrubs or forest at least 33 ft. (10m) wide	6
	• Vegetation is at least 6 ft. (2m) wide (any type except aquatic bed)points = 2	
	• Vegetation is less than 6 ft. (2m) wide (any type except aquatic bed)	
	Record the points in the boxes above	6
Ι 1		
L 4	Does the wetland have the opportunity to reduce erosion?	(see p. 64)
L 4	Does the wetland have the <u>opportunity</u> to reduce erosion? Are there features along the shore that will be impacted if the shoreline erodes? <i>Note which of the following</i>	
L 4	Does the wetland have the opportunity to reduce erosion? Are there features along the shore that will be impacted if the shoreline erodes? <i>Note which of the following conditions apply.</i> X There are human structures and activities along the upland edge of the wetland (buildings, fields)	
L 4	Does the wetland have the opportunity to reduce erosion? Are there features along the shore that will be impacted if the shoreline erodes? <i>Note which of the following conditions apply.</i> Xample There are human structures and activities along the upland edge of the wetland (buildings, fields) that can be damaged by erosion.	(see p. 64)
L 4	Does the wetland have the opportunity to reduce erosion? Are there features along the shore that will be impacted if the shoreline erodes? Note which of the following conditions apply. X There are human structures and activities along the upland edge of the wetland (buildings, fields) that can be damaged by erosion. There are undisturbed natural resources along the upland edge of the wetland (e.g. mature forests,	(see p. 64)
L 4	Does the wetland have the opportunity to reduce erosion? Are there features along the shore that will be impacted if the shoreline erodes? Note which of the following conditions apply. X There are human structures and activities along the upland edge of the wetland (buildings, fields) that can be damaged by erosion. There are undisturbed natural resources along the upland edge of the wetland (e.g. mature forests, other wetlands) that can be damaged by shoreline erosion.	(see p. 64) Multiplier
L 4	Does the wetland have the opportunity to reduce erosion? Are there features along the shore that will be impacted if the shoreline erodes? Note which of the following conditions apply. X There are human structures and activities along the upland edge of the wetland (buildings, fields) that can be damaged by erosion. There are undisturbed natural resources along the upland edge of the wetland (e.g. mature forests,	

Comments: Deck, shed, and walkways in wetland.

Thes	re questions apply to wetlands of all HGM classes.	Points
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	(only 1 score per box)
H 1	Does the wetland have the <u>potential</u> 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 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres. Aquatic Bed	is Figure
	Emergent plants Scrub/shrub (areas where shrubs have > 30% cover) X Forested (areas where trees have > 30% cover) If the unit has a forested class check if: X The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. Add the number of vegetation types that qualify. If you have: Map of Cowardin vegetation classes	
	4 structures or more points = 4 3 structures points = 2 structures points = 1 1 structure points =	
	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 1/4 acre to count (see text for descriptions of hydroperiods). Permanently flooded or inundated 4 or more types present points = 3 Seasonally flooded or inundated 3 or more types present points = 2 Occasionally flooded or inundated 2 types present points = 1 Saturated only 1 type present points = 0 Permanently flowing stream or river in, or adjacent to, the wetland Seasonally flowing stream in, or adjacent to, the wetland	Figure
	X Lake-fringe wetland = 2 points Freshwater tidal wetland = 2 points Map of hydroperiod	
	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	1
	H 1.4 Interspersion of Habitats (see p. 76): Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), of the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.	r
	None = 0 points Low = 1 point Note: If you have 4 or more class or 3 vegetation classes and open water, the rating is always "high".	es Figure
	Use map of Cowardin class [riparian braided channels]	es. 0
	High = 3 points 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 poil you put into the next column. X Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) X 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 (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned grey/brown) At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas the are permanently or seasonally inundated (structures for egg-laying by amphibians)	t 3
	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. H 1 TOTAL Score – potential for providing habitat Add the points in the column above	re 7
	1 1 5	

H 2	Does t	he wetland have the opportunity to provide habitat for many species?	(only 1 score per box)
	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". 100m (330 ft) 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)	Figure
	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 a 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 50 ft. 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 Lakefringe wetland, if it does not have an undisturbed corridor as in the question above? YES = 2 points (go to H 2.3) NO = go to 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 miles of a large field or pasture (> 40 acres) OR Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

•	Total Score for Habitat Functions Add the points for H 1 and H 2; then record the result on p. 1	15
	TOTAL for H 1 from page 8	7
	H 2 TOTAL Score – opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4	8
	•	
	• There is at least 1 wettand within 1/2 mile points = 2 • There are no wetlands within 1/2 mile points = 0	
	within 1/2 mile	
	• The wetland fringe on a lake with disturbance and there are 3 other lake-fringe wetlands	
	disturbed. points = 3	
	• There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are	3
	• The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 milepoints = 5	
	but connections should NOT be bisected by paved roads, fill, fields, or other developmentpoints = 5	
	relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating,	
	• There are at least 3 other wetlands within 1/2 mile, and the connections between them are	
	addressed in question H 2.4) H 2.4 Wetland Landscape: Choose the one description of the landscape around the wetland that best fits (see p. 84)	
	Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are	
	If wetland has 1 priority habitat = 1 point No habitats = 0 points	
	If wetland has 2 priority habitats = 3 points	
	end, and > 6 m (20 ft) long. If wetland has 3 or more priority habitats = 4 points	
	western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest	
	to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in	
	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	
	Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt,	
	Cliffs: Greater than 7.6 m (25 ft) high and occurring below 5000 ft.	
	rock, ice, or other geological formations and is large enough to contain a human.	
	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,	
	and Puget Sound Nearshore. (full descriptions of habitats and the definition of relatively undisturbed are in	
	Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore,	
	provide functional life history requirements for instream fish and wildlife resources.	
	a wet prairie (full descriptions in WDFW PHS report p. 161). X Instream: The combination of physical, biological, and chemical processes and conditions that interact to	3
	Westside Prairies: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or	2
	terrestrial ecosystems which mutually influence each other.	
	oak component is important (<i>juli descriptions in WDF w PHS report p. 158</i>). X Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and	
	Oregon white Oak: Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (<i>full descriptions in WDFW PHS report p. 158</i>).	
	generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.	
	cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is	
	dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown	
	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)	
	Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.	
	fish and wildlife (full descriptions in WDFW PHS report p. 152).	
	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	
	NOTE: the connections do not have to be relatively undisturbed.	
	Which of the following priority habitats are within 330 ft. (100m) of the wetland unit?	
	http://wdfw.wa.gov/hab/phslist.htm)	
	descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report	
	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): (see new and complete	

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.	
SC1	Estuarine wetlands? (see p.86)	1
SCI	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.	
	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. 1
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions?	
	YES = Category I NO = Category II	Cat. I
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has	Cat. 1
	less than 10% cover of non-native plant species. If the non-native Spartina spp., are only species	Cat. II
	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 1. Do not, however, exclude the area of Spartina in	
	determining the size threshold of 1 acre. At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	Dual
	or un-mowed grassland	Rating
	The wetland has at least 2 of the following features: tidal channels, depressions with open water,	I/II
	or contiguous freshwater wetlands.	
SC2	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 being rated in a Section/Township/Range that contains a natural heritage wetland? (<i>This</i>	
	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 NOX	
	SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened	
	or endangered plant species?	Cat I
	YES = Category 1 NO not a Heritage Wetland	
SC3	Bogs (see p. 87) Does the wetland (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 function.	
	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 soil profile? (See Appendix B for a field key to	,
	identify organic soils)? YES = go to question 3 NO = go to question 2	
	2. Does the wetland 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 question 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 \overrightarrow{NO} = go to question 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.	
	4. 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)?	Cat. I
	YES = Category I NO = Is not a bog for purpose of rating	

SC4	Forested Wetlands (see p. 90)	
	Does the wetland 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 function.	
	Old-growth forests: (west of Cascade Crest) Stands of at least two three 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 an average diameters (dbh) exceeding 21 inches (53 cm); 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.	Cat. I
	YES = Category I NO = \underline{X} not a forested wetland with special characteristics	
SC5	Wetlands in Coastal Lagoons (see p. 91)	
203	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 \underline{X} not a wetland in a coastal lagoon	
	<u>——</u>	
	SC 5.1 Does the wetland meet all of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has	
	less than 20% cover of invasive plant species (see list of invasive species on p. 74).	
	At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	
		G . T
	or un-mowed grassland. The wetland is larger than 1/10 acre (4350 square ft.)	Cat. I
	YES = Category I NO = Category II	C 4 II
		Cat. II
SC6	Interdunal Wetlands (see p. 93)	
	Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or	
	WBUO)?	
	YES = Go to SC 6.1 NO \underline{X} 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 one acre or larger?	
	YES = Category II $\frac{1}{100}$ NO = go to SC 6.2	Cat. II
	SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?	Cat. II
	YES = Category III	Cot III
	* •	Cat. III
	Category of wetland based on Special Characteristics Chaose the "highest" rating if yetland falls into several agreeous and record on pull.	
	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.T. 4
1	ii you answered NO for all types effer Not Applicable on p. 1	NA

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): 29D			_ Date of	site visit: 09-2	27-13
Rated by: Colin Worsley / Matt Maynard Tra	ined by Ecolo	gy? Yes X No	Date of tra	ining: <u>11-2005 / (</u>	04-2006
SEC: 29 TOWNSHIP: 25N	RANGE:_	06E Is S/T/R in A ₁	ppendix D'	? Yes 1	No <u>X</u> _
Map of wetland unit:	Figure	Estimated size	0.03 acre		
	SUMMAR	RY OF RATING			
Category based on FUNCTIONS provided b			III_	IV	X
Category I = Score > 70		Score for Water Quality Fun	nctions	12	
Category II = Score 51 - 69		Score for Hydrologic Fu	nctions	1	
Category III = Score 30 – 50		Score for Habitat Fun	nctions	12	
Category IV = Score < 30		TOTAL Score for Fu	nctions	25	7
Category based on SPECIAL CHARACTERIS	STICS of Wet	land I II	Г	Does not apply	X
Final Categ	ory (choose	the "highest" category from	above")	IV	7
Summary of basic	information a	bout the wetland unit.			_
Wetland Unit has Specia	ıl	Wetland HGM Class			
Characteristics		used for Rating	***		
Estuarine		Depressional	X		
Natural Heritage Wetland	L	Riverine Lake-fringe			
Bog Mature Forest		Slope	(x)		
Old Growth Forest		Flats	(X)		
Coastal Lagoon		Freshwater Tidal			
Interdunal		Ticshwatci Tidai			
None of the above	X	Check if unit has multiple HGM classes present	X		
Does the wetland being rated meet any of th	e criteria held	ow? If you answer VES to a	ny of the c	mestions below v	on will

Does the wetland 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 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 1 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.

Classification of Vegetated Wetlands for 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 a Saltwater Tidal Fringe it
	is rated as an Estuarine wetland. Wetlands that were call 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 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
2	If your wetland can be classified as a "Flats" wetland, use the form for Depressional wetlands.
3.	Does the entire wetland 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) where at least 20 acres (8ha) in size;
	At least 30% of the open water area is deeper than 6.6 (2 m)?
	NO – go to 4 YES – The wetland class is Lake-fringe (Lacustrine Fringe)
4.	Does the entire wetland 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 types of wetlands except occasionally in very small and
	shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep). NO – go to 5 YES – The wetland class is Slope
5	
5.	Does the entire wetland 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 of
	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 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 good into a rivering flooduling one small stream within a degree contains several base of a slope may good into a rivering flooduling one small stream within a degree contains several different HGM classes. For example, seeps at the base of a slope may be seen as the slope of the different HGM classes.
	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

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	Treat as ESTUARINE under wetlands with special
freshwater wetland	characteristics

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

than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score
D 1	Does the wetland have the <u>potential</u> to improve water quality?	$ \begin{array}{c} \text{per box})\\ (see p.38) \end{array} $
ו ע	D 1.1 Characteristics of surface water flows out of the wetland:	(see p.50)
	• Unit is a depression with no surface water leaving it (no outlet)points = 3	Figure
	• Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet points = 2	
	 Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 1 Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface 	1
	outflow and no obvious natural outlet and/or outlet is a man-made ditchpoints = 1	
	(If ditch is not permanently flowing treat unit as "intermittently flowing") Provide photo or drawing	
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions)	0
	YES points = 4 D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class):	
	• Wetland has persistent, ungrazed vegetation > = 95% of area	Figure
	• Wetland has persistent, ungrazed vegetation > = 1/2 of area points = 3	
	• Wetland has persistent, ungrazed vegetation > = 1/10 of area	5
	• Wetland has persistent, ungrazed vegetation < 1/10 of area	
	D 1.4 Characteristics of seasonal ponding or inundation: This is the area of the wetland that is ponded for at	
	least 2 months, but dries out sometime during the year. Do not count the area that is permanently	Figure
	ponded. Estimate area as the average condition 5 out of 10 years. • Area seasonally ponded is > 1/2 total area of wetland	
	• Area seasonally ponded is > 1/2 total area of wetland	0
	• Area seasonally ponded is < 1/4 total area of wetland	
	Map of Hydroperiods	
	Total for D 1 Add the points in the boxes above	
2	Does the wetland have the opportunity to improve water quality?	(see p. 44)
	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? <i>Note which of the following conditions provide the sources of pollutants. A unit</i>	
	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 or orchards within 150 ft. of wetland	
	A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed	
	fields, roads, or clear-cut logging	Multiplier
	 X Residential, urban areas, golf courses are within 150 ft. of wetland Wetland is fed by groundwater high in phosphorus or nitrogen 	Withitiplier
	Other	X2
	YES multiplier is 2 NO multiplier is 1	
♦	<u>TOTAL</u> – Water Quality Functions Multiply the score from D1 by D2; then <i>add score to table on p. 1</i>	12
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	
3	Does the wetland have the <u>potential</u> to reduce flooding and erosion?	(see p.46)
	D 3.1 Characteristics of surface water flows out of the wetland unit	
	• Unit is a depression with no surface water leaving it (no outlet)	
	 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface 	1
	outflow and no obvious natural outlet and/or outlet is a man-made ditchpoints = 1	
	(If ditch is not permanently flowing treat unit as "intermittently flowing")	
	• Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0	
	D 3.2 Depth of storage during wet periods. Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).	
	• Marks of ponding are 3 ft. or more above the surface or bottom of the outletpoints = 7	
	• The wetland is a "headwater" wetland	0
	• Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet	
	 Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outletpoints = 3 Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1 	
	• Marks of ponding less than 0.5 ft points = 0	
	D 3.3 Contribution of wetland unit 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 unitpoints = 5	
	• The area of the basin is less than 10 times the area of the unit	0
	• The area of the basin is more than 100 times the area of the unit	
	Entire unit is in the ELATS class	1
	• Entire unit is in the FLATS class points = 5 Total for D 3 Add the points in the boxes above	

D 4	Does the wetland have the opportunity to reduce flooding and erosion?	(see p. 49)
	Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. <i>Note which of the following indicators of opportunity apply.</i>	-
	 Wetland is in a headwater of a river or stream that has flooding problems. Wetland drains to a river or stream that has flooding problems Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems Other	Multiplier
	YES multiplier is 2 NO multiplier is 1	
•	TOTAL – Hydrologic Functions Multiply the score from D3 by D4; then <i>add score to table on p. 1</i>	1

Thes	se questions apply to wetlands of all HGM classes.	Points
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	(only 1 scor per box)
H 1	Does the wetland have the <u>potential</u> 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 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres. Aquatic Bed Emergent plants X Scrub/shrub (areas where shrubs have > 30% cover)	Figure
	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 types that qualify. If you have: 4 structures or more points = 4 2 structures points = 1 1 structure points = 0	1
	H 1.2 <u>Hydroperiods</u> (see p.73): Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to	Figure
	cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods). Permanently flooded or inundated Seasonally flooded or inundated Occasionally flooded or inundated Saturated only Permanently flowing stream or river in, or adjacent to, the wetland Seasonally flowing stream in, or adjacent to, the wetland Lake-fringe wetland	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 ft² (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	1
	H 1.4 Interspersion of Habitats (see p. 76): Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.	
	Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high".	s Figure
	Use map of Cowardin classes [riparian braided channels]	1
	High = 3 points 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 point you put into the next column. Large, downed, woody debris within the wetland (> 4 in. 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 (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned grey/brown)	0
	At least 1/4 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) Invasive plants cover less than 25% of the wetland area in each stratum of plants	t
	NOTE: The 20% stated in early printings of the manual on page 78 is an error.	

H 2	Does t	he wetland have the opportunity to provide habitat for many species?	(only 1 score per box)
	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". 100m (330 ft) 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)	Figure
	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 a 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 50 ft. 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 Lakefringe wetland, if it does not have an undisturbed corridor as in the question above? YES = 2 points (go to H 2.3) NO = go to 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 miles of a large field or pasture (> 40 acres) OR Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

♦	Total Score for Habitat Functions Add the points for H 1 and H 2; then record the result on p. 1	12
	TOTAL for H 1 from page 8	4
	H 2 TOTAL Score – opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4	8
	• There are no wetlands within 1/2 mile	
	• There is at least 1 wetland within 1/2 mile	
	• The wetland fringe on a lake with disturbance and there are 3 other lake-fringe wetlands within 1/2 milepoints = 3	
	disturbedpoints = 3	
	• There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are	3
	wetlands within 1/2 milepoints = 5	-
	• The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe	
	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 developmentpoints = 5	
	• There are at least 3 other wetlands within 1/2 mile, and the connections between them are	
	H 2.4 Wetland Landscape: Choose the one description of the landscape around the wetland that best fits (see p. 84)	
	addressed in question H 2.4)	
	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	
	If wetland has 2 priority habitats = 3 points	
	If wetland has 3 or more priority habitats = 4 points	
	end, and > 6 m (20 ft) long.	
	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	
	Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics	
	andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
	Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt,	
	Cliffs: Greater than 7.6 m (25 ft) high and occurring below 5000 ft.	
	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.	
	WDFW report: pp. 167-169 and glossary in Appendix A).	
	and Puget Sound Nearshore. (full descriptions of habitats and the definition of relatively undisturbed are in	
	Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore,	
	provide functional life history requirements for instream fish and wildlife resources.	
	a wet prairie (full descriptions in WDFW PHS report p. 161). X Instream: The combination of physical, biological, and chemical processes and conditions that interact to	3
	Westside Prairies: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or	2
	terrestrial ecosystems which mutually influence each other.	
	X Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and	
	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).	
	generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.	
	cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is	
	dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown	
	multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in)	
	 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 	
	fish and wildlife (full descriptions in WDFW PHS report p. 152).	
	Biodiversity Areas and Corridors: Areas of habitat that are relatively important to various species of native	
	Aspen Stands: Pure or mixed stands of aspen greater than 0.4 ha (1 acre).	
	Which of the following priority habitats are within 330 ft. (100m) of the wetland unit? <i>NOTE: the connections do not have to be relatively undisturbed.</i>	
	http://wdfw.wa.gov/hab/phslist.htm) Which of the following priority helpitete are within 220 ft (100m) of the wetland writ?	
	descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report	
	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): (see new and complete	

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.	
SC1	Estuarine wetlands? (see p.86)	1
SCI	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.	
	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. 1
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions?	
	YES = Category I NO = Category II	Cat. I
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has	Cat. 1
	less than 10% cover of non-native plant species. If the non-native <i>Spartina</i> spp., are only species	Cat. II
	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 1. Do not, however, exclude the area of Spartina in	
	determining the size threshold of 1 acre. At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	Dual
	or un-mowed grassland	Rating
	The wetland has at least 2 of the following features: tidal channels, depressions with open water,	I/II
	or contiguous freshwater wetlands.	
SC2	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 being rated in a Section/Township/Range that contains a natural heritage wetland? (<i>This</i>	
	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 NOX	
	SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened	
	or endangered plant species?	Cat I
	YES = Category 1 NO not a Heritage Wetland	
SC3	<u>Bogs</u> (see p. 87) Does the wetland (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 function.	
	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 soil profile? (See Appendix B for a field key to	,
	identify organic soils)? YES = go to question 3 NO = go to question 2	
	2. Does the wetland 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 question 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 question 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.	
	4. 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)?	Cat. I
	YES = Category I NO = Is not a bog for purpose of rating	Cat. I

SC4	Forested Wetlands (see p. 90)	
	Does the wetland 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 function.	
	Old-growth forests: (west of Cascade Crest) Stands of at least two three 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 an average diameters (dbh) exceeding 21 inches (53 cm); 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.	Cat. I
	YES = Category I NO = X not a forested wetland with special characteristics	Cat. I
G G =	Wetlands in Coastal Lagoons (see p. 91)	
SC5	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.)	
	$YES = Go to SC 5.1 \qquad NO \underline{X} \text{ not a wetland in a coastal lagoon}$	
	SC 5.1 Does the wetland meet all of the following three conditions?	
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has	
	less than 20% cover of invasive plant species (see list of invasive species on p. 74).	
	At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	
	or un-mowed grassland.	Cat. I
	The wetland is larger than 1/10 acre (4350 square ft.)	
	YES = Category I NO = Category II	Cat. II
SC6	<u>Interdunal Wetlands</u> (see p. 93)	
	Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or	
	WBUO)?	
	YES = Go to SC 6.1 NO X 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	
1	Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1. Is the westland one care or larger, or in it in a massic of westlands that is one care or larger?	
	SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger?	~ ·
1	YES = Category II NO = go to SC 6.2	Cat. II
	SC 6.2 Is the wetland 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. III
1.	Category of wetland based on Special Characteristics	
•	Choose the "highest" rating if wetland falls into several categories, and record on p. 1.	
1	If you answered NO for all types enter "Not Applicable" on p. 1	NA

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): 30B			_ Date of	site visit:	09-27-13	
Rated by: Colin Worsley / Matt Maynard	Trained by Ecolo	ogy? Yes <u>X</u> No I	Date of train	ining: <u>11-200</u>	05 / 04-2006	
SEC: 29 TOWNSHIP: 25N	N RANGE:	<u>06E</u> Is S/T/R in Ap	pendix D?	Yes	NoX	
Map of wetland uni	t: Figure	Estimated size	0.03 acre			
	SUMMA	RY OF RATING				
Category based on FUNCTIONS provide			III	<u>X</u>]	IV	
Category I = Score > 70		Score for Water Quality Fur	nctions	22		
Category II = Score 51 - 69		Score for Hydrologic Fur	nctions	10		
Category III = Score 30 – 50		Score for Habitat Fur	nctions	14		
Category IV = Score < 30		TOTAL Score for Fur	nctions	46		
Category based on SPECIAL CHARACTE	Category based on SPECIAL CHARACTERISTICS of Wetland I II Does not apply X					
Final Cat	egory (choose	e the "highest" category from	above")	III		
	•	about the wetland unit.				
Wetland Unit has Spe		Wetland HGM Class				
Characteristics		used for Rating				
Estuarine		Depressional	X			
Natural Heritage Wetla	and	Riverine				
Bog		Lake-fringe				
Mature Forest		Slope	(x)			
Old Growth Forest		Flats				
Coastal Lagoon		Freshwater Tidal				
Interdunal						
None of the above	X	Check if unit has multiple HGM classes present	X			
Does the wetland being rated meet any of	f the criteria be	low? If you answer YES to a	ny of the o	mestions hel	ow you will	

Does the wetland 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 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 1 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.

Classification of Vegetated Wetlands for 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 a Saltwater Tidal Fringe it
	is rated as an Estuarine wetland. Wetlands that were call 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 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 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) where at least 20 acres (8ha) in size; At least 30% of the open water area is deeper than 6.6 (2 m)?
	NO – go to 4 YES – The wetland class is Lake-fringe (Lacustrine Fringe)
4.	Does the entire wetland 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 types of wetlands except occasionally in very small and
	shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).
_	NO – go to 5 YES – The wetland class is Slope
5.	Does the entire wetland 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 of
	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 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 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

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	Treat as ESTUARINE under wetlands with special
freshwater wetland	characteristics

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

than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score
D 1	Does the wetland have the potential to improve water quality?	$ \begin{array}{c} \text{per box})\\ (see p.38) \end{array} $
	D 1.1 Characteristics of surface water flows out of the wetland:	
	 Unit is a depression with no surface water leaving it (no outlet)	Figure
	• Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 1	2
	• Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface	
	outflow and no obvious natural outlet and/or outlet is a man-made ditchpoints = 1 (If ditch is not permanently flowing treat unit as "intermittently flowing") Provide photo or drawing	
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions)	4
	YES points = 4 NO points = 0 D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class):	
	• Wetland has persistent, ungrazed vegetation > = 95% of area points = 5	Figure
	• Wetland has persistent, ungrazed vegetation > = 1/2 of area	5
	 Wetland has persistent, ungrazed vegetation > = 1/10 of area	5
	Map of Cowardin vegetation classes	
	D 1.4 Characteristics of seasonal ponding or inundation: This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently	Figure
	ponded. Estimate area as the average condition 5 out of 10 years.	
	 Area seasonally ponded is > 1/2 total area of wetland	0
	• Area seasonally ponded is < 1/4 total area of wetland	0
	Map of Hydroperiods Total for D 1 Add the points in the boxes above	
D 2	Total for D 1 Add the points in the boxes above Does the wetland have the opportunity to improve water quality?	(see p. 44)
D 2	Answer YES if you know or believe there are pollutants in groundwater or surface water coming into	(see p. 44)
	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 or orchards within 150 ft. of wetland	
	A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed	
	fields, roads, or clear-cut logging X Residential, urban areas, golf courses are within 150 ft. of wetland	Multiplier
	Wetland is fed by groundwater high in phosphorus or nitrogen	1
	Other	X2
	YES multiplier is 2 NO multiplier is 1	22
_	TOTAL – Water Quality Functions Multiply the score from D1 by D2; then <i>add score to table on p. 1</i> HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	22
D 3	Does the wetland have the <u>potential</u> to reduce flooding and erosion?	(see p.46)
	D 3.1 Characteristics of surface water flows out of the wetland unit	
	 Unit is a depression with no surface water leaving it (no outlet)	
	• Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface	2
	outflow and no obvious natural outlet and/or outlet is a man-made ditchpoints = 1	
	 (If ditch is not permanently flowing treat unit as "intermittently flowing") Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0 	
	D 3.2 Depth of storage during wet periods. Estimate the height of ponding above the bottom of the outlet. For	
	units with no outlet measure from the surface of permanent water or deepest part (if dry). • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet points = 7	
	• The wetland is a "headwater" wetland	0
1	• Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet	0
1	• Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet	
	• Wetland is flat (yes to 0.2 or 0.7 on key)but has small depressions on the surface that trap water points = 1	
	• Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1	
	 Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft	
	 Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft	
	 Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft	3
	 Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft	

D 4	Does the wetland have the opportunity to reduce flooding and erosion? Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. Note which of the following indicators of opportunity apply. Wetland is in a headwater of a river or stream that has flooding problems. Wetland drains to a river or stream that has flooding problems Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems	(see p. 49) Multiplier
	Other	<u> </u>
•	TOTAL – Hydrologic Functions Multiply the score from D3 by D4; then <i>add score to table on p. 1</i>	10

Ines	e questions apply to wetlands of all HGM classes.	Points
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	(only 1 score per box)
H 1	Does the wetland have the <u>potential</u> 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 i. 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres. Aquatic Bed Emergent plants Scrub/shrub (areas where shrubs have > 30% cover) X Forested (areas where trees have > 30% cover)	Figure
	If the unit has a forested class check if: X The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. Add the number of vegetation types that qualify. If you have: 4 structures or more points = 4 2 structures points = 1 1 structure points = 0	1
	H 1.2 Hydroperiods (see p.73): Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to	Figure
	cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods). Permanently flooded or inundated Seasonally flooded or inundated Occasionally flooded or inundated Saturated only Permanently flowing stream or river in, or adjacent to, the wetland Seasonally flowing stream in, or adjacent to, the wetland Lake-fringe wetland	2
	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	1
	H 1.4 Interspersion of Habitats (see p. 76): Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.	
	None = 0 points Low = 1 point Note: If you have 4 or more classe or 3 vegetation classes and open water, the rating is always "high".	
	Use map of Cowardin classes [riparian braided channels]	0
	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 point you put into the next column. X Large, downed, woody debris within the wetland (> 4 in. 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	s 1
	(> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have	
	 (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned grey/brown) At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas tha are permanently or seasonally inundated (structures for egg-laying by amphibians) 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. 	

H 2	Does t	he wetland have the opportunity to provide habitat for many species?	(only 1 score per box)
	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". 100m (330 ft) 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)	Figure
	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 a 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 50 ft. 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 Lakefringe wetland, if it does not have an undisturbed corridor as in the question above? YES = 2 points (go to H 2.3) NO = go to 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 miles of a large field or pasture (> 40 acres) OR Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

Total Score for Habitat Functions Add the points for H 1 and H 2; then <i>record the result on p. 1</i>	14
TOTAL for H 1 from page 8	5
	9
H 2 TOTAL Score – opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4	0
• There are no wetlands within 1/2 mile	
• There is at least 1 wetland within 1/2 mile	
• The wetland fringe on a lake with disturbance and there are 3 other lake-fringe wetlands within 1/2 milepoints = 3	
disturbedpoints = 3	
• There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are	3
wetlands within 1/2 milepoints = 5	2
• The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe	
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 developmentpoints = 5	
• There are at least 3 other wetlands within 1/2 mile, and the connections between them are	
H 2.4 Wetland Landscape: Choose the one description of the landscape around the wetland that best fits (see p. 84)	
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)	
If wetland has 1 priority habitat = 1 point No habitats = 0 points Note: All vegeteted wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are	
If wetland has 2 priority habitats = 3 points	
If wetland has 3 or more priority habitats = 4 points	
51 cm (20 in) in western Washington and are $> 2 m$ (6.5 it) in height. Priority logs are $> 30 cm$ (12 in) in diameter at the largest end, and $> 6 m$ (20 ft) long.	
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	
X Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay	
andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt,	
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.	
Caves: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils,	
WDFW report: pp. 167-169 and glossary in Appendix A).	
and Puget Sound Nearshore. (full descriptions of habitats and the definition of relatively undisturbed are in	
provide functional life history requirements for instream fish and wildlife resources. Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore,	
X Instream: The combination of physical, biological, and chemical processes and conditions that interact to	
a wet prairie (full descriptions in WDFW PHS report p. 161).	4
Westside Prairies: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or	
X Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.	
oak component is important (full descriptions in WDFW PHS report p. 158).	
Oregon white Oak: Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the	
generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.	
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%; decay, decadence, numbers of snags, and quantity of large downed material is	
multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in)	
Old-growth/Mature forests: (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a	
Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.	
Biodiversity Areas and Corridors : Areas of habitat that are relatively important to various species of native fish and wildlife (<i>full descriptions in WDFW PHS report p. 152</i>).	
Aspen Stands: Pure or mixed stands of aspen greater than 0.4 ha (1 acre).	
NOTE: the connections do not have to be relatively undisturbed.	
http://wdfw.wa.gov/hab/phslist.htm) Which of the following priority habitats are within 330 ft. (100m) of the wetland unit?	
descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report	
H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): (see new and complete	

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.				
SC1	Estuarine wetlands? (see p.86)				
SCI	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.				
	Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC	Cat. 1			
	332-30-151? YES = Category I NO = go to SC 1.2				
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions?				
	YES = Category I NO = Category II	Cat. I			
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has	Cat. I			
	less than 10% cover of non-native plant species. If the non-native Spartina spp, are only species	Cat. II			
	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	3444 11			
	with native species would be a Category 1. Do not, however, exclude the area of Spartina in				
	determining the size threshold of 1 acre. At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed	Dual			
	or un-mowed grassland	Rating			
	The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	I/II			
SC2	Natural Heritage Wetlands (see p. 87)				
SCZ	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 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 NOX				
	SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened				
	or endangered plant species?	Cat I			
	YES = Category 1 NO not a Heritage Wetland	Cat I			
SC3	Bogs (see p. 87)				
SCS	Does the wetland (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 function.				
	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 soil profile? (See Appendix B for a field key to				
	identify organic soils)? YES = go to question 3 NO = go to question 2 2. Does the wetland 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 question 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 question 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. 4. 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)?	Cat. I			
	YES = Category I NO = Is not a bog for purpose of rating				

SC4	Forested Wetlands (see p. 90)				
	Does the wetland 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 function.				
	Old-growth forests: (west of Cascade Crest) Stands of at least two three 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 an average diameters (dbh) exceeding 21 inches (53 cm); 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.	Cat. I			
	YES = Category I NO = \underline{X} not a forested wetland with special characteristics				
SC5	Wetlands in Coastal Lagoons (see p. 91)				
500	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 \underline{X} not a wetland in a coastal lagoon				
	SC 5.1 Does the wetland meet all of the following three conditions?				
	The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has				
	less than 20% cover of invasive plant species (see list of invasive species on p. 74).				
	At least 3/4 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 ft.)				
	$YES = Category I \qquad \qquad NO = Category II$	Cat. II			
SC6	Interdunal Wetlands (see p. 93)				
DCU	Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or				
	WBUO)?				
	YES = Go to SC 6.1 NO X 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 one acre or larger?				
	YES = Category II NO = go to SC 6.2	C-4 TT			
	SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?	Cat. II			
	YES = Category III	C-4 III			
\vdash	<u> </u>	Cat. III			
	Category of wetland based on Special Characteristics Chaose the "highest" rating if yetland falls into several agreeous and record on p. 1				
▼	Choose the "highest" rating if wetland falls into several categories, and record on p. 1.	N.T.			
	If you answered NO for all types enter "Not Applicable" on p. 1	NA			

APPENDIX C

Wetland Functions and Values Forms

Wetland I.D. 15A F

Project: ELST South Sammamish Segment B

Assessed by: Matt Maynard

Cowardin Class: <u>PFO/PEM</u> Ecology Category: <u>III</u> Local Rating: <u>III</u> Wetland size: <u>~0.50 acre</u> Date: <u>10/30/07 (rev: 03/11/14)</u>

Comments					()	()								
- (s	Rating=Low	Rating=Low Qualifiers: (1)	Rating=Low Qualifiers: (1)	Rating=Low	Rating=Low Qualifiers: (1, 6)	Rating=Low Qualifiers: (3, 5)	Rating=Low	Rating=Low	Rating=Low	Rating=Low	Rating=Low			
Principal Function(s)														
Rationale	Wetland likely provides minimal support for this function since it is primarily lake-fringe and slope HGM classes and is unable to retain water.	Wetland likely provides minimal support for this function since it is primarily lake-fringe and slope HGM classes.	Wetland likely provides minimal support for this function since it is primarily a slope HGM class.	Wetland is associated with one unnamed stream (#5) and the shoreline of Lake Sammamish. However, vegetation composition and condition limits this function.	The wetland has at least 30% cover of herbaceous vegetation, but is lake-fringe and slope HGM classes. Some organic matter may be exported via the associated unnamed stream (#5) and the shoreline of Lake Sammamish.	PFO and PEM Cowardin classes are present. However, the PEM class is maintained lawn. Wetland is surrounded by residential development.	Wetland is lake-fringe and has a perennial stream flowing through it.	Wetland has lake-fringe HGM class and a perennial stream flowing through it.	Wetland has lake-fringe HGM class and a perennial stream flowing through it.	Wetland has lake-fringe HGM class (Lake Sammamish).	Wetland has lake-fringe HGM class and a perennial stream flowing through it.	Multiple Cowardin classes are present. However, co-dominant plants are non-native (<i>Phalaris arundinacea</i>). Large trees are present on the site.	There is no nearby parking & the site has no documented scientific or educational use.	No documented protected species or habitat; not determined significant by local jurisdiction.
Occurrence Y N												×	X	×
Οςςι	×	X	X	×	×	X	X	×	X	X	X			
Function/Value	Flood Flow Alteration	Sediment Removal	Nutrient & Toxicant Removal	Erosion Control & Shoreline Stabilization	Production of Organic Matter and its Export	General Habitat Suitability	Habitat for Aquatic Invertebrates	Habitat for Amphibians	Habitat for Wetland-Associated Mammals	Habitat for Wetland-Associated Birds	General Fish Habitat	Native Plant Richness	Educational or Scientific Value	Uniqueness and Heritage

Wetland I.D. 15BC P

Project: ELST South Sammamish Segment B

Assessed by: <u>Erik Christensen</u>

Cowardin Class: <u>PFO/PEM</u> Ecology Category: <u>IV</u> Local Rating: <u>IV</u> Wetland size: <u>0.15 acre</u> Date: <u>10/31/07 (rev: 03/11/14)</u>

	s) Comments	Rating=Low Qualifiers: (4)	Rating=Low Qualifiers: (1, 2, 3)	Rating=Low Qualifiers: (1, 2, 4)	Rating=Low Qualifiers: (1, 2, 3)	Rating=Low Qualifiers: (1, 5, 6)		Rating=Low Qualifiers: (3, 5)			Rating=Low Qualifiers: (1, 4, 6)		Rating=Low	Qualifiers: (1, 2, 6)			Rating=Low			
- - -	Rationale Function(s)	Wetland contains 2 unnamed streams (#4 and #5) and has a restricted outlet through a culvert.	Wetland has slow moving water (in streams) and dense herbaceous vegetation.	Wetland has slow moving water (in streams) and is vegetated with dense herbaceous vegetation.	Wetland is associated with 2 unnamed streams (#4 and #5) and is vegetated with woody and herbaceous species.	Wetland contains herbaceous and deciduous woody vegetation and export occurs through	Unitallieu Sueallis 4 and 3.	PFO and PEM Cowardin classes are present. However, the PEM class is maintained lawn.	Wetland is surrounded by residential development. Wetland is as swale with 2 unnamed streams (#4	and #5) in a maintained yard.	Wetland is associated with 2 unnamed streams (#4 and #5), is densely vegetated with emergent	vegetation, and has woody debris.	Wetland is associated with 2 unnamed streams (#4	and #5), is densely vegetated with emergent vegetation, and has woody debris.	Wetland is sloped with 2 unnamed streams (#4 and #5) at the toe of slope. No open water present.	Wetland is sloped with 2 unnamed streams (#4 and #5) at the toe of slope. No open water present.	Associated with a potential fish-bearing water.	Wetland is in a maintained yard and dominant vegetation is <i>Phalaris arundinacea</i> .	There is no nearby parking & the site has no documented scientific or educational use.	No documented protected species or habitat; not determined significant by local jurisdiction.
Occurrence	Z														×	×		×	×	×
000	\prec	X	×	×	×	×		×			×		×				×			
ŗ	Function/Value	Flood Flow Alteration	Sediment Removal	Nutrient & Toxicant Removal	Erosion Control & Shoreline Stabilization	Production of Organic Matter and its Export		General Habitat Suitability			Habitat for Aquatic Invertebrates		Habitat for Amphibians		Habitat for Wetland-Associated Mammals	Habitat for Wetland-Associated Birds	General Fish Habitat	Native Plant Richness	Educational or Scientific Value	Uniqueness and Heritage

Project: ELST South Sammamish Segment B Wetland I.D. 15D

Assessed by: Colin Worsley

Ecology Category: IV Local Rating: IV Wetland size: 0.05 acre Date: 05/05/09 (rev: 09/12/13)

Cowardin Class: PEM

	on(s) Comments	Rating=Low Qualifiers: (2)	Rating=Moderate Qualifiers: (1, 2, 3, 4, 5) Vegetation is maintained.	Rating=Moderate Qualifiers: (1, 2, 4) Vegetation is maintained.		Rating=Low Qualifiers: (1, 4, 5, 6) Vegetation is maintained.		Rating=Moderate Qualifiers: (1, 4, 6)	Rating=Low Qualifiers: (1, 2, 6) Vegetation is maintained.				Rating=Low		
Principal	Function(s)	he nal ng		,			le le	С		le le		ter.			
- - -	Kationale	Wetland is in a maintained ditch, has outlets at the north and south ends, and is able to retain minimal volumes of water above normal conditions during storm events.	Wetland is permanently inundated with seasonal fluctuations, and has herbaceous vegetation.	Wetland is permanently inundated with seasonal fluctuations, and has herbaceous vegetation.	Wetland is not associated with a watercourse or shoreline.	Wetland has herbaceous vegetation, is permanently inundated, and has outlets from which organic matter is flushed.	Wetland is a maintained vegetated ditch along the trail surrounded by development.	Wetland is vegetated with herbaceous vegetation and is permanently inundated.	Wetland is vegetated with herbaceous vegetation and is permanently inundated.	Wetland is a maintained vegetated ditch along the trail surrounded by development.	No open water component in the wetland.	Wetland is not associated with a fish bearing water.		There is no nearby parking & the site has no documented scientific or educational use.	No documented protected species or habitat; not determined significant by local jurisdiction.
Occurrence	Z				X		X			X	X	X		X	X
0000	Y	×	×	×		X		×	×				×		
ŗ	Function/Value	Flood Flow Alteration	Sediment Removal	Nutrient & Toxicant Removal	Erosion Control & Shoreline Stabilization	Production of Organic Matter and its Export	General Habitat Suitability	Habitat for Aquatic Invertebrates	Habitat for Amphibians	Habitat for Wetland-Associated Mammals	Habitat for Wetland-Associated Birds	General Fish Habitat	Native Plant Richness	Educational or Scientific Value	Uniqueness and Heritage

Project: ELST South Sammamish Segment B Wetland I.D. 15E

egment B Assessed by: Colin Worsley

Wetland size: 0.05 acre Date: 05/05/09 (rev: 09/12/13) Ecology Category: IV Local Rating: IV Cowardin Class: PEM

	Function(s) Comments	at the Rating=Low nimal Qualifiers: (2)	Pating=Moderate Qualifiers: (1, 2, 3, 4, 5) Vegetation is maintained.			Rating=Low Qualifiers: (1, 4, 5, 6) Vegetation is maintained.		tion Rating=Moderate Qualifiers: (1, 4, 6)	tion Rating=Low Qualifiers: (1, 2, 6) Vegetation is maintained.			water.	Rating=Low		not
	Rationale	Wetland is in a maintained ditch, has outlets at the north and south ends, and is able to retain minimal volumes of water above normal conditions during storm events.	Wetland is permanently inundated with seasonal fluctuations, and has herbaceous vegetation.	Wetland is permanently inundated with seasonal fluctuations, and has herbaceous vegetation.	Wetland is not associated with a watercourse or shoreline.	Wetland has herbaceous vegetation, is permanently inundated, and has outlets from which organic matter is flushed.	Wetland is a maintained vegetated ditch along the trail surrounded by development.	Wetland is vegetated with herbaceous vegetation and is permanently inundated.	Wetland is vegetated with herbaceous vegetation and is permanently inundated.	Wetland is a maintained vegetated ditch along the trail surrounded by development.	No open water component in the wetland.	Wetland is not associated with a fish bearing water.		There is no nearby parking & the site has no documented scientific or educational use.	No documented protected species or habitat; not
Occurrence	Z				X		×			×	X	×		×	×
Occ	\times	×	×	×		×		×	×				×		
	Function/Value	Flood Flow Alteration	Sediment Removal	Nutrient & Toxicant Removal	Erosion Control & Shoreline Stabilization	Production of Organic Matter and its Export	General Habitat Suitability	Habitat for Aquatic Invertebrates	Habitat for Amphibians	Habitat for Wetland-Associated Mammals	Habitat for Wetland-Associated Birds	General Fish Habitat	Native Plant Richness	Educational or Scientific Value	Uniqueness and Heritage

Assessed by: Matt Maynard Project: ELST South Sammamish Segment B Wetland I.D. 18C

Wetland size: <u>0.02 acre</u> Date: <u>10/31/07 (rev: 03/11/14)</u> Ecology Category: III Local Rating: III Cowardin Class: PSS

	Comments Comments	Rating=Low Qualifiers: (3, 5)	Rating=Low Qualifiers: (1, 5)	Rating=Low Qualifiers: (1, 2, 4)			Rating=Low Qualifiers: (2)	Rating=Low Qualifiers: (1, 5)	Rating=Low Qualifiers: (1, 3, 4)				Rating=Low		
Principal	Function(s)														
	Rationale Fund	Wetland is a small, closed depressional system and has capacity for some water detention. Woody vegetation is present. Wetland is not associated with a watercourse.	Wetland may receive some sediment from trail. Seasonal ponding occurs.	This wetland may receive nutrients/ toxicants from roadway stormwater runoff and adjacent residential yards. The wetland is a closed depressional system with seasonal inundation.	Wetland is not associated with a water course or shoreline.	Dense vegetation is present in wetland, but the wetland is a closed depressional system with no outlet.	Surrounding area is fragmented by residential development, East Lake Sammamish Parkway, and driveways. However, the wetland buffer is forested.	Seasonal inundation occurs. Woody debris is present.	Seasonal inundation occurs. Wetland may provide refuge habitat for amphibians.	Wetland does not have permanent ponding.	Wetland does not have permanent ponding	Wetland is not associated with a fish bearing water.		There is no nearby parking & the site has no documented scientific or educational use.	No documented protected species or habitat; not determined significant by local jurisdiction.
Occurrence	Z				×	×				×	X	×		X	×
Occı	Y	X	×	X			X	×	×				×		
	Function/Value	Flood Flow Alteration	Sediment Removal	Nutrient & Toxicant Removal	Erosion Control & Shoreline Stabilization	Production of Organic Matter and its Export	General Habitat Suitability	Habitat for Aquatic Invertebrates	Habitat for Amphibians	Habitat for Wetland-Associated Mammals	Habitat for Wetland-Associated Birds	General Fish Habitat	Native Plant Richness	Educational or Scientific Value	Uniqueness and Heritage

Project: _ELST South Sammamish Segment B Wetland I.D. 19A

Assessed by: Matt Maynard

Date: 11/01/07 (rev: 09/12/13) Wetland size: 0.02 acre Local Rating: IV Ecology Category: IV Cowardin Class: PEM

Comments Qualifiers: (1, 2, 3, 5) Qualifiers: (1, 5, 6) Qualifiers: (1, 4, 6) Qualifiers: (1, 2, 4) Qualifiers: (1, 2, 6) Rating=Low Rating=Low Rating=Low Rating=Low Rating=Low Function(s) Principal Seasonal ponding occurs in the ditch. May receive This wetland is a ditch with herbaceous vegetation This wetland is a ditch with herbaceous vegetation. Wetland is not associated with a fish bearing water. Herbaceous vegetation occurs in areas of seasonal No documented protected species or habitat; not Wetland may receive some sediment from trail. development, East Lake Sammamish Parkway, Surrounding area is fragmented by residential excess nutrients from surrounding residential Dense vegetation is present in wetland and a There is no nearby parking & the site has no determined significant by local jurisdiction. amphibians. Wetland likely is not used for Wetland does not have permanent ponding. Wetland does not have permanent ponding Wetland is dominated by invasive species documented scientific or educational use. Wetland may provide refuge habitat for Not associated with a water course. and does not provide this function. Rationale Seasonal ponding occurs. (Phalaris arundinacea). amphibian breeding. culvert is present. and driveways. development. inundation. Occurrence × × × × × × × × × × × × × Habitat for Wetland-Associated Habitat for Wetland-Associated Educational or Scientific Value Nutrient & Toxicant Removal Production of Organic Matter Erosion Control & Shoreline General Habitat Suitability Function/Value Uniqueness and Heritage Habitat for Amphibians Flood Flow Alteration Native Plant Richness General Fish Habitat Habitat for Aquatic Sediment Removal and its Export Invertebrates Stabilization Mammals

Wetland I.D. 19B Project: ELST South Sammamish Segment B

Assessed by: Matt Maynard

Ecology Category: III Local Rating: III Wetland size: 0.36 acre Date: 10/31/07 (rev: 03/11/14) Cowardin Class: **PSS/PEM**

Comments Qualifiers: (1, 6) Qualifiers: (3, 5) Qualifiers: (1) Rating=Low Function(s) Principal function since it is has lake-fringe and slope HGM The wetland has at least 30% cover of herbaceous Wetland does not provide this function due to the Wetland likely provides minimal support for this organic matter may be exported via the shoreline Wetland likely provides minimal support for this Wetland is primarily maintained lawn. However, slope), lack of surface water, mowed vegetation, Wetland is associated with the shoreline of Lake function since it has lake-fringe and slope HGM No documented protected species or habitat; not Sammamish. However, vegetation composition vegetation, but it is mowed and the wetland has Wetland is lake-fringe but is covered primarily wetland's landscape position (lake-fringe and western boundary of the wetland is lake edge. There is no nearby parking & the site has no lake-fringe and slope HGM classes. Some determined significant by local jurisdiction. documented scientific or educational use. Wetland is primarily maintained lawn. and condition limits this function. Rationale and lack of sediment sources. with maintained lawn. of Lake Sammamish. Occurrence × × × × × × × × × × × × × Habitat for Wetland-Associated Habitat for Wetland-Associated Educational or Scientific Value Nutrient & Toxicant Removal Production of Organic Matter Erosion Control & Shoreline General Habitat Suitability Uniqueness and Heritage Function/Value Habitat for Amphibians Flood Flow Alteration Native Plant Richness General Fish Habitat Habitat for Aquatic Sediment Removal and its Export Invertebrates Stabilization Mammals

Project: ELST South Sammamish Segment B Wetland I.D. 20A

Assessed by: Matt Maynard

Ecology Category: III Local Rating: III Wetland size: 0.05 acre Date: 11/01/07 (rev: 09/12/13) Cowardin Class: PEM

Principal Function(s) Comments	Rating=Low	Rating=Low Qualifiers: (1, 3, 5)	Rating=Low Qualifiers: (1, 2, 4)		Rating=Low Qualifiers: (1, 6)		Rating=Low Qualifiers: (1, 4, 6)	Rating=Low Qualifiers: (1, 2, 6)						
Rationale	Wetland is able to retain small amounts of water during storm events.	The wetland is a vegetated depressional ditch with residential development uphill.	The wetland is a seasonally inundated vegetated depressional ditch with residential development uphill.	Wetland likely does not provide this function since it is not associated with a water course.	The wetland has at least 30% cover of herbaceous vegetation and has an outlet for export.	Wetland is a vegetated ditch and is fragmented from other habitat from residential development.	Wetland has emergent vegetation and seasonally ponded water in the ditch.	Wetland has emergent vegetation and seasonally ponded water in the ditch.	Permanent water occurs in this wetland, but not sufficient for wetland-associated mammals.	Permanent water occurs in this wetland, but not sufficient for wetland-associated birds (not open water).	Wetland is not associated with a fish bearing water.	Wetland is dominated by Phalaris arundinacea.	There is no nearby parking & the site has no documented scientific or educational use.	No documented protected species or habitat; not determined significant by local jurisdiction.
Occurrence Y N				×		×			×	X	×	×	×	×
)) V	×	×	×		X		×	X						
Function/Value	Flood Flow Alteration	Sediment Removal	Nutrient & Toxicant Removal	Erosion Control & Shoreline Stabilization	Production of Organic Matter and its Export	General Habitat Suitability	Habitat for Aquatic Invertebrates	Habitat for Amphibians	Habitat for Wetland-Associated Mammals	Habitat for Wetland-Associated Birds	General Fish Habitat	Native Plant Richness	Educational or Scientific Value	Uniqueness and Heritage

Assessed by: Matt Maynard Project: __ELST South Sammamish Segment B Wetland I.D. 21AC

Date: 10/31/07 (rev: 03/19/14) Comments Rating=Low Qualifiers: (1) Qualifiers: (1) Qualifiers: (3) Rating=Low Rating=Low Rating=Low Rating=Low Rating=Low Rating=Low Rating=Low Rating=Low Rating=Low Ecology Category: III Local Rating: III Wetland size: 0.40 acre Function(s) Principal Wetland provides minimal support for this function Western boundary of the wetland is lake edge. The function since it is has lake-fringe and slope HGM The wetland has at least 30% cover of herbaceous since it is has lake-fringe and slope HGM classes. Wetland does not provide this function due to the Wetland is lake-fringe. Dominated by maintained Wetland is lake-fringe. Dominated by maintained Wetland is lake-fringe. Dominated by maintained Wetland likely provides minimal support for this slope), lack of surface water, mowed vegetation, vegetation and slopes toward Lake Sammamish. Wetland is lake-fringe and has a stream flowing Wetland is lake-fringe and has a stream flowing This wetland is associated with the shoreline of Lake Sammamish. However, it is a maintained wetland's landscape position (lake-fringe and There is no nearby parking & the site has no through it. Dominated by maintained lawn. through it. Dominated by maintained lawn. Wetland is dominated by maintained lawn. vegetation is maintained lawn. Wetland is documented scientific or educational use. surrounded by residential development Rationale and lack of sediment sources. classes. lawn. lawn. lawn. lawn. Occurrence × × × × × × × × × × × × Habitat for Wetland-Associated Habitat for Wetland-Associated Educational or Scientific Value Nutrient & Toxicant Removal Production of Organic Matter Erosion Control & Shoreline General Habitat Suitability Function/Value Habitat for Amphibians Cowardin Class: PEM Flood Flow Alteration Native Plant Richness General Fish Habitat Habitat for Aquatic Sediment Removal and its Export Invertebrates Stabilization Mammals Birds

No documented protected species or habitat; not determined significant by local jurisdiction.

×

Uniqueness and Heritage

Wetland I.D. 21B Project: ELST South S

Project: ELST South Sammamish Segment B

Assessed by: Matt Maynard

Cowardin Class: <u>PFO/PSS</u> Eco

Ecology Category: III Local Rating: III Wetland size: 0.08 acre_ Date: 11/01/07 (rev: 09/12/13)

	Comments	Rating=Low Qualifiers: (4, 5)	Rating=Moderate Qualifiers: (1, 2, 6)	Rating=Low Qualifiers: (1, 2)		Rating=Low Qualifiers: (2)	Rating=Low Qualifiers: (5)	Rating=Low Qualifiers: (1, 6)	Rating=Low Qualifiers: (1, 6)				Rating=Low Qualifier: (1, 2, 3)		
Principal	Function(s)	7.0	10				7.0		10				7 0		
	Rationale Funct	Wetland is vegetated with woody vegetation and the outlet is constricted by a culvert to the north.	Slow moving water and fine sediment were observed in the ditch.	Permanent inundation occurs in the ditch.	Wetland is not associated with a water course or shoreline.	Woody plants in the wetland are deciduous and outlet is present, allowing export.	PFO and PSS Cowardin classes are found in the wetland.	Permanent inundation occurs in the ditch.	Permanent inundation occurs in the ditch.	Permanent ponding insufficient for wetlandassociated mammals.	No open water component in the wetland.	Wetland is not associated with a fish bearing water.	Wetland is dominated by native species and has two Cowardin classes (PFO and PSS).	There is no nearby parking & the site has no documented scientific or educational use.	No documented protected species or habitat; not determined significant by local jurisdiction.
Occurrence	Z				×					×	X	X		X	X
Occu	Υ	×	×	×		×	×	X	X				×		
	Function/Value	Flood Flow Alteration	Sediment Removal	Nutrient & Toxicant Removal	Erosion Control & Shoreline Stabilization	Production of Organic Matter and its Export	General Habitat Suitability	Habitat for Aquatic Invertebrates	Habitat for Amphibians	Habitat for Wetland-Associated Mammals	Habitat for Wetland-Associated Birds	General Fish Habitat	Native Plant Richness	Educational or Scientific Value	Uniqueness and Heritage

Assessed by: Matt Maynard Project: ELST South Sammamish Segment B Wetland I.D. 21D Ecology Category: IV Local Rating: IV Wetland size: 0.15 acre_ Date: 11/01/07 (rev: 09/20/13)

Cowardin Class: PEM

al	1(s) Comments		Rating=Low Qualifiers: (1, 3, 5)	Rating=Low Qualifiers: (1, 2, 4)		Rating=Low Qualifiers: (1, 5, 6)	Rating=Low	Rating=Low Qualifiers: (1, 4, 6)	Rating=Low Qualifiers: (1, 6)						
Principal	Function(s)	ined			or or	to	ined		ing			water.			not
v	Rationale	This wetland is a vegetated swale in a maintained yard and not likely to provide this function.	Slow moving water and dense herbaceous vegetation is present in the swale.	Wetland has at least 30% cover of live dense herbaceous vegetation.	Wetland is not associated with a water course or shoreline.	Wetland has at least 30% cover of live dense herbaceous vegetation and drains to a culvert to the south (export).	This wetland is a vegetated swale in a maintained yard fragmented from other habitats.	Permanent inundation occurs and emergent vegetation is present in the swale.	Wetland may provide refuge and feeding areas for amphibians, however breeding is not likely to occur due to the lack of thin stemmed or floating vegetation and sufficient water depth.	Permanent ponding insufficient for wetlandassociated mammals.	No open water component in the wetland.	Wetland is not associated with a fish bearing water.	Wetland is dominated by maintained lawn.	There is no nearby parking & the site has no documented scientific or educational use.	No documented protected species or habitat; not determined significant by local jurisdiction.
Occurrence	Z	×			×					×	X	×	×	×	×
000	Y		×	×		×	×	×	X						
	Function/Value	Flood Flow Alteration	Sediment Removal	Nutrient & Toxicant Removal	Erosion Control & Shoreline Stabilization	Production of Organic Matter and its Export	General Habitat Suitability	Habitat for Aquatic Invertebrates	Habitat for Amphibians	Habitat for Wetland-Associated Mammals	Habitat for Wetland-Associated Birds	General Fish Habitat	Native Plant Richness	Educational or Scientific Value	Uniqueness and Heritage

Wetland I.D. <u>22AB</u>

Project: _

ELST South Sammamish Segment B

Assessed by: Matt Maynard

Cowardin Class: <u>PFO/PSS/PEM</u> Ecology Category: <u>III</u> Local Rating: <u>III</u> Wetland size: <u>0.46 acre</u> Date: <u>04/04/08 (rev: 09/20/13)</u>

pal	on(s) Comments	Rating=Moderate Qualifiers: (4, 5)	Rating=Moderate Qualifiers: (1, 2, 3)	Rating=Moderate Qualifiers: (1, 2, 4, 5)	Rating=Low Qualifiers: (1, 2, 3)	Rating=Moderate Qualifiers: (1, 2, 5, 6)	Rating=Moderate Qualifiers: (3, 5)	Rating=Low Qualifiers: (1, 4, 5, 6)	Rating=Low Qualifiers: (1, 2, 4, 6)						
Principal	Function(s)	nd vith		nd ⁄ith	Jc	% Z	is					ıter.			
	Rationale	Wetland is densely vegetated with herbaceous and deciduous woody vegetation and is associated with an unnamed tributary. Is able to retain greater amounts of water during storm events.	Wetland is densely vegetated with herbaceous and deciduous woody vegetation and is associated with an unnamed tributary.	Wetland is densely vegetated with herbaceous and deciduous woody vegetation and is associated with an unnamed tributary.	Wetland is densely vegetated with herbaceous and deciduous woody vegetation and is associated with an unnamed tributary. Portion of wetland adjacent to stream is small.	Wetland is densely vegetated with herbaceous & deciduous woody vegetation. Unnamed tributary & other culverts/outlets provide export.	Wetland has more than one Cowardin class and is associated with an unnamed tributary.	Wetland is densely vegetated and has seasonal inundation.	Wetland is densely vegetated and has seasonal inundation.	Permanent ponding does not occur.	Permanent ponding does not occur.	Wetland is not associated with a fish bearing water.	Although wetland has more that one Cowardin class, codominant vegetation is non-native (Phalaris arundinacea).	There is no nearby parking & the site has no documented scientific or educational use.	No documented protected species or habitat; not determined significant by local jurisdiction.
Occurrence	Z									×	×	X	×	×	×
Occu	Y	×	X	X	×	×	×	×	×						
	Function/Value	Flood Flow Alteration	Sediment Removal	Nutrient & Toxicant Removal	Erosion Control & Shoreline Stabilization	Production of Organic Matter and its Export	General Habitat Suitability	Habitat for Aquatic Invertebrates	Habitat for Amphibians	Habitat for Wetland-Associated Mammals	Habitat for Wetland-Associated Birds	General Fish Habitat	Native Plant Richness	Educational or Scientific Value	Uniqueness and Heritage

Wetland I.D. 22CD Project:

ELST South Sammamish Segment B

Assessed by: Erik Christensen

Cowardin Class: PSS/PEM Ecology Category: IV Local Rating: IV Wetland size: 0.16 acre_ Date: 11/07/07 (rev: 10/25/13)

Function/Value Y N Flood Flow Alteration X Sediment Removal X Brosion Control & Shoreline Stabilization Production of Organic Matter X and its Export General Habitat Suitability X Habitat for Aquatic Invertebrates Habitat for Amphibians X Habitat for Wetland-Associated X Mammals Habitat for Wetland-Associated Birds Birds General Fish Habitat X Rabitat for Wetland-Associated X Birds General Fish Habitat	z z z z z z z z z z z z z z z z z z z	Rationale Function(s) This wetland has depressional and slope HGM classes and has capacity for some water detention. Wetland has at least 30% cover of live dense herbaceous vegetation, However, the vegetation is mowed, which may limit support for this function. Wetland has at least 30% cover of live dense herbaceous vegetation. Garden and East Lake Sammamish Parkway are upslope. Vegetation is mowed, which may limit support for this function. Wetland is not associated with a water course or shoreline. Wetland is at least 30% cover of live dense herbaceous vegetation. Culvert provides outlet for organic matter export. Wetland has at least 30% cover of live dense herbaceous vegetation. Culvert provide minimal habitat. This wetland has depressional and slope HGM classes with only occasional inundation in a vegetated swale in a maintained yard. This wetland has depressional and slope HGM classes with only occasional inundation in a vegetated swale in a maintained yard. Permanent ponding does not occur. Wetland is not associated with a fish bearing water.	Rating=Low Rating=Low Qualifiers: (1, 3) Rating=Low Qualifiers: (1, 6) Rating=Low Rating=Low Rating=Low Rating=Low Rating=Low Rating=Low
Native Plant Richness	×	Wetland is dominated by maintained lawn, Phalaris arundinacea, and Rubus armeniacus.	
Value	×	There is no nearby parking & the site has no documented scientific or educational use.	
Uniqueness and Heritage	×	No documented protected species or habitat; not determined significant by local jurisdiction.	

ELST South Sammamish Segment B Assessed by: Matt Maynard/Colin Worsley	Ecology Category: IV Local Rating: IV Wetland size: <0.01 acre_ Date: 10/25/13	ence Principal Principal Comments	Wetland is a small, closed depressional system with no surface water, has capacity for very Qualifiers: (3)	Wetland may receive some sediment from trail. No ponding in wetland. Rating=Low Qualifiers: (1, 3)	This wetland may receive nutrients/ toxicants from adjacent roadways and residences. The wetland is a closed depressional system.	Wetland is not associated with a water course or shoreline.	X Dense vegetation is present in wetland, but the wetland is a closed depressional system with no outlet.	 Wetland is a small depression adjacent to trail and residences with one Cowardin class (PEM). 	X No inundation.	X No inundation.	X No inundation.	X No open water component in the wetland.	X Wetland is not associated with a fish bearing water.	X Wetland has one Cowardin class and vegetation is co-dominated by invasive species.	X There is no nearby parking & the site has no documented scientific or educational use.	X No documented protected species or habitat; not
Project:	logy C	Occurrence Y N	×	×	×											
Wetland I.D. <u>22E</u> Proj	Cowardin Class: <u>PEM</u> Eco	C Function/Value	Flood Flow Alteration	Sediment Removal	Nutrient & Toxicant Removal	Erosion Control & Shoreline Stabilization	Production of Organic Matter and its Export	General Habitat Suitability	Habitat for Aquatic Invertebrates	Habitat for Amphibians	Habitat for Wetland-Associated Mammals	Habitat for Wetland-Associated Birds	General Fish Habitat	Native Plant Richness	Educational or Scientific Value	Uniqueness and Heritage

Wetland I.D. 23A Project: ELST South Sammamish Segment B

Assessed by: Erik Christensen

Ecology Category: IV Local Rating: IV Wetland size: 0.03 acre Date: 11/07/07 (rev: 1/25/13) Cowardin Class: PEM

Comments	Rating=Low	Rating=Low Qualifiers: (1, 2, 3)	Rating=Low Qualifiers: (1, 2, 4)		Rating=Low Qualifiers: (1, 6)	Rating=Low Qualifiers: (1, 3)	Rating=Low Qualifiers: (1, 4, 6)	Rating=Low Qualifiers: (1, 2, 6)						
cipal ion(s)	R	R	N 0		R Q	<u>В</u>	R	M O						
e Principal Rationale Function(s)	Wetland likely provides minimal support for this function since it is a slope/depressional wetland with a ditch located at the toe. The wetland is dominated by herbaceous vegetation.	A vegetated ditch with slow moving, seasonal water is located in the wetland.	A vegetated ditch with seasonal inundation is located in the wetland. Wetland receives runoff from East Lake Sammamish Parkway.	Wetland is not associated with a shoreline.	The wetland has at least 30% cover of herbaceous vegetation and has outlets for exporting organic matter.	The wetland is fragmented by East Lake Sammamish Parkway, residential development, and the trail. Limited connectivity to upland and Wetland 23C to the north.	Permanent inundation and emergent vegetation occur in the ditch.	Permanent inundation and emergent vegetation occur in the ditch.	Permanent inundation is limited to ditch.	Permanent inundation is limited to ditch.	Wetland is not associated with a fish bearing water.	Codominant vegetation is non-native (Phalaris arundinacea).	There is no nearby parking & the site has no documented scientific or educational use.	No documented protected species or habitat; not determined significant by local jurisdiction
Occurrence Y N				X					X	×	×	X	X	×
Occ	×	X	×		×	X	X	×						
Function/Value	Flood Flow Alteration	Sediment Removal	Nutrient & Toxicant Removal	Erosion Control & Shoreline Stabilization	Production of Organic Matter and its Export	General Habitat Suitability	Habitat for Aquatic Invertebrates	Habitat for Amphibians	Habitat for Wetland-Associated Mammals	Habitat for Wetland-Associated Birds	General Fish Habitat	Native Plant Richness	Educational or Scientific Value	Uniqueness and Heritage

ELST South Sammamish Segment B Project: Wetland I.D. 23B

Assessed by: M. Maynard

Ecology Category: III Local Rating: III Wetland size: 0.05 acre Date: 10/31/07 (rev: 9/20/13) Cowardin Class: PSS/PEM

	Comments	Rating=Low		Rating=Low	Rating=Low	Rating=Low Qualifiers: (1, 6)	Rating=Low Qualifiers: (3, 5)	Rating=Low	Rating=Low	Rating=Low	Rating=Low	Rating=Low			
pal	n(s)	Rati		Rati	Rati	Rati	Rati	Rati	Rati	Rati	Rati	Rati			
rence Principal	N Rationale Function(s)	Wetland likely provides minimal support for this function since it has lake-fringe and slope HGM classes.	Wetland does not provide this function due to the wetland's landscape position (lake-fringe and slope), lack of surface water, and lack of sediment sources.	Wetland likely provides minimal support for this function since it is has lake-fringe and slope HGM classes.	Wetland is associated with the shoreline of Lake Sammamish. However, vegetation composition and condition limits this function.	The wetland has at least 30% cover of herbaceous vegetation and has lake-fringe and slope HGM classes. Some organic matter may be exported via the shoreline of Lake Sammamish.	Wetland is associated with Lake Sammamish.	Wetland is lake-fringe but is mostly sloped with no occurrences of inundation.	Wetland is lake-fringe but is mostly sloped with no occurrences of inundation.	Wetland is lake-fringe but is mostly sloped with no occurrences of inundation.	Wetland is lake-fringe but is mostly sloped with no occurrences of inundation.	Wetland is lake-fringe but is mostly sloped with no occurrences of inundation.	X Wetland is co-dominated by invasive vegetation.	X There is no nearby parking & the site has no documented scientific or educational use.	X No documented protected species or habitat; not determined significant by local jurisdiction.
Occurrence	Y	×		×	×	×	×	×	×	×	×	×			
	Function/Value	Flood Flow Alteration	Sediment Removal	Nutrient & Toxicant Removal	Erosion Control & Shoreline Stabilization	Production of Organic Matter and its Export	General Habitat Suitability	Habitat for Aquatic Invertebrates	Habitat for Amphibians	Habitat for Wetland-Associated Mammals	Habitat for Wetland-Associated Birds	General Fish Habitat	Native Plant Richness	Educational or Scientific Value	Uniqueness and Heritage

Project: ELST South Sammamish Segment B Wetland I.D. 23C

Assessed by: <u>Erik Christensen</u>

Ecology Category: III Local Rating: III Wetland size: 0.09 acre Date: 11/07/07 (rev: 9/20/13) Cowardin Class: <u>PSS/PEM</u>

	Function(s) Comments	ion since Rating=Low		litch Rating=Low Qualifiers: (1, 3, 5)	itch Rating=Low Qualifiers: (1, 2, 4)	rse or		ritial Rating=Low	sional Rating=Low Qualifiers: (1, 4, 6)	sional Rating=Low Qualifiers: (1, 2, 6)	fficient		કા	SS,	0	t: not
	Rationale	Wetland likely provides some water retention since it is a depression that has evidence of occasional	and permanent inundation.	The wetland has a vegetated depressional ditch with residential development upslope and occasional and permanent inundation.	The wetland has a vegetated depressional ditch with residential development upslope and occasional and permanent inundation.	Wetland is not associated with a water course or shoreline.		Wetland has a vegetated depressional ditch. Surrounding areas is fragmented by residential development and roads.	Wetland has emergent vegetation and occasional and permanent ponded water in the ditch.	Wetland has emergent vegetation and occasional and permanent ponded water in the ditch.	Permanent ponding is limited to ditch, insufficient for wetland-associated mammals.	No open water component present.	Wetland is not associated with a fish bearing stream.	Although wetland has two Cowardin classes, dominant vegetation is non-native (<i>Phalaris arundinacea</i> and <i>Rubus armeniacus</i>).	There is no nearby parking & the site has no documented scientific or educational use.	No documented protected species or habitat not
Occurrence	Z					×	X				×	X	X	×	X	×
30 0	Y	×		×	×			×	X	X						
	Function/Value	Flood Flow Alteration		Sediment Removal	Nutrient & Toxicant Removal	Erosion Control & Shoreline Stabilization	Production of Organic Matter and its Export	General Habitat Suitability	Habitat for Aquatic Invertebrates	Habitat for Amphibians	Habitat for Wetland-Associated Mammals	Habitat for Wetland-Associated Birds	General Fish Habitat	Native Plant Richness	Educational or Scientific Value	Uniqueness and Heritage

ELST South Sammamish Segment B Project: _

Wetland I.D. 24A

Assessed by: <u>Erik Christensen</u>

Local Rating: III Wetland size: 0.60 acre_

Date: 11/07/07 (rev: 9/20/13) Cowardin Class: PFO/PSS/PEM Ecology Category: III

Principal Comments	Rating=Moderate Qualifiers: (5, 6)	itch Rating=Low is Qualifiers: (1, 3, 5)	itch that Rating=Low Qualifiers: (1, 2, 4)	vardin Rating=Moderate ough it. Qualifiers: (1, 2, 3)	und Rating=High eams Qualifiers: (2, 3, 5, 6)	has Rating=Moderate is Qualifiers: (3, 4, 5) are	unently Rating=Moderate in Qualifiers: (1, 5, 6)	present Rating=Low Qualifiers: (1, 4, 6)	ıfficient		occause Rating=Moderate and has Qualifiers: (1, 4) offer eam.	ever, inant cea).	01
Rationale	Wetland has dense woody vegetation and receives floodwater from adjacent water courses.	Dense herbaceous vegetation occurs in a ditch that is permanently inundated and wetland is associated with streams that likely have excess sediment input.	Dense herbaceous vegetation occurs in a ditch that is permanently inundated. The wetland is downslope of East Lake Sammamish Parkway.	The wetland has PFO, PSS, and PEM Cowardin classes with two water courses flowing through it.	Wetland is dominated by deciduous trees and shrubs. Export of nutrients occurs from streams running through the wetland.	Diversity of plant species is high. Wetland has PFO, PSS, and PEM Cowardin classes and is connected to two streams. Standing snags are present in wetland. However, wetland is surrounded by residential development.	A ditch occurs in the wetland that is permanently inundated. Woody debris and litter present in wetland. Streams run through wetland.	Seasonal inundation occurs. Woody debris present in wetland. Streams run through wetland.	Permanent ponding is limited to ditch, insufficient for wetland-associated mammals.	No open water component present.	Wetland likely provides some fish habitat because it is associated with Pine Lake Creek. Wetland has PFO, PSS, and PEM Cowardin classes that offer shade, cover, and detrital matter for the stream.	Wetland has three Cowardin classes. However, non-native invasive vegetation are co-dominant (Rubus armeniacus and Phalaris arundinacea).	There is no nearby parking & the site has no documented scientific or educational use.
Occurrence Y N									×	X		×	×
Occu	×	×	×	×	×	×	×	X			×		
Function/Value	Flood Flow Alteration	Sediment Removal	Nutrient & Toxicant Removal	Erosion Control & Shoreline Stabilization	Production of Organic Matter and its Export	General Habitat Suitability	Habitat for Aquatic Invertebrates	Habitat for Amphibians	Habitat for Wetland-Associated Mammals	Habitat for Wetland-Associated Birds	General Fish Habitat	Native Plant Richness	Educational or Scientific Value

Wetland I.D. 24B Pr	Project: _		ELST Sou	ELST South Sammamish Segment B	Segment B		Assessed by: M. Maynard
Cowardin Class: PFO/PSS E	Ecology Category:	Zatego	H	Local Rating: III	Wetland size: 1.75 acres	.75 acres	Date: 11/02/07 (rev: 9/25/13)
	Occui	Occurrence	4)		Prin	Principal	
Function/Value	Y	Z		Rationale	Func	Function(s)	Comments
Flood Flow Alteration	×		Wetland likely riverine and de capacity for so floodwater fro	Wetland likely provides this function since it has riverine and depressional HGM classes, has capacity for some water detention, and receives floodwater from adjacent water courses.	nce it h has eceives		Rating=Moderate Qualifiers: (5, 6)
Sediment Removal	×		Wetland likely Jassociated with sediment input.	Wetland likely provides this function since it is associated with streams that likely have excess sediment input.	on since it is have excess	Ratin Quali	Rating=Moderate Qualifiers: (1, 5)
Nutrient & Toxicant Removal	×		Wetland likely provides thi associated with streams than nutrient and toxicant input.	Wetland likely provides this function since it is associated with streams that likely have excess nutrient and toxicant input.	on since it is have excess	Ratin	Rating=Moderate Qualifiers: (1, 2)
Erosion Control & Shoreline Stabilization	×		The wetland hawith two water	The wetland has PFO and PSS Cowardin classes with two water courses flowing through it.	wardin classes ough it.	Ratin Quali	Rating=Moderate Qualifiers: (1, 2, 3)
Production of Organic Matter and its Export	×		Wetland is dor shrubs. Inunda occurs from st	Wetland is dominated by deciduous trees and shrubs. Inundation occurs and export of nutrients occurs from stream running through the wetland.	s trees and ort of nutrients the wetland.	Ratin Quali	Rating=High Qualifiers: (2, 3, 5, 6)
General Habitat Suitability	X		Diversity of pla and PSS Cowa surrounded by	Diversity of plant species is high. Wetland has PFO and PSS Cowardin classes. However, wetland is surrounded by residential development.	Wetland has PFO er, wetland is nent.	Ratin Quali	Rating=Moderate Qualifiers: (2, 3, 5, 6)
Habitat for Aquatic Invertebrates	X		Permanent and Woody debris Streams run th	Permanent and occasional inundation occurs. Woody debris and litter present in wetland. Streams run through wetland.	ion occurs. wetland.	Ratin Quali	Rating=Moderate Qualifiers: (1, 5, 6)
Habitat for Amphibians	×		Permanent and o Woody debris pr through wetland.	Permanent and occasional inundation occurs. Woody debris present in wetland. Stream runs through wetland.	on occurs. Stream runs	Ratin Quali	Rating=Moderate Qualifiers: (1, 4, 6)
Habitat for Wetland-Associated Mammals	X		Permanent pon	Permanent ponding is limited.		Ratin Quali	Rating=Low Qualifiers: (1, 3)
Habitat for Wetland-Associated Birds		X	No open water	open water component.			
General Fish Habitat	×		Wetland likely it is associated PFO and PSS (cover, and detr	Wetland likely provides some fish habitat because it is associated with Pine Lake Creek. Wetland has PFO and PSS Cowardin classes that offer shade, cover, and detrital matter for the stream.	habitat because ek. Wetland has tt offer shade, ream.	Ratin Quali	Rating=Moderate Qualifiers: (1, 4)
Native Plant Richness		X	Wetland has th trees. However co-dominant (A	Wetland has three strata of vegetation and large trees. However, non-native invasive vegetation is co-dominant (<i>Rubus armeniacus</i>).	ion and large e vegetation is		
Educational or Scientific Value		X	There is no neadocumented sc	There is no nearby parking & the site has no documented scientific or educational use.	ite has no al use.		
Uniqueness and Heritage		×	No documente	No documented protected species or habitat; not determined significant by local inrisdiction	or habitat; not		

Wetland I.D. 24C Project:

ELST South Sammamish Segment B

Assessed by: Erik Christensen

Cowardin Class: <u>PFO/PEM</u>

Ecology Category: III Local Rating: III Wetland size: 0.16 acre Date: 11/07/07 (rev: 9/25/13)

Comments	Rating=Low Qualifiers: (5, 6)	Rating=Low Qualifiers: (1, 3, 5)	Rating=Low Qualifiers: (1, 2, 4)	Rating=Low Qualifiers: (1, 2, 3)	Rating=Moderate Qualifiers: (2, 3, 5, 6)	Rating=Moderate Qualifiers: (3, 4, 5)	Rating=Moderate Qualifiers: (1, 5, 6)	Rating=Moderate Qualifiers: (1, 4, 6)			Rating=Low Qualifiers: (1, 4)			
ipal on(s)		Ratin Qual	Ratii Qual	Ratin Qual	Ratii Qual	Ratii Qual	Ratii Qual	Ratin Qual			Ratii Qual			
e Principal Rationale Function(s)	tation and is	Dense herbaceous vegetation occurs in a ditch that is seasonally inundated.	Dense herbaceous vegetation occurs in a ditch that is seasonally inundated. The wetland is downslope of East Lake Sammamish Parkway.	The wetland has a PFO Cowardin class with a water course flowing through it.	Wetland is dominated by deciduous trees and shrubs. Export of nutrients occurs from stream running through the wetland.	Diversity of plant species is high. Wetland has PFO and PEM Cowardin classes and is connected to a stream. However, wetland is surrounded by residential development.	A ditch occurs in the wetland that is seasonally inundated. Woody debris and litter present in wetland. Stream runs through wetland.	Seasonal inundation occurs. Woody debris present in wetland. Stream runs through wetland.	No permanent inundation occurs.	No permanent inundation occurs.	Wetland is has a PFO Cowardin class that offers shade, cover, and detrital matter for the stream.	Wetland has two Cowardin classes. However, non- native invasive vegetation is co-dominant (<i>Rubus</i> armeniacus).	There is no nearby parking & the site has no documented scientific or educational use.	No documented protected species or habitat; not determined significant by local jurisdiction.
Occurrence Y N									×	×		×	×	X
Occ	×	×	×	×	×	×	×	×			×			
Function/Value	Flood Flow Alteration	Sediment Removal	Nutrient & Toxicant Removal	Erosion Control & Shoreline Stabilization	Production of Organic Matter and its Export	General Habitat Suitability	Habitat for Aquatic Invertebrates	Habitat for Amphibians	Habitat for Wetland-Associated Mammals	Habitat for Wetland-Associated Birds	General Fish Habitat	Native Plant Richness	Educational or Scientific Value	Uniqueness and Heritage

Wetland I.D. 25A Project: ELST South Sammami

ELST South Sammamish Segment B

Assessed by: <u>Erik Christensen</u>

Local Rating: ___III_ Wetland size: <u>0.25 acre__</u> Date: <u>11/08/07 (rev: 9/25/13)</u> Ecology Category: III Cowardin Class: PFO

	(s) Comments	Rating=Moderate Qualifiers: (5, 6)	Rating=Moderate Qualifiers: (1, 2, 3, 5)	Rating=Moderate Qualifiers: (1, 2, 4)	Rating=Moderate Qualifiers: (1, 2, 3)	Rating=Moderate Qualifiers: (2, 3, 5, 6)	Rating=Moderate Qualifiers: (3, 4, 5)	Rating=Moderate Qualifiers: (1, 5, 6)	Rating=Moderate Qualifiers: (1, 4, 6)	Rating=Low Qualifier: (1, 3, 5)		Rating=Moderate Qualifiers: (1, 4)			
Principal	Function(s)		•				as		ıt						
e e		Wetland has dense woody vegetation and is associated with a water course.	Slow moving water, dense herbaceous vegetation, and ponding of water occur in the wetland.	Dense herbaceous vegetation seasonal ponding occur. The wetland is downslope of East Lake Sammamish Parkway.	The wetland has a PFO Cowardin class with a water course flowing through it.	Wetland is dominated by deciduous trees and shrubs. Export of nutrients occurs from stream running through the wetland	Diversity of plant species is moderate. Wetland has a PFO Cowardin class and is connected to a stream. However, wetland is surrounded by residential development.	Seasonal inundation occurs. Woody debris and litter present in wetland. Stream runs through wetland.	Seasonal inundation occurs. Woody debris present in wetland. Stream runs through wetland.	Wetland has permanent and seasonal inundation.	No open water component.	Wetland has a PFO Cowardin class that offers shade, cover, and detrital matter for the stream.	Wetland has one Cowardin class. Non-native invasive vegetation is co-dominant (<i>Phalaris arundinacea</i>).	There is no nearby parking & the site has no documented scientific or educational use.	No documented protected species or habitat; not determined significant by local jurisdiction.
Occurrence	Z									×	X		×	X	×
Occı	Y	×	×	×	×	×	X	×	×			×			
	Function/ Value	Flood Flow Alteration	Sediment Removal	Nutrient & Toxicant Removal	Erosion Control & Shoreline Stabilization	Production of Organic Matter and its Export	General Habitat Suitability	Habitat for Aquatic Invertebrates	Habitat for Amphibians	Habitat for Wetland-Associated Mammals	Habitat for Wetland-Associated Birds	General Fish Habitat	Native Plant Richness	Educational or Scientific Value	Uniqueness and Heritage

Wetland I.D. 25B Project

ELST South Sammamish Segment B

Assessed by: <u>Erik Christensen</u>

Cowardin Class: PFO/PSS/PEM Ecology Category: III Local Rating: III Wetland size: 0.33 acre_ Date: 11/08/07 (rev: 9/25/13)

Principal	Function(s) Comments	e Rating=Low	Rating=Moderate Qualifiers: (1, 2, 3, 5)	Rating=Moderate Qualifiers: (1, 2, 3, 4)		Rating=Moderate Qualifiers: (1, 2, 5, 6)	Rating=Moderate Qualifiers: (4, 5)	Rating=Low Qualifers: (1, 6)	Rating=Low Qualifiers: (1, 6)			.:			
	Rationale Fur	Wetland likely provides some water retention since it is a depression that has evidence of seasonal and occasional inundation.	Slow moving water, dense herbaceous vegetation, and ponding of water occur in the wetland.	Dense herbaceous vegetation is present and seasonal ponding occurs. Likely source is East Lake Sammamish Parkway.	Wetland is not associated with a water course.	Wetland is dominated by deciduous trees and shrubs. Outlet to Wetland 25A provides export.	Diversity of plant species is moderate. Wetland has PFO, PSS, and PEM Cowardin classes. However, wetland is surrounded by residential development.	Wetland hydrology has seasonal and occasional inundation.	Wetland hydrology has seasonal and occasional inundation.	No permanent inundation occurs.	No permanent inundation occurs.	Wetland is not associated with a fish bearing water.	Wetland has three Cowardin classes. However, non-native invasive vegetation is also co-dominant (<i>Phalaris arundinacea</i>).	There is no nearby parking & the site has no documented scientific or educational use.	No documented protected species or habitat; not determined significant by local jurisdiction.
Occurrence	Z				×					×	×	×	×	×	×
Occı	\succ	×	×	×		×	×	X	X						
	Function/Value	Flood Flow Alteration	Sediment Removal	Nutrient & Toxicant Removal	Erosion Control & Shoreline Stabilization	Production of Organic Matter and its Export	General Habitat Suitability	Habitat for Aquatic Invertebrates	Habitat for Amphibians	Habitat for Wetland-Associated Mammals	Habitat for Wetland-Associated Birds	General Fish Habitat	Native Plant Richness	Educational or Scientific Value	Uniqueness and Heritage

Wetland I.D. 25C

ELST South Sammamish Segment B

Assessed by: Erik Christensen

Cowardin Class: <u>PFO/PEM</u> Ecology Category: <u>III</u>

Local Rating: III Wetland size: 0.25 acre_ Date: 11/08/07 (rev: 9/25/13)

	comments ()	Rating=Low	Rating=Low Qualifiers: (1, 3, 5)	Rating=Low Qualifiers: (1, 2, 4)		Rating=Low Qualifiers: (1, 2, 6)	Rating=Moderate Qualifiers: (4, 5)	Rating=Low Qualifiers: (1, 4, 6)	Rating=Low Qualifiers: (1, 4, 6)						
Principal	Rationale Function(s)	Wetland likely provides some water retention since it is a depression that has evidence of seasonal and occasional inundation.	Dense herbaceous vegetation and ponding of water occur in the wetland.	Dense herbaceous vegetation is present and seasonal ponding occurs.	Wetland is not associated with a water course.	Wetland is dominated by deciduous trees and shrubs and a culvert is located at the northeast corner (export).	Diversity of plant species is moderate. Wetland has two Cowardin classes. However, wetland is surrounded by residential development.	Wetland is seasonally inundated and emergent vegetation is present.	Wetland is seasonally inundated. Emergent vegetation and small woody debris is present.	No permanent inundation occurs.	No permanent inundation occurs.	Wetland is not associated with a fish bearing water.	Wetland has two Cowardin classes. However, non- native invasive vegetation is also co-dominant (Phalaris armdinacea, Rubus armeniacus).	There is no nearby parking & the site has no documented scientific or educational use.	No documented protected species or habitat; not determined significant by local jurisdiction.
Occurrence	Z				X					X	×	X	×	X	×
Occu	Υ	×	X	×		×	×	×	X						
	Function/Value	Flood Flow Alteration	Sediment Removal	Nutrient & Toxicant Removal	Erosion Control & Shoreline Stabilization	Production of Organic Matter and its Export	General Habitat Suitability	Habitat for Aquatic Invertebrates	Habitat for Amphibians	Habitat for Wetland-Associated Mammals	Habitat for Wetland-Associated Birds	General Fish Habitat	Native Plant Richness	Educational or Scientific Value	Uniqueness and Heritage

Project:_ Wetland I.D. 25F

ELST South Sammamish Segment B

Assessed by: Erik Christensen

Cowardin Class: PFO

Ecology Category: IV Local Rating: IV Wetland size: 0.06 acre_ Date: 11/08/07 (rev: 9/27/13)

	s) Comments	Rating=Low Qualifiers: (5, 6)	Rating=Low Qualifiers: (1, 3, 5)	Rating=Low Qualifiers: (1, 4, 6)	Rating=Low Qualifiers: (1, 2, 3)	Rating=Low Qualifiers: (2, 3, 5, 6)		Rating=Low Qualifiers: (3, 4, 5)					Rating=Low Qualifiers: (1, 4)			
Principal	Function(s)				t .			nas 1.								
4)	Rationale	Wetland has dense woody vegetation and is associated with a water course. Function limited by wetland size.	Occasional ponding occurs in wetland.	Occasional ponding occurs in wetland.	The wetland is PFO with a water course adjacent to it. Limited association with stream.	Wetland is dominated by deciduous trees and shrubs. Export of nutrients occurs from stream running adjacent to the wetland. Eunction is	limited by wetland size.	Diversity of plant species is moderate. Wetland has PFO Cowardin class and is connected to a stream. However, wetland is surrounded by residential	No seasonal or permanent ponding in wetland.	No seasonal or permanent ponding in wetland.	Permanent ponding does not occur in wetland.	No open water component present.	Wetland has a PFO Cowardin class that offer shade, cover, and detrital matter for the stream. Limited association with stream.	Wetland has one Cowardin class. Non-native invasive vegetation is co-dominant (<i>Phalaris arundinacea</i>).	There is no nearby parking & the site has no documented scientific or educational use.	No documented protected species or habitat; not determined significant by local jurisdiction.
Occurrence	Z								×	×	×	X		×	×	X
Occı	Y	X	×	×	×	×		×					X			
	Function/Value	Flood Flow Alteration	Sediment Removal	Nutrient & Toxicant Removal	Erosion Control & Shoreline Stabilization	Production of Organic Matter and its Export		General Habitat Suitability	Habitat for Aquatic Invertebrates	Habitat for Amphibians	Habitat for Wetland-Associated Mammals	Habitat for Wetland-Associated Birds	General Fish Habitat	Native Plant Richness	Educational or Scientific Value	Uniqueness and Heritage

Wetland I.D. 26A Pr

ELST South Sammamish Segment B

Assessed by: <u>Erik Christensen</u>

Cowardin Class: PFO/PSS/PEM Ecology Category: III Local Rating: III Wetland size: 0.91 acre Date: 11/09/07 (rev: 9/27/13)

ipal	ion(s) Comments	Rating=Low Qualifiers: (5, 6)	Rating=Low Qualifiers: (1, 3, 5)	Rating=Low Qualifiers: (1, 2, 4)	Rating=Low Qualifiers: (1, 2, 3)	Rating=Low Qualifiers: (1, 2, 3, 5, 6)	Rating=Moderate Qualifiers: (3, 4, 5)	Rating=Low Qualifiers: (1, 5, 6)	Rating=Low Qualifiers: (1, 6)			Rating=Low Qualifiers: (1, 4)			
Principal	Rationale Function(s)	Wetland has dense woody vegetation and is associated with a water course.	Seasonal ponding occurs in portion of the wetland.	Seasonal ponding occurs in portion of the wetland.	The wetland is associated with Zaccuse Creek and has woody vegetation. Limited association with stream.	Wetland is dominated by deciduous shrubs. Stream running through wetland provides export of nutrients. Limited association with stream.	Diversity of plant species is moderate. Wetland has three Cowardin classes and is connected to a stream. However, wetland is surrounded by residential development and roads.	Seasonal inundation occurs. Wetland has three Cowardin classes which produce leaf litter and is connected to a stream.	Seasonal inundation occurs. The wetland is connected to a stream.	Permanent ponding does not occur in wetland.	No open water occurs in the wetland.	Wetland has a PSS Cowardin class that offers shade, cover, and detrital matter for the stream. Limited association with stream.	Wetland has three Cowardin classes. However, non-native invasive vegetation is co-dominant (<i>Phalaris arundinacea</i>).	There is no nearby parking & the site has no documented scientific or educational use.	No documented protected species or habitat; not determined significant by local jurisdiction.
Occurrence	Z									X	X		X	X	×
Occı	Υ	×	×	X	×	X	×	×	×			×			
	Function/Value	Flood Flow Alteration	Sediment Removal	Nutrient & Toxicant Removal	Erosion Control & Shoreline Stabilization	Production of Organic Matter and its Export	General Habitat Suitability	Habitat for Aquatic Invertebrates	Habitat for Amphibians	Habitat for Wetland-Associated Mammals	Habitat for Wetland-Associated Birds	General Fish Habitat	Native Plant Richness	Educational or Scientific Value	Uniqueness and Heritage

Assessed by: M. Maynard ELST South Sammamish Segment B Wetland I.D. 26B

Wetland size: 0.02 acre_ Date: 11/02/07 (rev: 3/20/14) Local Rating: IV Ecology Category: IV Cowardin Class: PEM

	Comments														
Principal	Function(s)														
- - -	Kationale Fun Wetland likely does not provide this function since	it is a slope HGM class.	Wetland likely does not provide this function since it is a slope HGM class and is maintained lawn/yard.	Wetland likely does not provide this function since it is a slope HGM class and is maintained lawn/yard.	Wetland is not associated with a water course.	The wetland has at least 30% cover of herbaceous vegetation, but no inundation and no outlet for export.	This is a small wetland on maintained lawn/yard, near other wetlands, but connectivity is fragmented by driveways.	Wetland is sloped and no inundation occurs.	Wetland is not associated with a fish-bearing water.	Wetland is dominated by lawn.	There is no nearby parking & the site has no documented scientific or educational use.	No documented protected species or habitat; not determined significant by local jurisdiction.			
Occurrence	Z	•	×	×	×	×	×	×	×	×	×	×	×	×	×
000	<u>ـــ</u> ا														
;	Function/ Value	TIOOU TIOM MICIALION	Sediment Removal	Nutrient & Toxicant Removal	Erosion Control & Shoreline Stabilization	Production of Organic Matter and its Export	General Habitat Suitability	Habitat for Aquatic Invertebrates	Habitat for Amphibians	Habitat for Wetland-Associated Mammals	Habitat for Wetland-Associated Birds	General Fish Habitat	Native Plant Richness	Educational or Scientific Value	Uniqueness and Heritage

Wetland I.D. 26C Project:

ELST South Sammamish Segment B

_ Assessed by: _M. Maynard

Date: 11/2/07 (rev: 3/20/14) Ecology Category: IV Local Rating: IV Wetland size: 0.03 acre Cowardin Class: PEM

pal	on(s) Comments	Rating: Low	Rating: Low	Rating: Low			Rating: Low								
Principal	Function(s)	ort based on size, tained lawn/yard.	ort based on size, tained	rt based on size, ained lawn/yard.	water course.	ver of herbaceous ned lawn, lacks to downgradient	d lawn. The					fish-bearing	ne native species	site has no onal use.	s or habitat; not risdiction.
	Rationale	Wetland provides minimal support based on size, its flat shape, and is mostly maintained lawn/yard.	Wetland provides minimal support based on size, its flat shape, and is mostly maintained lawn/yard.	Wetland provides minimal support based on size, its flat shape, and is mostly maintained lawn/yard	Wetland is not associated with a water course.	The wetland has at least 30% cover of herbaceous vegetation, but is mostly maintained lawn, lacks inundation, and lacks connection to downgradient aquatic areas for export.	Majority of wetland is maintained lawn. The wetland is near other wetlands, but connectivity is fragmented by driveways.	No inundation occurs.	No inundation occurs.	No inundation occurs.	No inundation occurs.	Wetland is not associated with a fish-bearing water.	Wetland is mostly lawn, with some native species in the shrub community.	There is no nearby parking $\&$ the site has no documented scientific or educational use.	No documented protected species or habitat; not determined significant by local jurisdiction.
Occurrence	Z				×	X		×	×	×	X	X	×	X	X
Occı	Υ	×	×	×			×								
	Function/Value	Flood Flow Alteration	Sediment Removal	Nutrient & Toxicant Removal	Erosion Control & Shoreline Stabilization	Production of Organic Matter and its Export	General Habitat Suitability	Habitat for Aquatic Invertebrates	Habitat for Amphibians	Habitat for Wetland-Associated Mammals	Habitat for Wetland-Associated Birds	General Fish Habitat	Native Plant Richness	Educational or Scientific Value	Uniqueness and Heritage

Assessed by: Colin Worsley Project: ELST South Sammamish Segment B Wetland I.D. 26D

Date: _ Cowardin Class: PSS/PEM Ecology Category: III Local Rating: III Wetland size: ~0.13 acre

03/19/14

Principal	Function(s) Comments	Rating=Low Qualifiers: (6)	Rating=Low Qualifiers: (1)	Rating=Low Qualifiers: (1, 5)	Rating=Low	Rating=Low Qualifiers: (1, 2, 6)	Rating=Low Qualifiers: (3, 5)	Rating=Low Qualifiers: (6)	Rating=Low Qualifiers: (6)	Rating=Low	Rating=Low	Rating=Low	Rating=Low		
	Rationale Funct	Wetland likely provides minimal support for this function since it has lake-fringe and riverine HGM classes with no constricted outlet.	Wetland likely provides minimal support for this function.	Wetland likely provides minimal support for this function.	Wetland is associated with one unnamed stream (#9) and the shoreline of Lake Sammamish. However, vegetation composition and condition limits this function.	The wetland has deciduous shrub and herbaceous vegetation. Some organic matter may be exported via the associated unnamed stream (#9) and the shoreline of Lake Sammamish.	PSS and PEM Cowardin classes are present. Wetland is surrounded by residential development.	Wetland is lake-fringe and has a perennial stream flowing through it.	Wetland has lake-fringe HGM class and a perennial stream flowing through it.	Wetland has lake-fringe HGM class and a perennial stream flowing through it.	Wetland has lake-fringe HGM class (Lake Sammamish).	Wetland has lake-fringe HGM class and a perennial stream flowing through it.	Wetland has two Cowardin classes and has been planted as part of a restoration project.	There is no nearby parking & the site has no documented scientific or educational use.	Me decrees the description of the contract of the second
Occurrence	Z													×	>
00	Y	X	×	×	×	×	×	×	×	×	×	×	×		
	Function/Value	Flood Flow Alteration	Sediment Removal	Nutrient & Toxicant Removal	Erosion Control & Shoreline Stabilization	Production of Organic Matter and its Export	General Habitat Suitability	Habitat for Aquatic Invertebrates	Habitat for Amphibians	Habitat for Wetland-Associated Mammals	Habitat for Wetland-Associated Birds	General Fish Habitat	Native Plant Richness	Educational or Scientific Value	Uniqueness and Heritage

Wetland I.D. 28A Project: ELST South 3

ELST South Sammamish Segment B

Assessed by: <u>Erik Christensen</u>

Wetland size: <u>0.09 acre</u> Date: <u>11/13/07 (rev: 09/27/13)</u> Cowardin Class: PFO Ecology Category: IV Local Rating: IV

	Comments														
	(S	Rating=Low Qualifiers: (5, 6)	Rating=Low Qualifiers: (1, 3, 5)	Rating=Low Qualifiers: (1, 2)	Rating=Moderate Qualifiers: (1, 2, 3)	Rating=Moderate Qualifiers: (2, 6)	Rating=Low Qualifiers: (3)	Rating=Moderate Qualifiers: (1, 5, 6)	Rating=Low Qualifiers: (1, 4, 6)			Rating=Low Qualifiers: (4)			
Principal	Function(s)														
	Rationale Fur	Wetland has dense woody vegetation and is associated with a water course. However, dense wood vegetation is not located in the water course.	Permanent ponding occurs in the ditched portion of the wetland at the toe of slope.	Permanent ponding occurs in the ditched portion of the wetland at the toe of slope.	The wetland has a Cowardin class of PFO with a water course flowing through it.	Wetland is dominated by deciduous trees and shrubs. Export of nutrients occurs from stream running through the wetland	Wetland is associated with a stream. However, wetland is surrounded by residential development and roads.	Permanent inundation occurs in the ditch. The wetland has deciduous plants which produces leaf litter and is associated with a stream.	Permanent inundation and emergent vegetation occurs in the ditch. The wetland is associated with a stream. However, there is development surrounding the wetland.	Permanent ponding is insufficient for wetlandassociated mammals.	No open water occurs in the wetland	Wetland has a PFO Cowardin class that offers shade, cover, and detrital matter for associated stream, which is potentially fish-bearing.	Non-native invasive vegetation is codominant (<i>Phalaris arundinacea</i> , <i>Rubus armeniacus</i>).	There is no nearby parking & the site has no documented scientific or educational use.	No documented protected species or habitat; not determined significant by local jurisdiction.
Occurrence	Z									X	X		X	X	X
Occu	Y	X	×	×	×	×	×	×	×			X			
	Function/Value	Flood Flow Alteration	Sediment Removal	Nutrient & Toxicant Removal	Erosion Control & Shoreline Stabilization	Production of Organic Matter and its Export	General Habitat Suitability	Habitat for Aquatic Invertebrates	Habitat for Amphibians	Habitat for Wetland-Associated Mammals	Habitat for Wetland-Associated Birds	General Fish Habitat	Native Plant Richness	Educational or Scientific Value	Uniqueness and Heritage

Assessed by: <u>Erik Christensen</u> ELST South Sammamish Segment B Project: Wetland I.D. 28B

Wetland size: 0.02 acre_ Date: 11/09/07 (rev: 09/27/13) Local Rating: IV Ecology Category: IV Cowardin Class: PSS

Comments Rating=Low Qualifiers: (2, 6) Function(s) Principal Wetland likely does not provide this function since Wetland likely does not provide this function since it occasionally inundated. Wetland is not associated with a fish bearing water Wetland is surrounded by residential development No documented protected species or habitat; not determined significant by local jurisdiction. wetland is sloped and no qualifiers are present. Permanent ponding does not occur in wetland. Non-native invasive vegetation is codominant Wetland likely does not provide this function Wetland likely does not provide this function Export of nutrients occurs to ditch below the since wetland is sloped and no qualifiers are Wetland is sloped. No qualifiers are present. There is no nearby parking & the site has no Wetland is dominated by deciduous shrubs. (Rubus armeniacus/Phalaris arundinacea). documented scientific or educational use. No open water occurs in the wetland. since it occasionally innundated. Rationale and roads. wetland. present. Occurrence × × × × × × × × × × × × × Habitat for Wetland-Associated Habitat for Wetland-Associated Educational or Scientific Value Nutrient & Toxicant Removal Production of Organic Matter Erosion Control & Shoreline General Habitat Suitability Uniqueness and Heritage Function/Value Habitat for Amphibians Flood Flow Alteration Native Plant Richness General Fish Habitat Habitat for Aquatic Sediment Removal and its Export Invertebrates Stabilization Mammals

Wetland I.D. 28C

ELST South Sammamish Segment B

Assessed by: Matt Maynard

Date: 11/13/07 (rev: 09/27/13) Cowardin Class: PSS/PEM Ecology Category: IV Local Rating: IV Wetland size: 0.02 acre_

	Comments	Rating=Low Qualifiers: (2)	Rating=Low Qualifiers: (1, 2, 3)	Rating=Low Qualifiers: (1, 2, 4)		Rating=Low	Qualifiers: (1, 6)	Rating=Low Qualifiers: (1, 3)	Rating=Low Qualifiers: (1, 4, 6)	Rating=Low Qualifiers: (1, 2, 6)						
Principal	Function(s)															
	Rationale Func	Wetland likely provides some support for this function since it is a small depressional wetland. The wetland is dominated by herbaceous vegetation.	A vegetated ditch with slow moving, seasonal water is located in the wetland.	A vegetated ditch with seasonal inundation is located in the wetland. Wetland receives runoff from the trail and a slope to the east.	Wetland is not associated with a shoreline.	The wetland has at least 30% cover of herbaceous	vegetation and has outlets for exporting organic matter.	The wetland is fragmented by East Lake Sammamish Parkway, residential development, and the trail. Limited connectivity to upland slope.	Seasonal inundation and emergent vegetation occur in the ditch.	Seasonal inundation and emergent vegetation occur in the ditch.	Permanent inundation does not occur.	Permanent inundation and open water do not occur.	Wetland is not associated with a fish bearing water.	Codominant vegetation is non-native (unknown ornamental).	There is no nearby parking & the site has no documented scientific or educational use.	No documented protected species or habitat; not determined significant by local jurisdiction.
Occurrence	Z				×						×	X	X	×	X	×
Occı	Y	X	X	×		×		×	X	X						
	Function/Value	Flood Flow Alteration	Sediment Removal	Nutrient & Toxicant Removal	Erosion Control & Shoreline Stabilization	Production of Organic Matter	and its Export	General Habitat Suitability	Habitat for Aquatic Invertebrates	Habitat for Amphibians	Habitat for Wetland-Associated Mammals	Habitat for Wetland-Associated Birds	General Fish Habitat	Native Plant Richness	Educational or Scientific Value	Uniqueness and Heritage

Wetland size: _<0.01 acre Date:11/13/07 (rev: 09/27/13) u Cowardin Class: PEM Ecology Category: IV Local Rating: IV

Comments Rating=Moderate Rating=Moderate Qualifiers: (2, 6) Qualifiers: (1, 2) Function(s) Principal Wetland is not associated with a fish bearing water. Permanent ponding suitable for mammals does not The wetland is has a Cowardin class of PEM with Wetland is a ditch and is surrounded by residential an occasionally flowing water course through it. No documented protected species or habitat; not determined significant by local jurisdiction. Export of nutrients occurs from stream running Wetland is a ditch with occasional inundation. Wetland is a ditch with occasional inundation. Non-native invasive vegetation is codominate There is no nearby parking & the site has no Wetland is a ditch. No qualifiers are present Wetland is a ditch. No qualifiers are present Wetland is a ditch. No qualifiers are present Wetland is dominated by deciduous shrubs. documented scientific or educational use. No open water occurs in the wetland Rationale development and roads. (Rubus armeniacus). through the wetland occur in wetland. Occurrence × × × × × × × × × × × × × × Habitat for Wetland-Associated Habitat for Wetland-Associated Educational or Scientific Value Nutrient & Toxicant Removal Production of Organic Matter Erosion Control & Shoreline General Habitat Suitability Uniqueness and Heritage Function/Value Habitat for Amphibians Flood Flow Alteration Native Plant Richness General Fish Habitat Habitat for Aquatic Sediment Removal and its Export Invertebrates Stabilization Mammals Birds

Assessed by: Matt Maynard/Colin Worsley	Wetland size: 0.02 acre_ Date: 11/01/13	Principal Function(s) Comments	Rating=Low Qualifiers: (3)	Rating=Low Qualifiers: (1, 3)	Rating=Low Qualifiers: (1, 4)											
ELST South Sammamish Segment B As	Ecology Category: IV Local Rating: IV Wetland	Rationale	Wetland is a small, closed depressional system with surface water limited to ditch, has capacity for very minimal water detention.	Wetland may receive some sediment from trail. Surface water limited to ditch.	May receive nutrients/ toxicants from adjacent roadways and residences. The wetland is a closed depressional system. Surface water limited to ditch.	Wetland is not associated with a water course or shoreline.	Dense vegetation is present in wetland, but the wetland is a closed depressional system with no outlet.	Wetland is a small depression adjacent to trail and residences with one Cowardin class (PEM).	Surface water limited to ditch.	Surface water limited to ditch.	Insufficient ponding for wetland-associated mammals.	No open water component in the wetland.	Wetland is not associated with a fish bearing water.	Wetland has one Cowardin class and vegetation is dominated by invasive species.	There is no nearby parking & the site has no documented scientific or educational use.	No documented protected species or habitat; not
	y Cate	Occurrence Y N				×	×	×	×	×	×	×	×	×	×	×
Project: _	Ecolog	Occ Y	×	×	×											
Wetland I.D. 28E	Cowardin Class: PEM	Function/Value	Flood Flow Alteration	Sediment Removal	Nutrient & Toxicant Removal	Erosion Control & Shoreline Stabilization	Production of Organic Matter and its Export	General Habitat Suitability	Habitat for Aquatic Invertebrates	Habitat for Amphibians	Habitat for Wetland-Associated Mammals	Habitat for Wetland-Associated Birds	General Fish Habitat	Native Plant Richness	Educational or Scientific Value	Uniqueness and Heritage

Assessed by: M. Maynard ELST South Sammamish Segment B Project: Wetland I.D. 29B

Wetland size: __0.03 acre_ Date:11/08/07 (rev: 09/27/13) N Ecology Category: IV Local Rating: Cowardin Class: PEM

Comments Function(s) Principal Wetland likely does not provide this function since Wetland likely does not provide this function since Wetland is a maintained yard and connectivity is Wetland has a slope HGM class and is saturated Wetland has a slope HGM class and is saturated Wetland has a slope HGM class and is saturated Wetland has a slope HGM class and is saturated since it is a slope HGM class and is maintained vegetation. However, inundation does not occur The wetland is a maintained lawn dominated by Wetland is densely vegetated with herbaceous Wetland likely does not provide this function Wetland likely does not provide this function Wetland is not associated with a fish-bearing it is a slope HGM class and is maintained since it is a slope HGM class and is not fragmented by residential development. and organic material export is minimal. only. Inundation does not occur. Rationale associated with a water course. it is a slope HGM class. lawn/yard. water. Occurrence × × × × × × × × × × × Habitat for Wetland-Associated Habitat for Wetland-Associated Nutrient & Toxicant Removal Production of Organic Matter Erosion Control & Shoreline General Habitat Suitability Function/Value Habitat for Amphibians Flood Flow Alteration Native Plant Richness General Fish Habitat Habitat for Aquatic Sediment Removal and its Export Invertebrates Stabilization Mammals

No documented protected species or habitat; not determined significant by local jurisdiction.

×

Uniqueness and Heritage

There is no nearby parking & the site has no

×

Educational or Scientific Value

mowed grass.

documented scientific or educational use.

M. Maynard	
Assessed by:	
ELST South Sammamish Segment B	
Project:	
Wetland I.D. 29C	

Date: 11/08/07 (rev: 03/20/14) Cowardin Class: PFO Ecology Category: IV Local Rating: IV Wetland size: 0.06 acre

	Comments		Rating=Low	Rating=Low	Rating=Low	Rating=Moderate Qualifiers: (1, 5, 6)	Rating=Low	Rating=Low Qualifiers: (1, 4, 6)	Rating=Low Qualifiers: (1, 2, 6)	Rating=Low	Rating=Low	Rating=Low	Rating=Low Qualifiers: (1)		
al	(s)		Rating	Rating	Rating	Rating Quali	Rating	Rating Quali	Rating Quali	Rating	Rating	Rating	Rating Quali		
Principal	Function(s)					Jc		. ih	is of		to				
	Rationale	Wetland likely does not provide this function.	Wetland likely provides minimal support for this function.	Wetland likely provides minimal support for this function.	Wetland likely provides minimal support for this function. Associated with Lake Sammamish.	Wetland is densely covered with herbaceous vegetation and drains into a stream to the south of the wetland and Lake Sammamish.	Wetland is small and connectivity is fragmented.	Ditch is vegetated with emergent vegetation and is seasonally inundated. A stream is located south of the wetland and Lake Sammamish to the west.	Ditch is vegetated with emergent vegetation and is seasonally inundated. A stream is located south of the wetland and Lake Sammamish to the west	No permanent inundation occurs in the wetland. Connected to Lake Sammamish.	No open water occurs in the wetland. Connected to Lake Sammamish.	Connected to Lake Sammamish.	Dominate vegetation in wetland is native.	There is no nearby parking & the site has no documented scientific or educational use.	No documented protected species or habitat; not determined significant by local jurisdiction.
Occurrence	Z	×												X	×
Occı	Y		×	×	X	X	×	X	X	X	×	×	X		
	Function/Value	Flood Flow Alteration	Sediment Removal	Nutrient & Toxicant Removal	Erosion Control & Shoreline Stabilization	Production of Organic Matter and its Export	General Habitat Suitability	Habitat for Aquatic Invertebrates	Habitat for Amphibians	Habitat for Wetland-Associated Mammals	Habitat for Wetland-Associated Birds	General Fish Habitat	Native Plant Richness	Educational or Scientific Value	Uniqueness and Heritage

Wetland I.D. 29D Project: ELST So

ELST South Sammamish Segment B

Assessed by: M. Maynard

Ecology Category: IV Local Rating: IV Wetland size: 0.08 acre_ Date: 11/13/07 (rev: 09/27/13) Cowardin Class: PEM/PSS

	s) Comments	Rating=Low Qualifiers: (2)	Rating=Low Qualifiers: (3, 5)	Rating=Low Qualifiers: (1, 2, 4)	Rating=Low Qualifiers: (1, 2, 3)	Rating=Moderate Qualifiers: (1, 2, 5, 6)	Rating=Low Qualifiers: (5)						Rating=Low Qualifiers: (2, 3)		
Principal	Function(s)														
	Rationale Fund	Wetland likely provides this function, although in a limited capacity due to the depressional portion being ditched.	Wetland is densely vegetated, but sediment sources are limited.	Wetland is densely vegetated and some toxicants may be provided by road or trail.	Wetland is densely vegetated, but water flow is limited through Wetland 29D.	Wetland is densely covered with herbaceous vegetation and drains into a stream.to the north of the wetland.	Wetland is connectivity is fragmented, but wetland has multiple Cowardin classes.	Wetland likely does not provide this function, since wetland does not appear to be seasonally inundated and when ponding occurs, is shallow.	Wetland likely does not provide this function, since wetland does not appear to be seasonally inundated and when ponding occurs, is shallow.	No permanent inundation occurs in the wetland.	No open water occurs in the wetland.	Wetland likely does not provide this function since it is not associated with a stream.	Dominate vegetation in wetland is not native, but wetland has multiple Cowardin classes with three strata.	There is no nearby parking & the site has no documented scientific or educational use.	No documented protected species or habitat; not determined significant by local jurisdiction.
Occurrence	Z							×	×	×	×	×		×	X
Occı	Y	X	X	×	X	X	X						X		
	Function/Value	Flood Flow Alteration	Sediment Removal	Nutrient & Toxicant Removal	Erosion Control & Shoreline Stabilization	Production of Organic Matter and its Export	General Habitat Suitability	Habitat for Aquatic Invertebrates	Habitat for Amphibians	Habitat for Wetland-Associated Mammals	Habitat for Wetland-Associated Birds	General Fish Habitat	Native Plant Richness	Educational or Scientific Value	Uniqueness and Heritage

Project:_ Wetland I.D. 30B

ELST South Sammamish Segment B

Assessed by: Erik Christensen

Cowardin Class: PFO Ecology Category: III

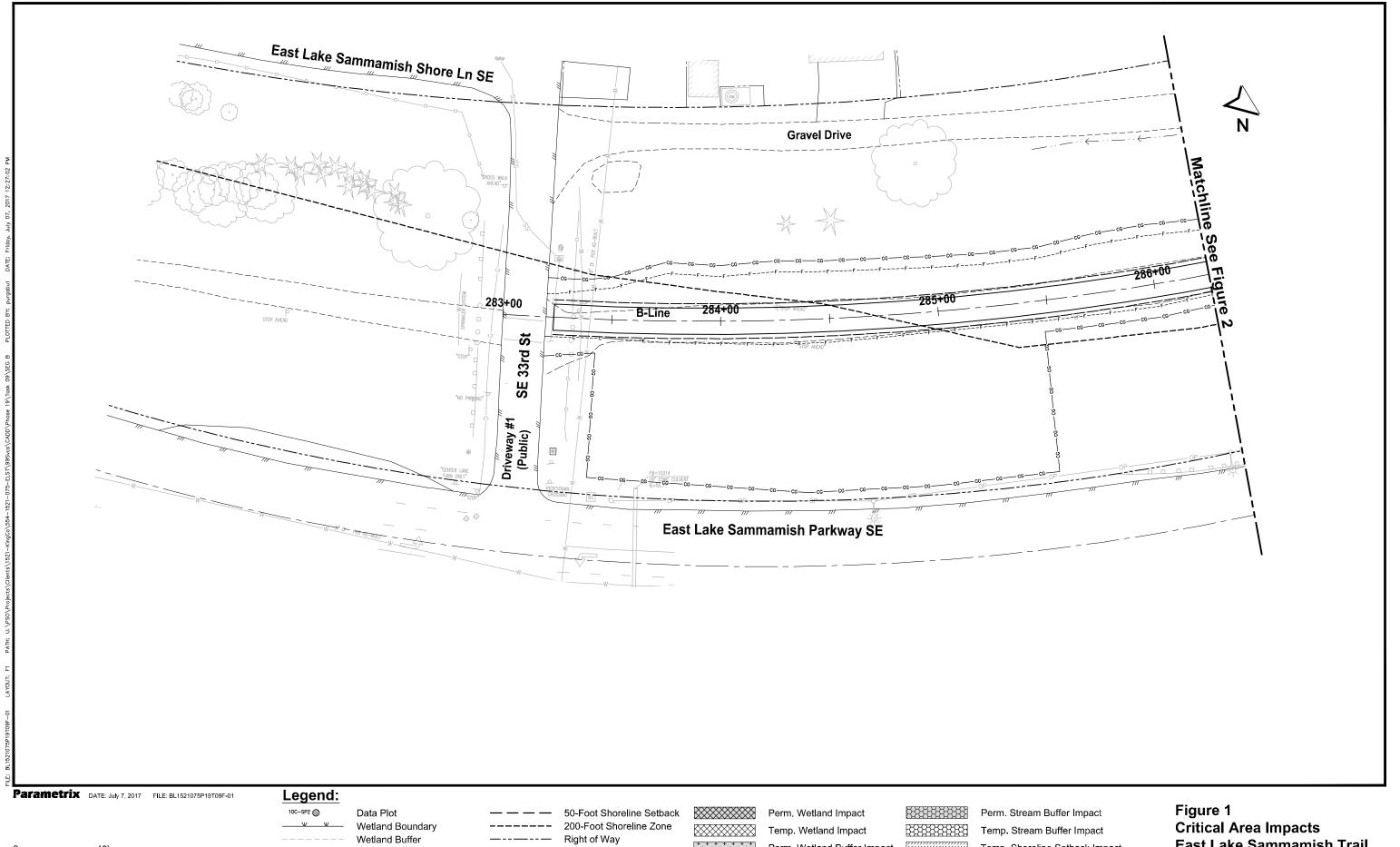
Local Rating: III Wetland size: _0.20 acre_

Date: 01/11/08 (rev: 09/27/13)

Principal	Rationale Function(s) Comments	stated ditch that is Rating=Low Qualifiers: (4, 5)	stated ditch that is Rating=Low Qualifiers: (1, 3, 5)	Wetland receives runoff from upslope towards East Lake Sammamish Parkway and is densely egetated.	Wetland is associated with Tributary 0143L with vegetation growing in channel.	land is densely vegetated with herbaceous deciduous woody vegetation. Export occurs ugh Tributary 0143L.	Wetland is a mitigation site and has been enhanced with vegetation and habitat structures. Rating= Moderate Qualifiers: (3, 5)	ith Tributary 0143L and Rating=Moderate d ditch that is seasonally Qualifiers: (4, 5, 6)	ith Tributary 0143L and Rating=Moderate d ditch that is seasonally Qualifiers: (1, 2)	n occurs in the wetland.	the wetland.	ith Tributary 0143L. Rating=Moderate Qualifiers: (1, 4)	e trees, and is dominated Rating=Moderate An some invasive species. Qualifiers: (1, 2, 3, 4)	ng & the site has no reducational use.	ed species or habitat; not v local inrisdiction
o	Ratio	Wetland contains a vegetated ditch that is permanently ponded.	Wetland contains a vegetated ditch that is permanently ponded.	Wetland receives runoff from upslope tow Lake Sammamish Parkway and is densely vegetated.	Wetland is associated with Trit vegetation growing in channel.	Wetland is densely vegetated with herbaceous and deciduous woody vegetation. Export occur through Tributary 0143L.	Wetland is a mitigation site and has be with vegetation and habitat structures.	Wetland is associated with Tributary 0143L and also contains a vegetated ditch that is seasonally ponded.	Wetland is associated with Tributary 0143L and also contains a vegetated ditch that is seasonally ponded.	No permanent inundation occurs in the wetland.	No open water occurs in the wetland.	Wetland is associated with Tributary 0143L.	Wetland contains mature trees, and is dominated by native vegetation with some invasive species.	There is no nearby parking & the site has no documented scientific or educational use.	No documented protected species or habitat; not determined significant by local jurisdiction
Occurrence	N /									×	X			X	×
00		X	×	×	×	X	×	×	×			×	×		
	Function/Value	Flood Flow Alteration	Sediment Removal	Nutrient & Toxicant Removal	Erosion Control & Shoreline Stabilization	Production of Organic Matter and its Export	General Habitat Suitability	Habitat for Aquatic Invertebrates	Habitat for Amphibians	Habitat for Wetland-Associated Mammals	Habitat for Wetland-Associated Birds	General Fish Habitat	Native Plant Richness	Educational or Scientific Value	Uniqueness and Heritage

APPENDIX D

Critical Area Impact Figures



Stream OHWM

Lake OHWM

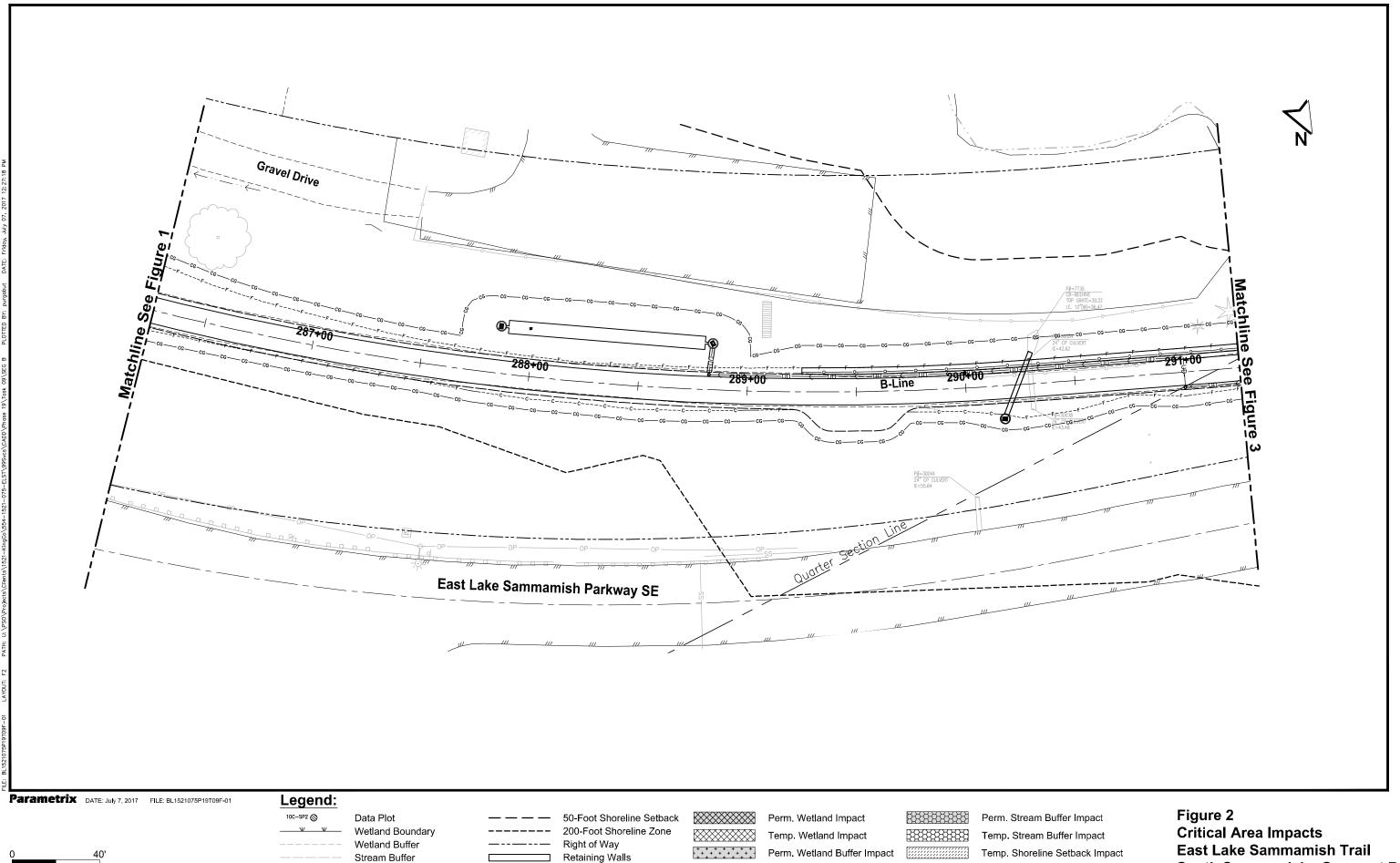
Retaining Walls F----F Fill Limit -----≎— Cut Limit

—∞— Clearing/Grubbing Limit

Perm. Wetland Buffer Impact Temp. Wetland Buffer Impact

Temp. Shoreline Setback Impact Perm. Shoreline Setback Impact Temp. Stream Impact

East Lake Sammamish Trail South Sammamish - Segment B



Temp. Wetland Buffer Impact

Perm. Shoreline Setback Impact

Temp. Stream Impact

-----Fill Limit

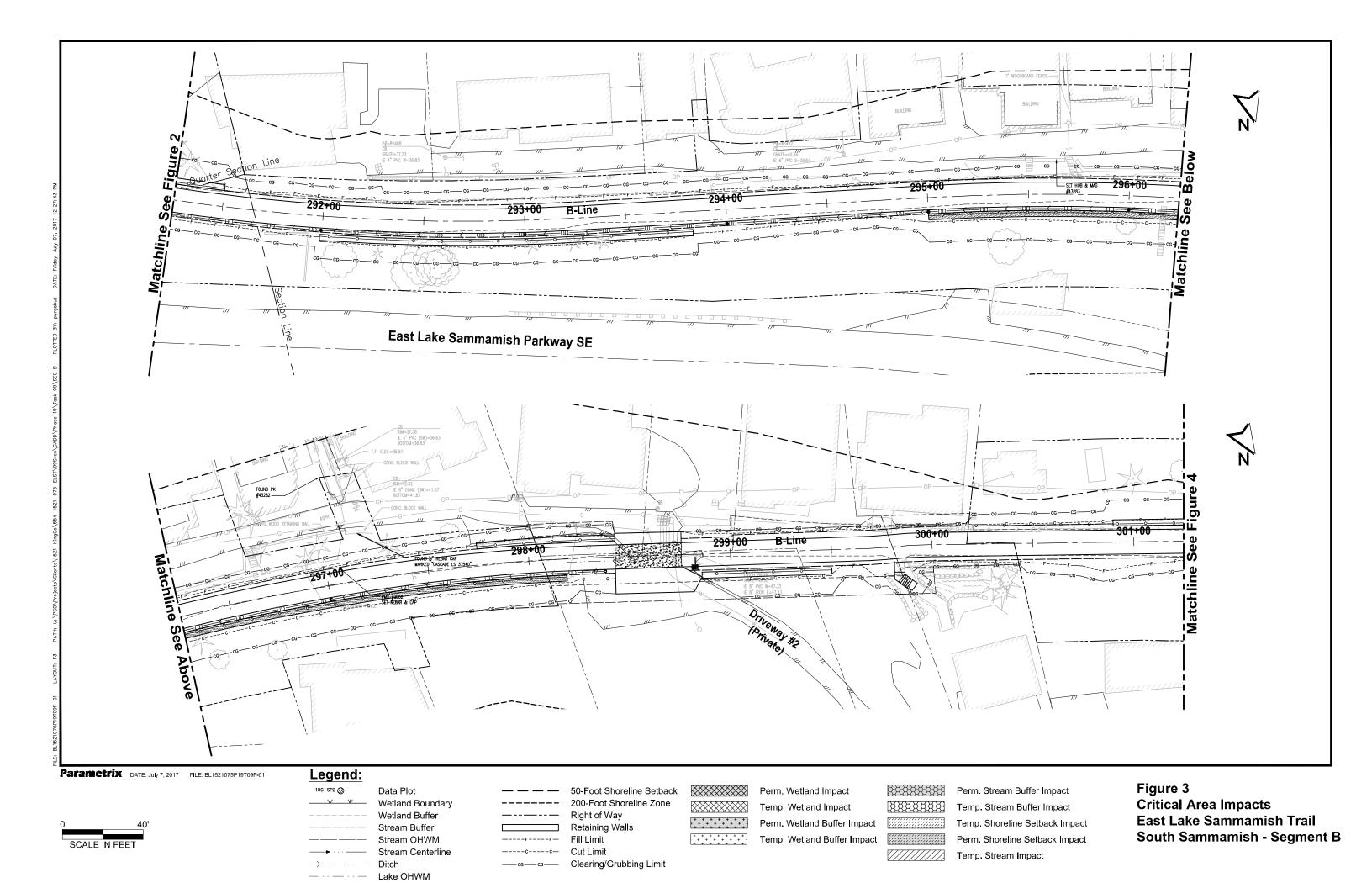
-c----c Cut Limit

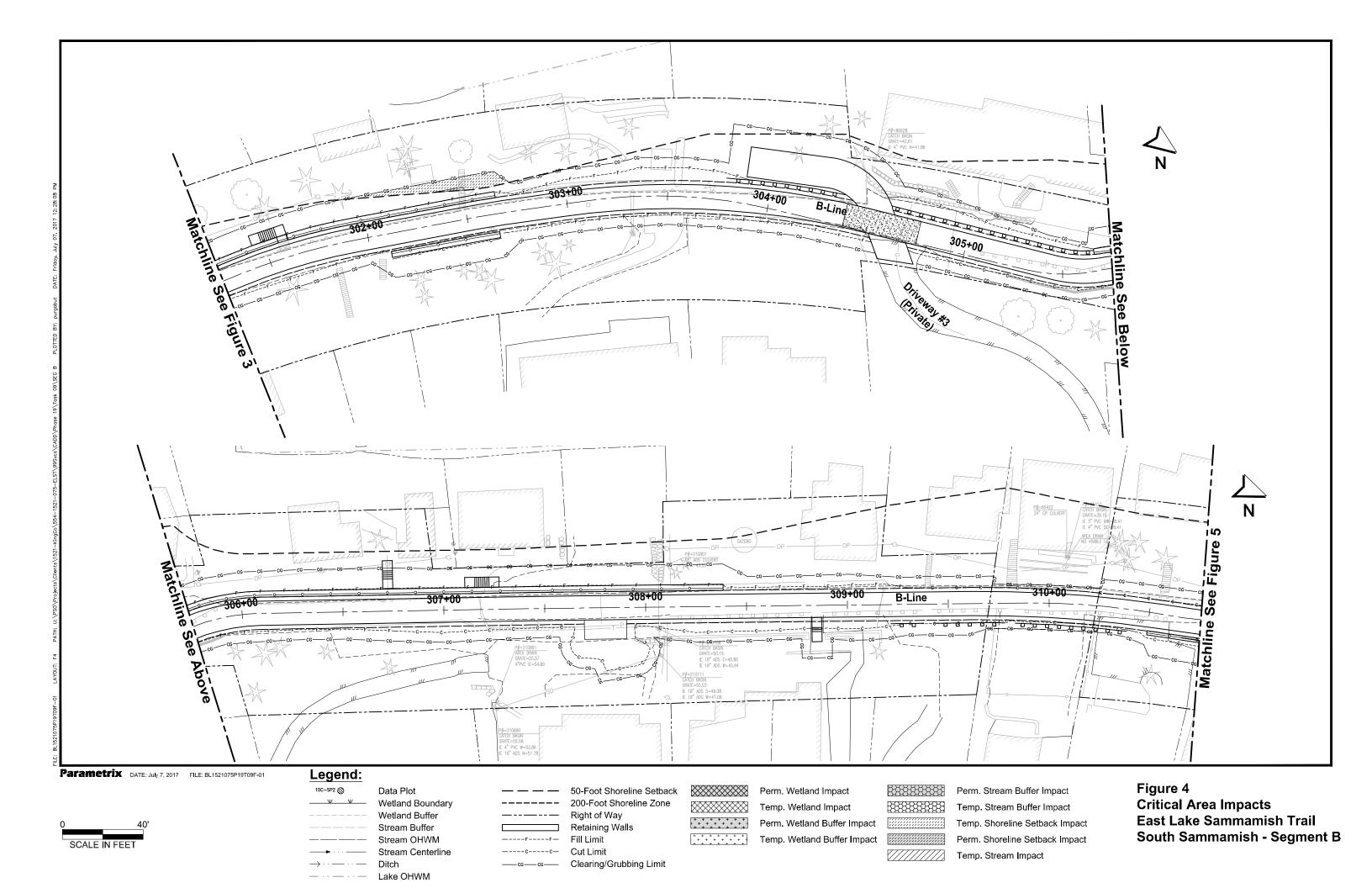
—∞— Clearing/Grubbing Limit

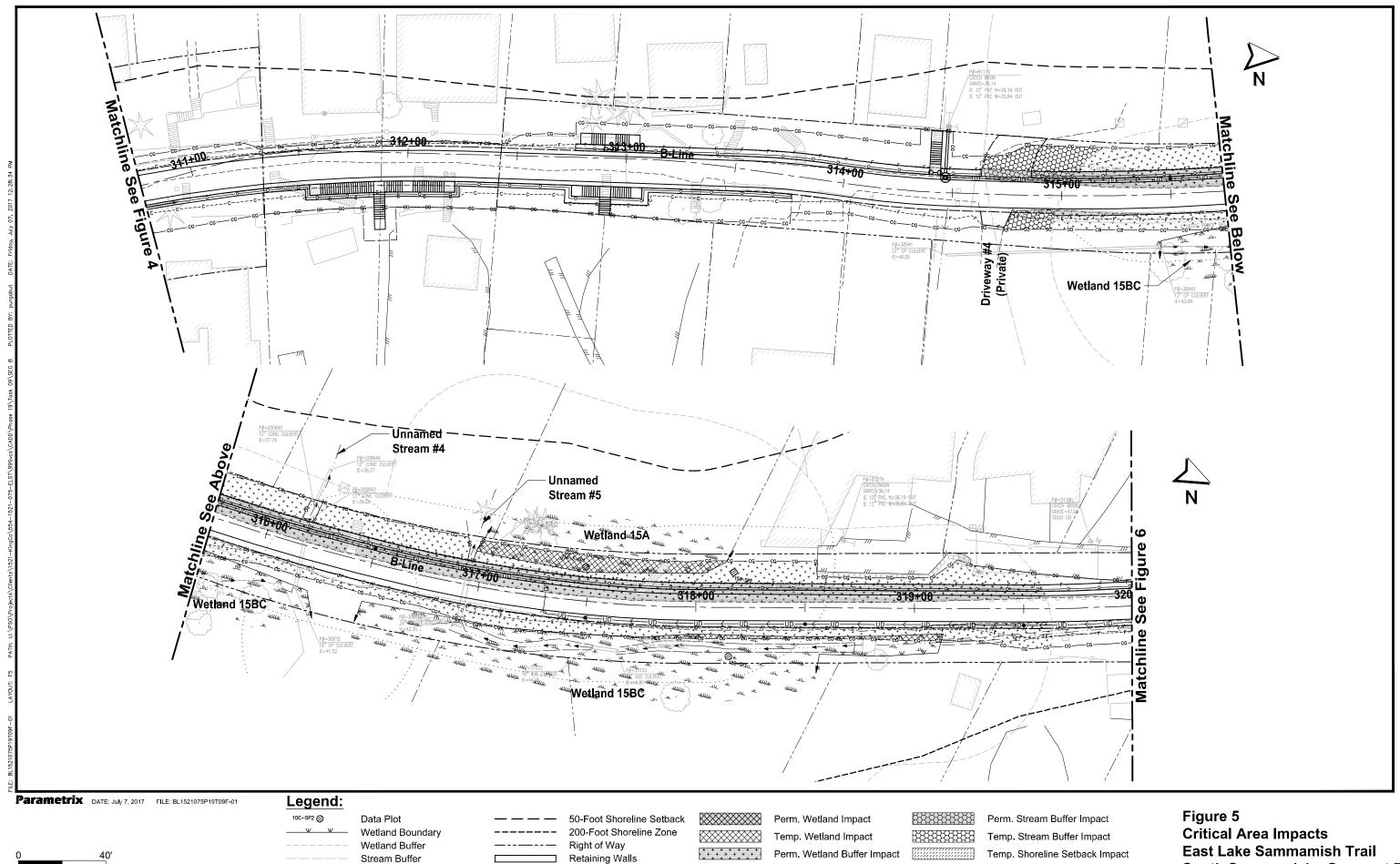
Stream OHWM

Lake OHWM

East Lake Sammamish Trail South Sammamish - Segment B







Temp. Wetland Buffer Impact

Perm. Shoreline Setback Impact

Temp. Stream Impact

F----F Fill Limit

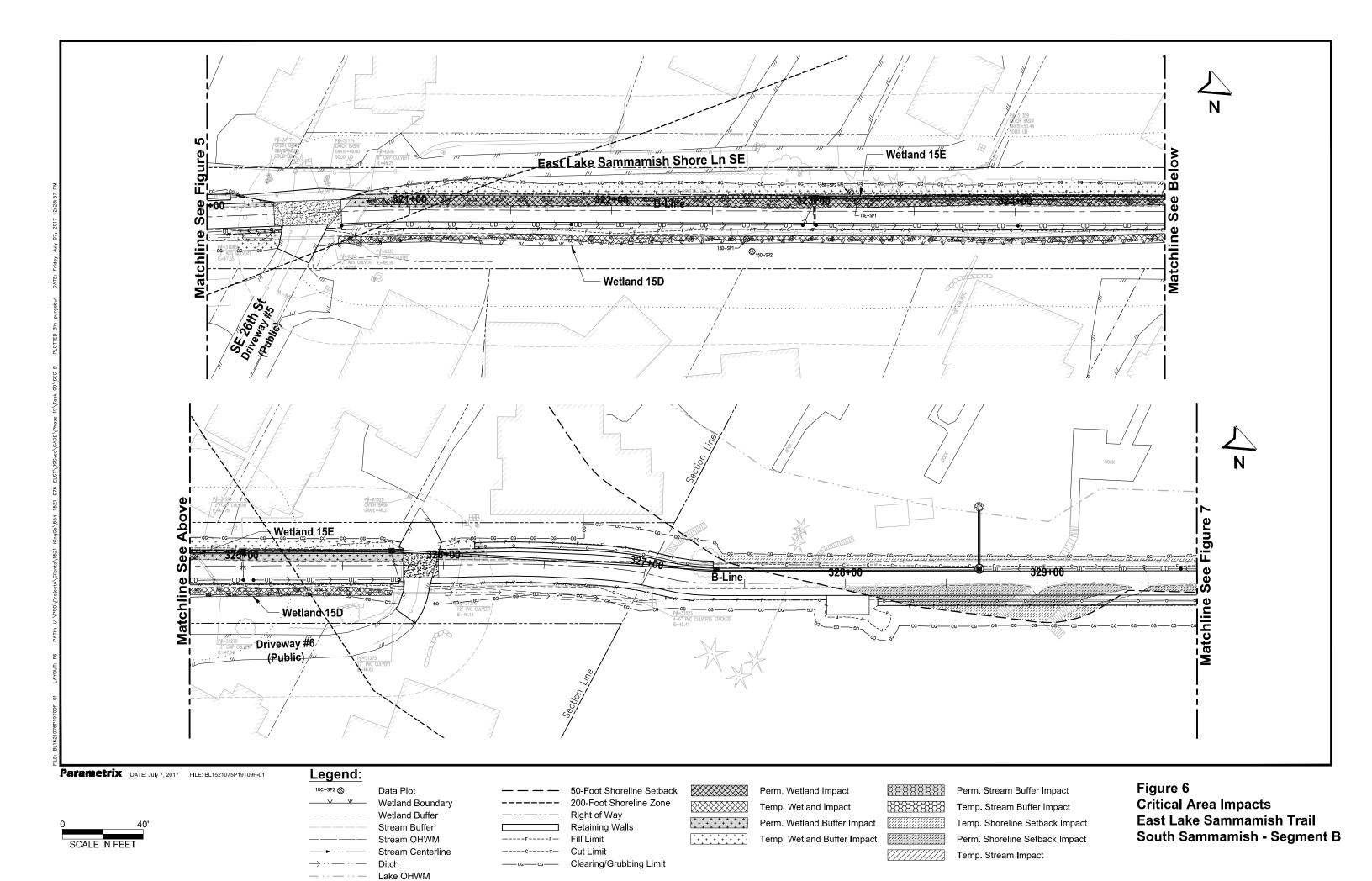
----c Cut Limit

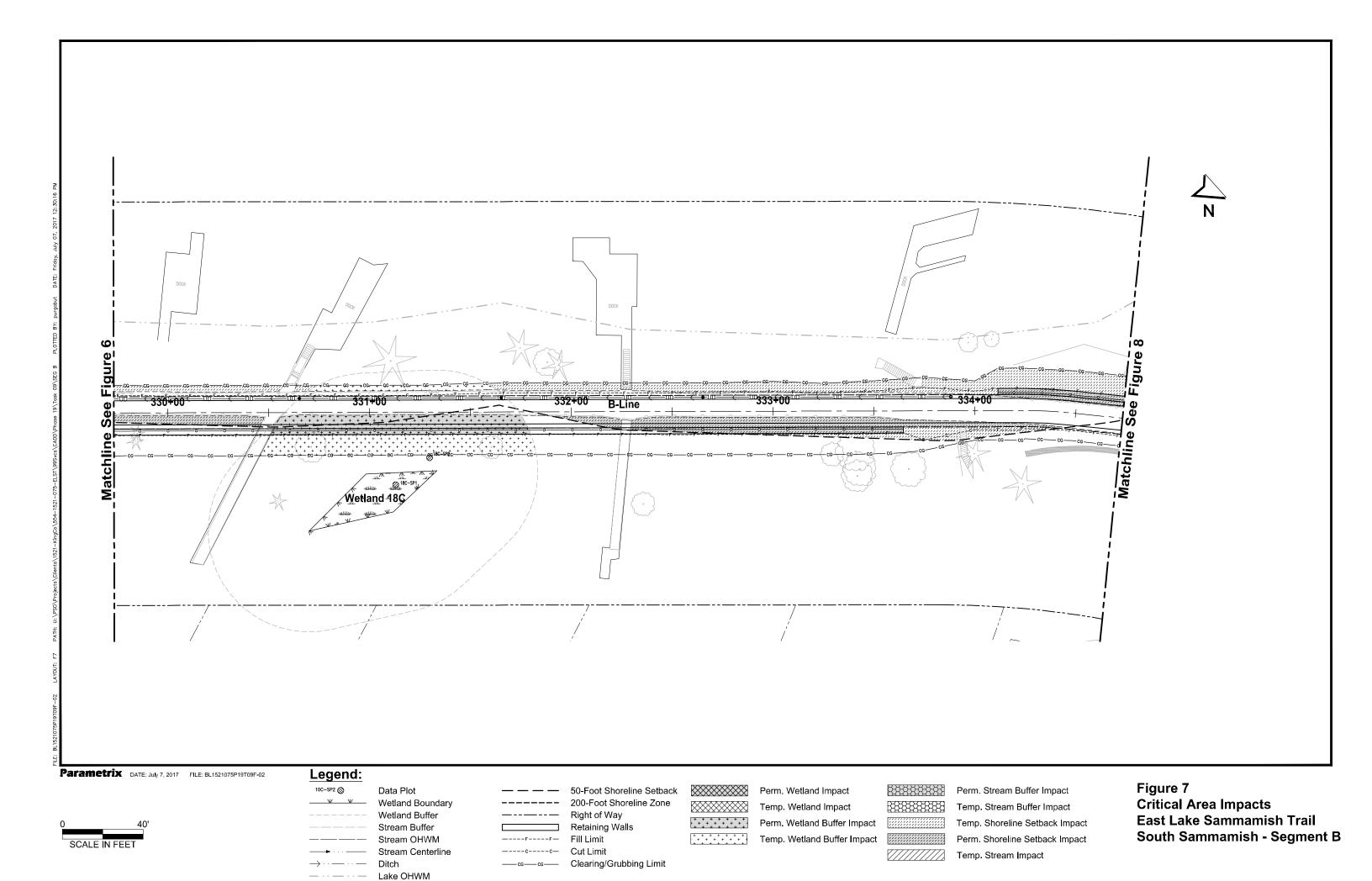
—∞— Clearing/Grubbing Limit

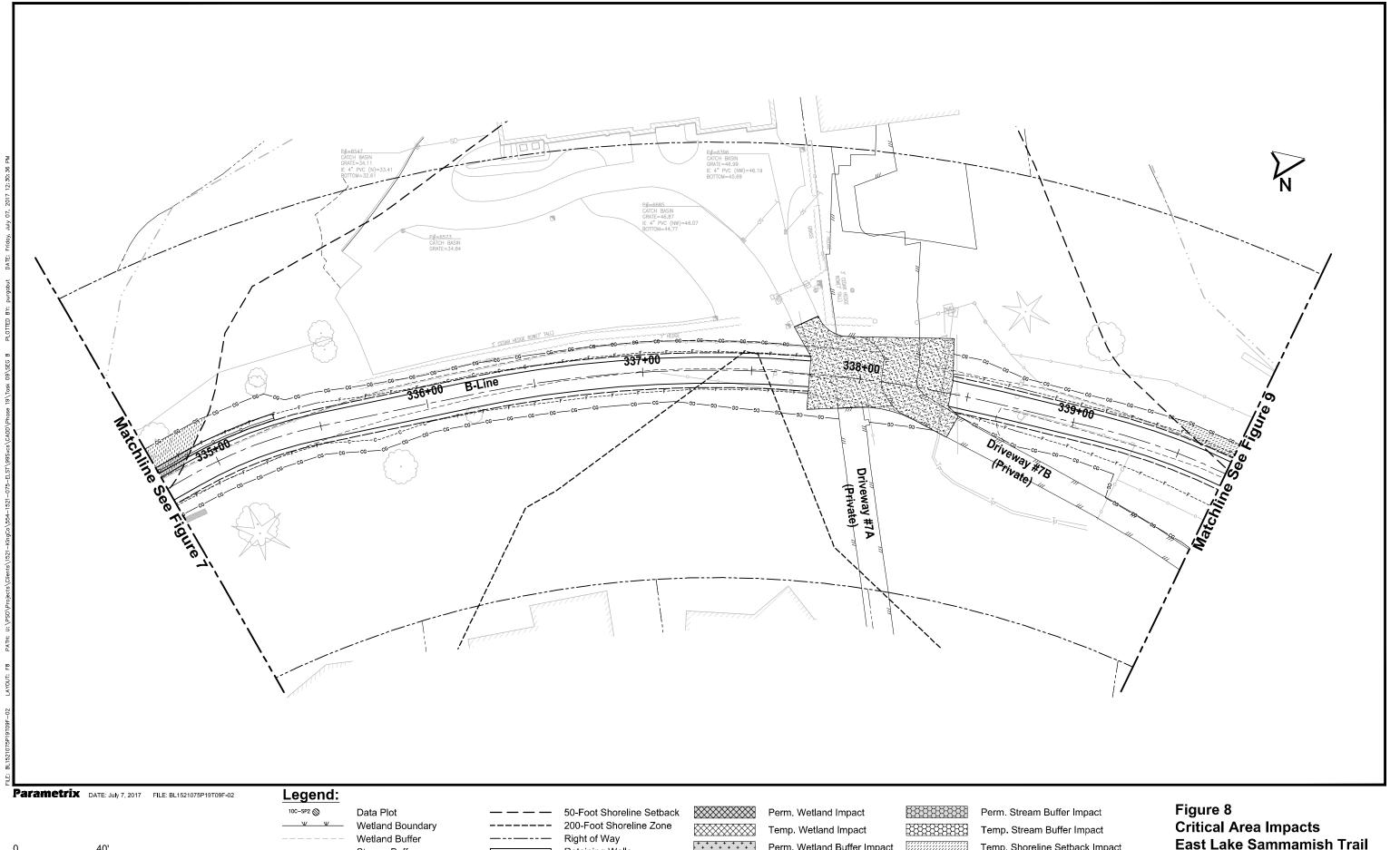
Stream OHWM

Lake OHWM

South Sammamish - Segment B







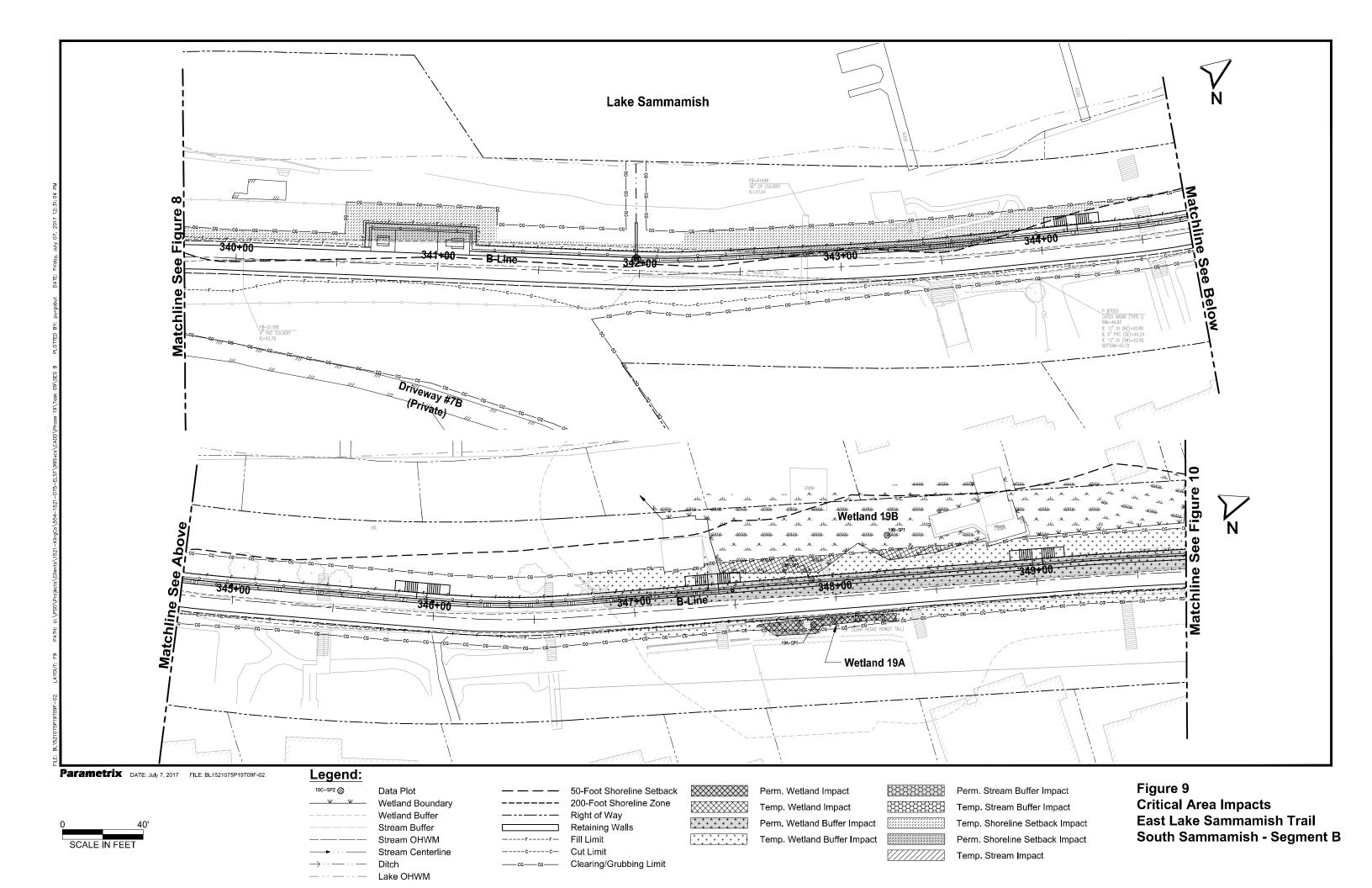
Stream Buffer Stream OHWM

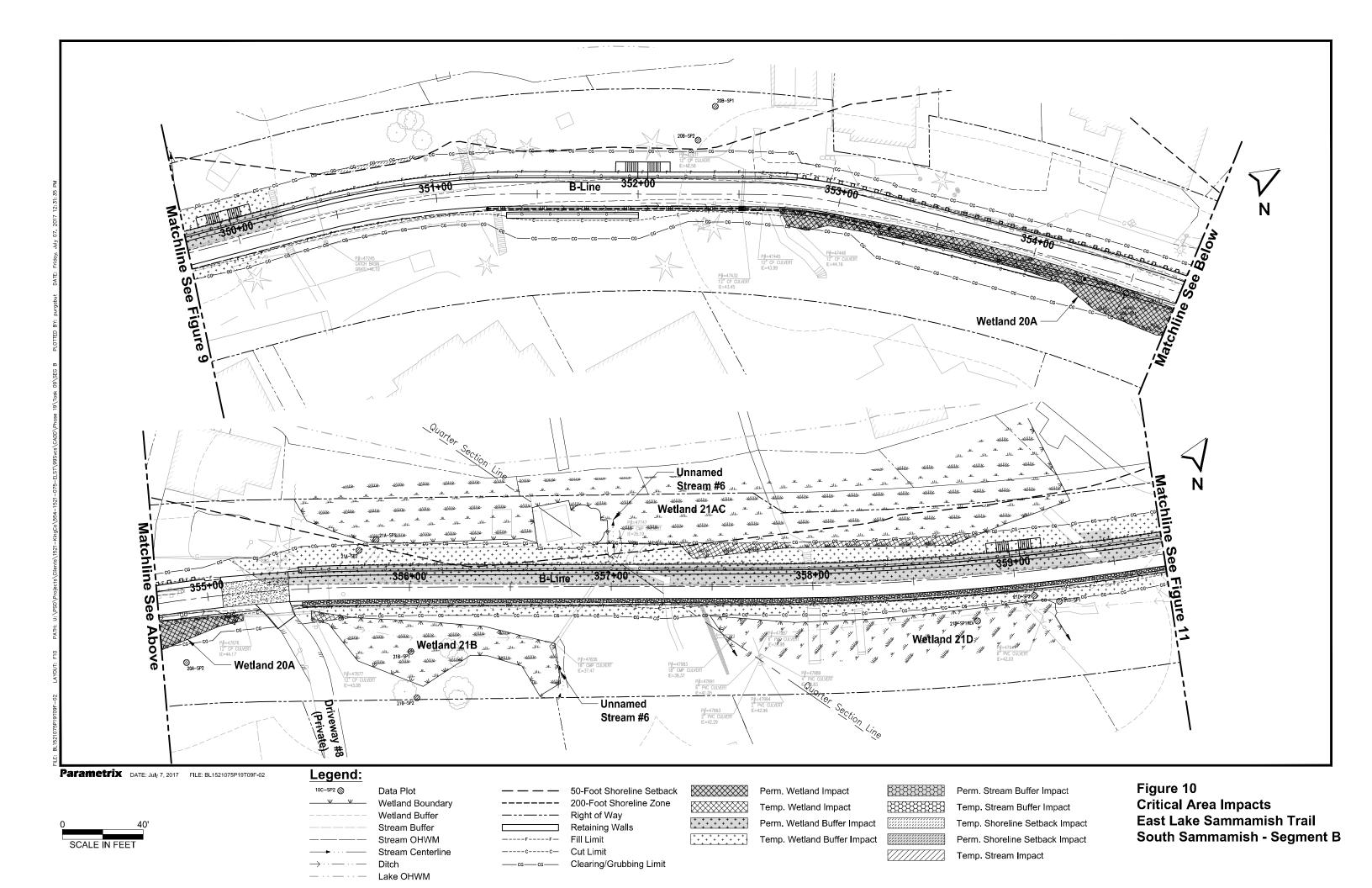
Lake OHWM

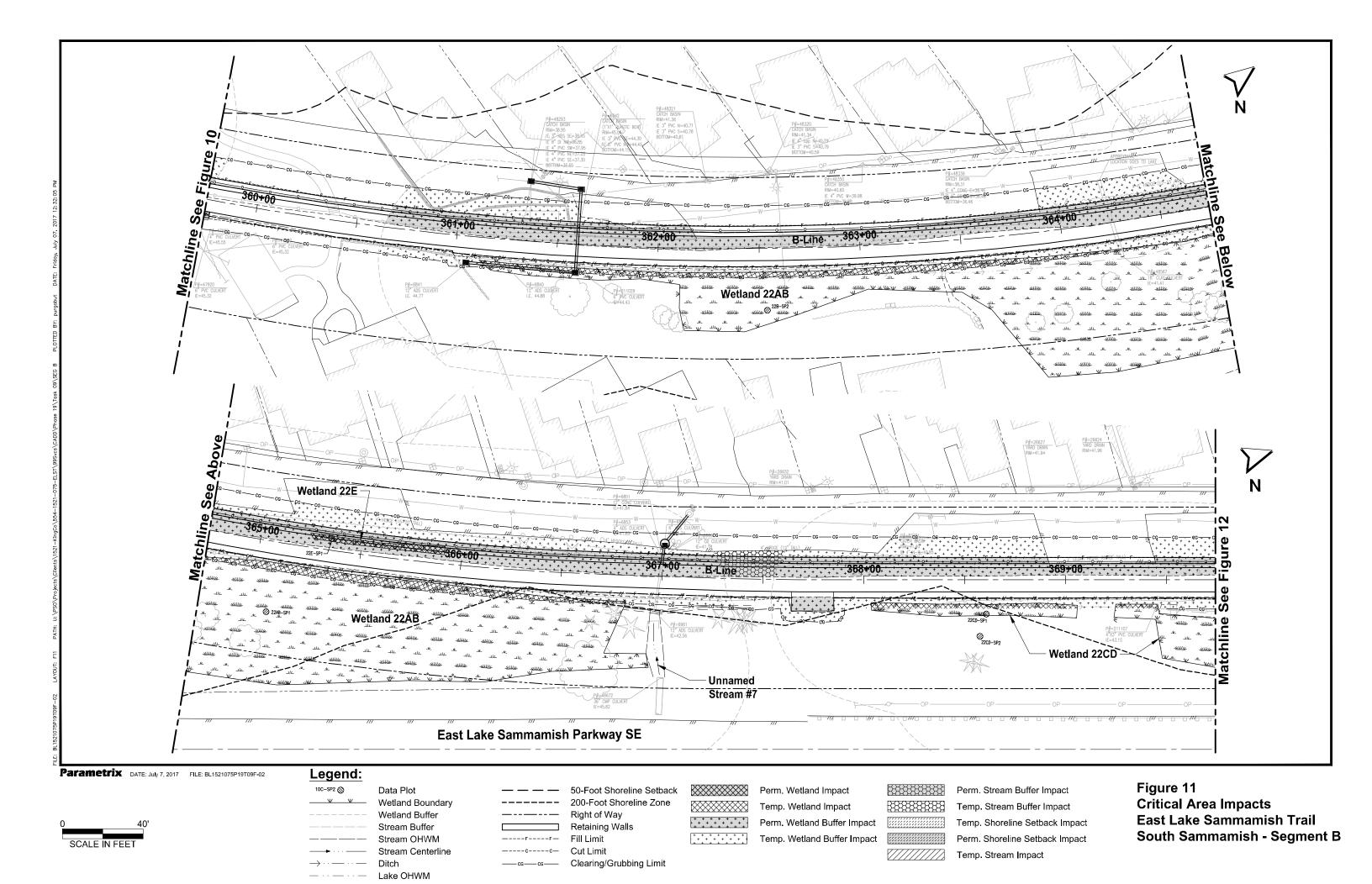
Retaining Walls -F----F Fill Limit -c----c Cut Limit –∝— Clearing/Grubbing Limit Perm. Wetland Buffer Impact Temp. Wetland Buffer Impact

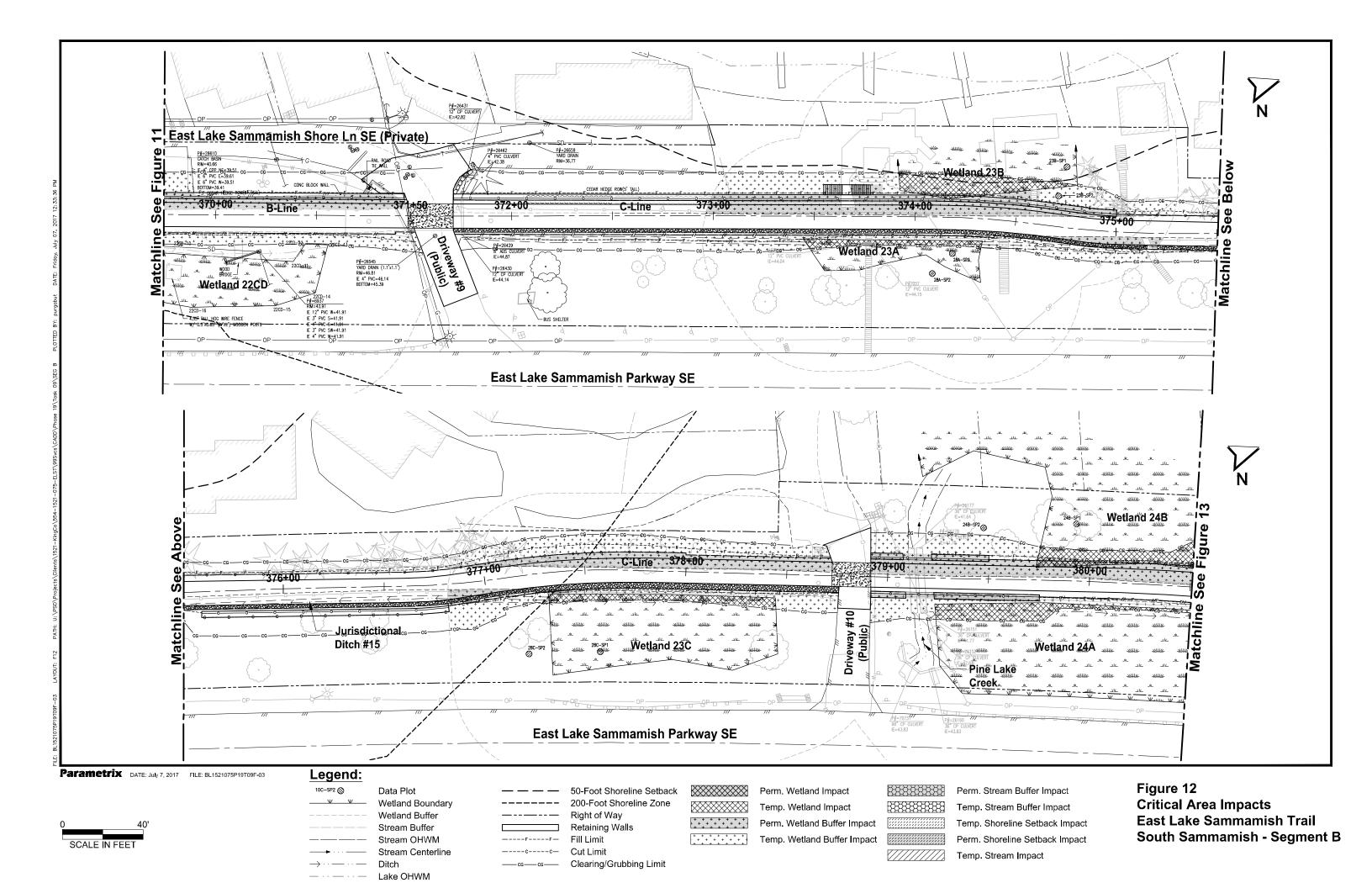
Temp. Shoreline Setback Impact Perm. Shoreline Setback Impact Temp. Stream Impact

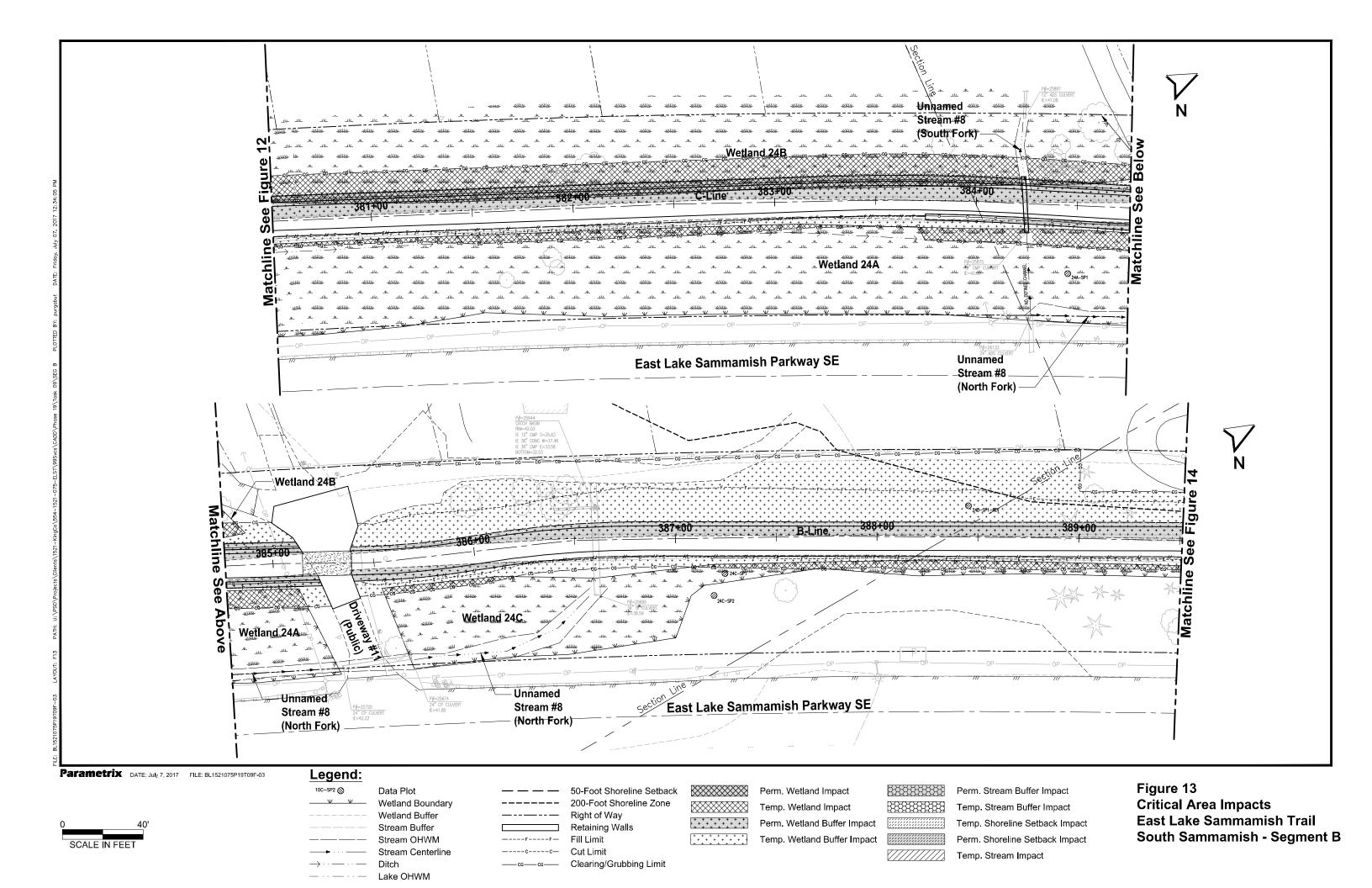
East Lake Sammamish Trail South Sammamish - Segment B

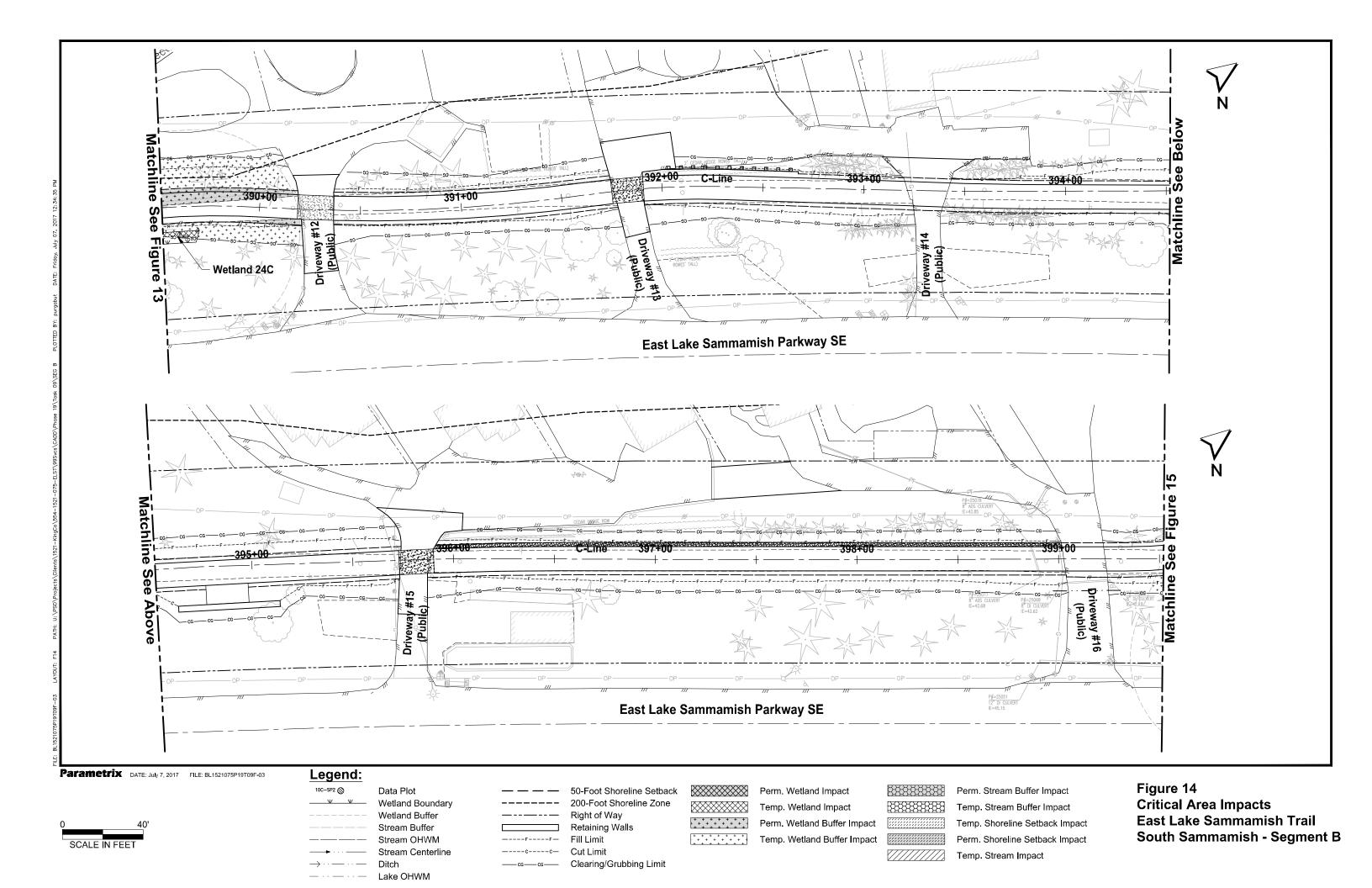


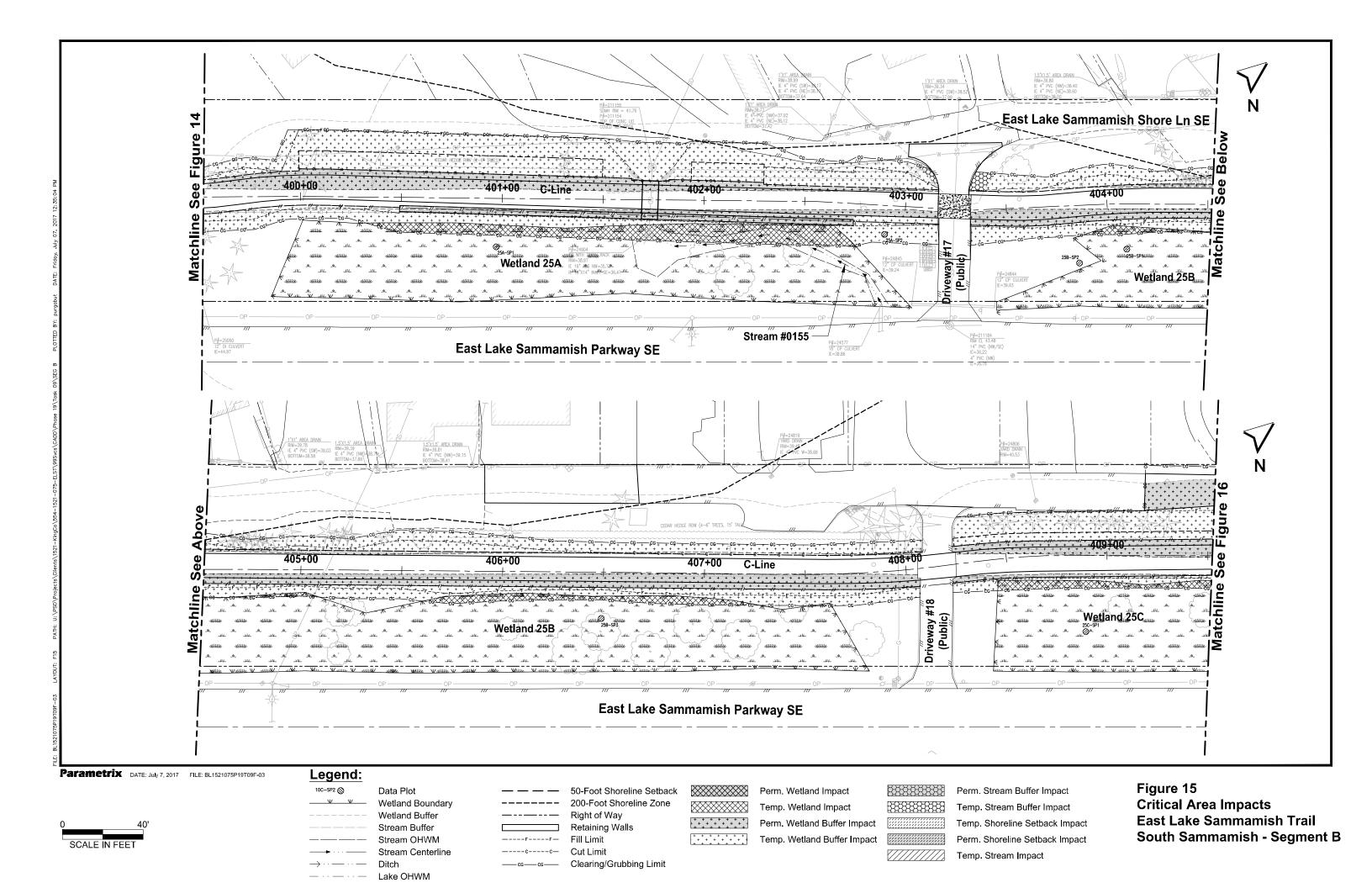


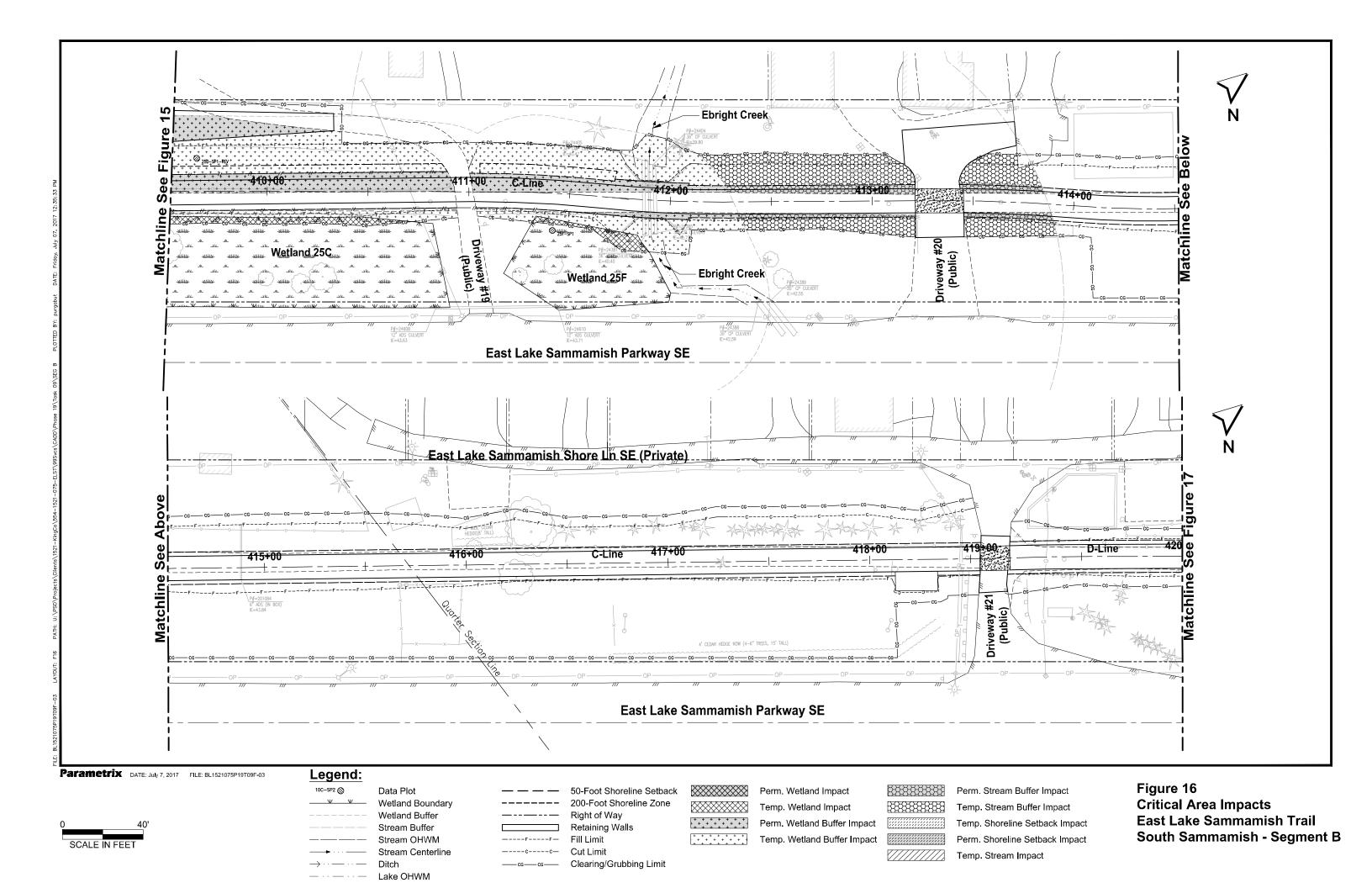


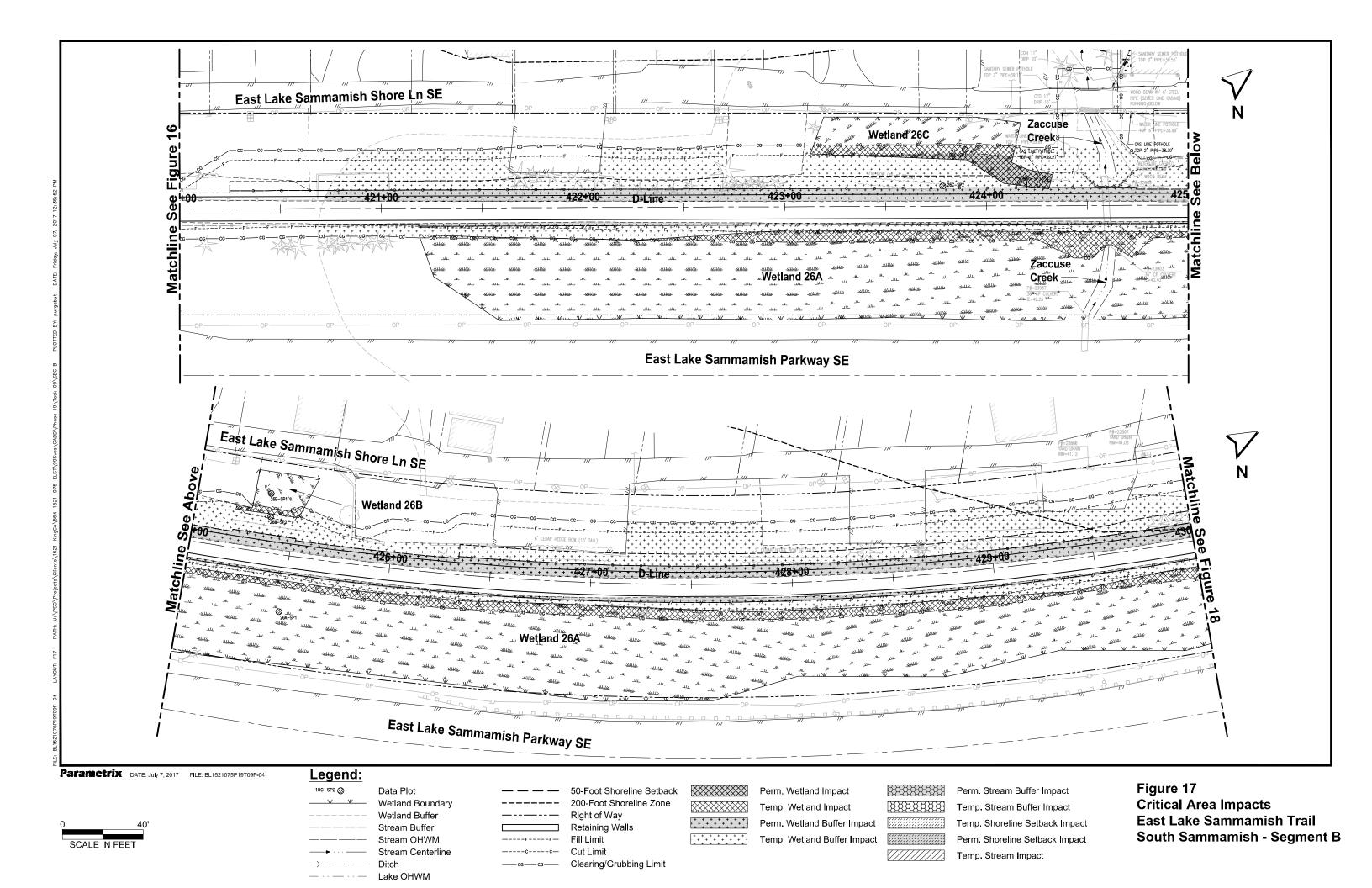


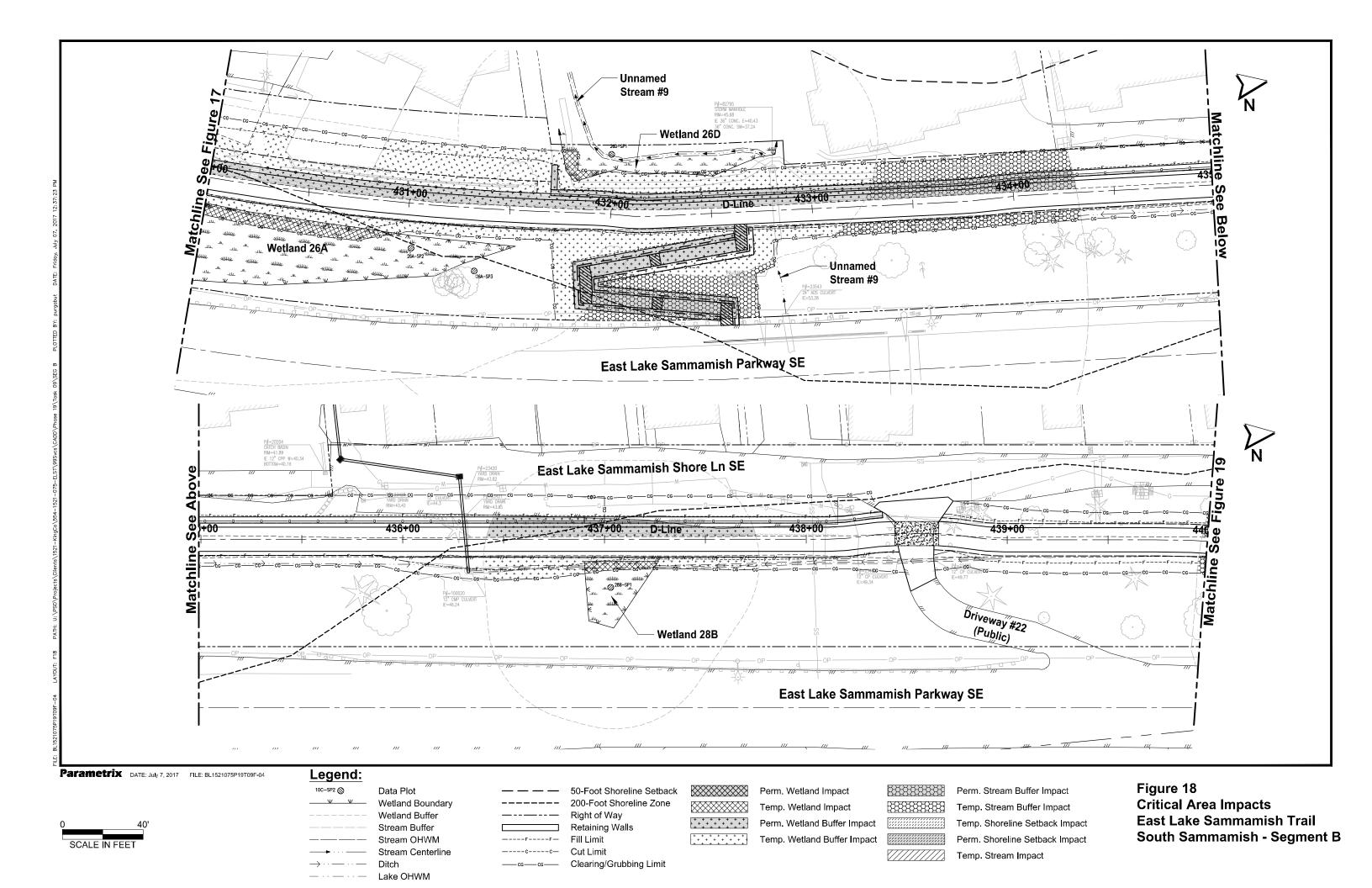


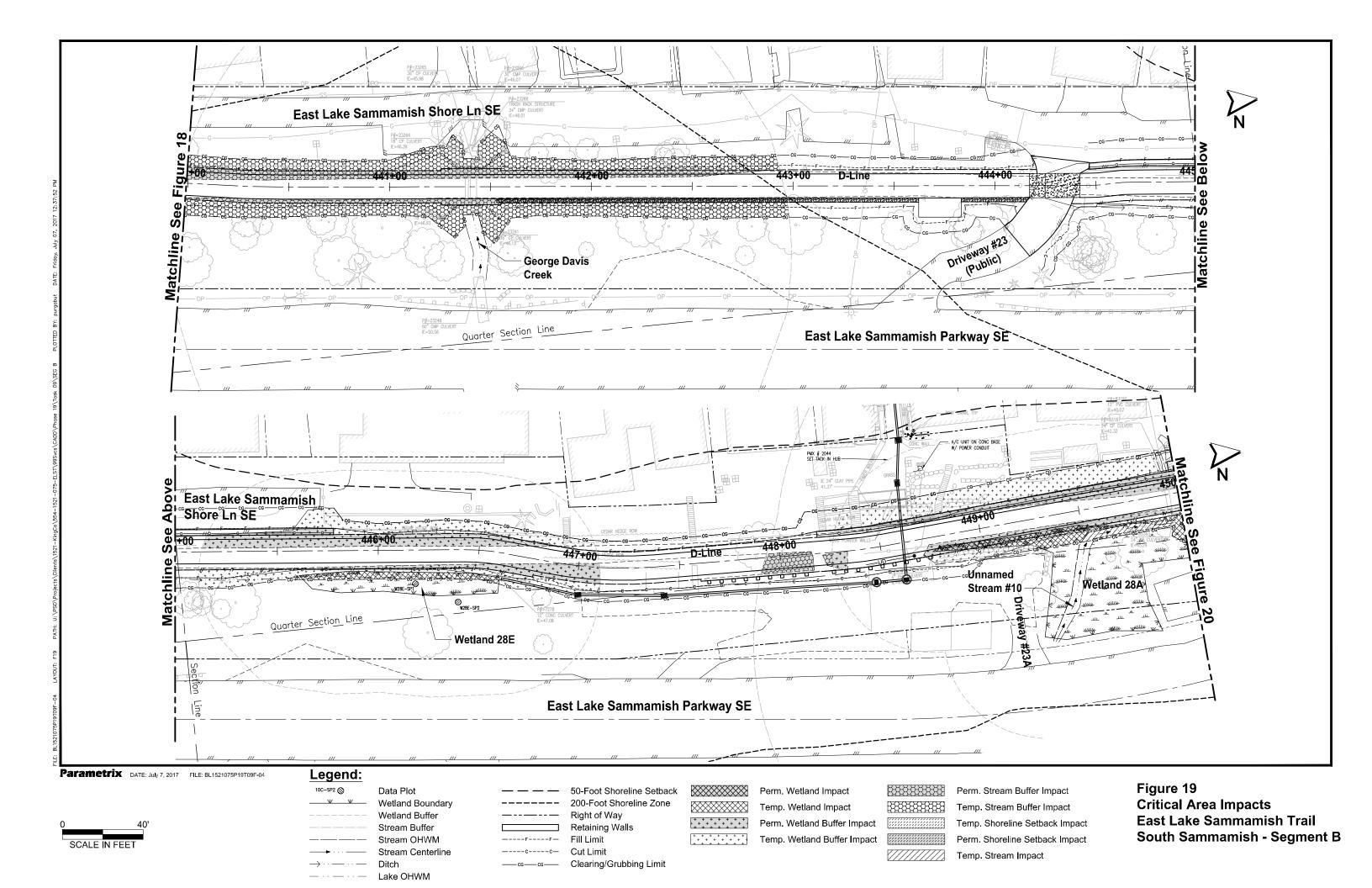


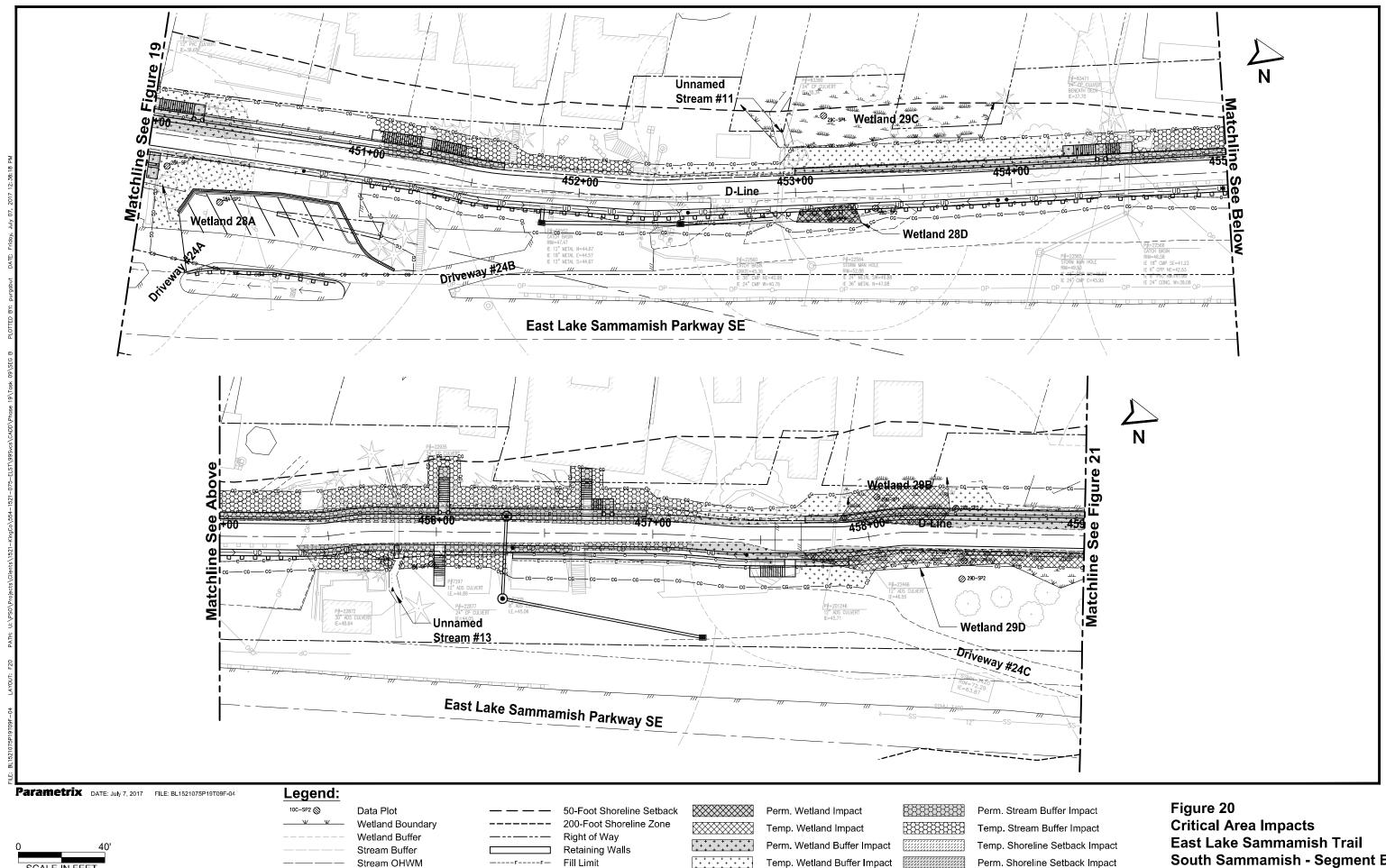












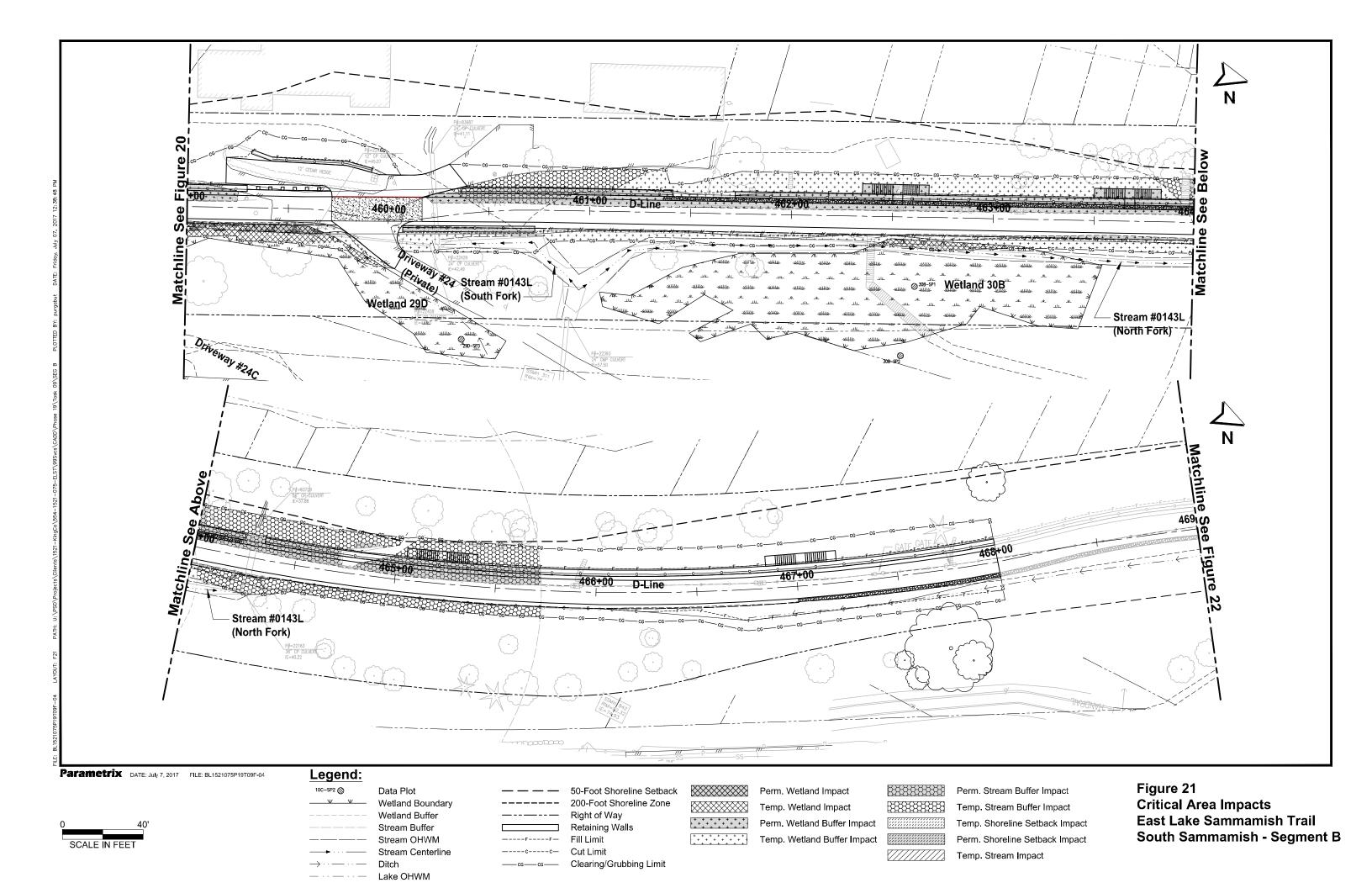
Cut Limit

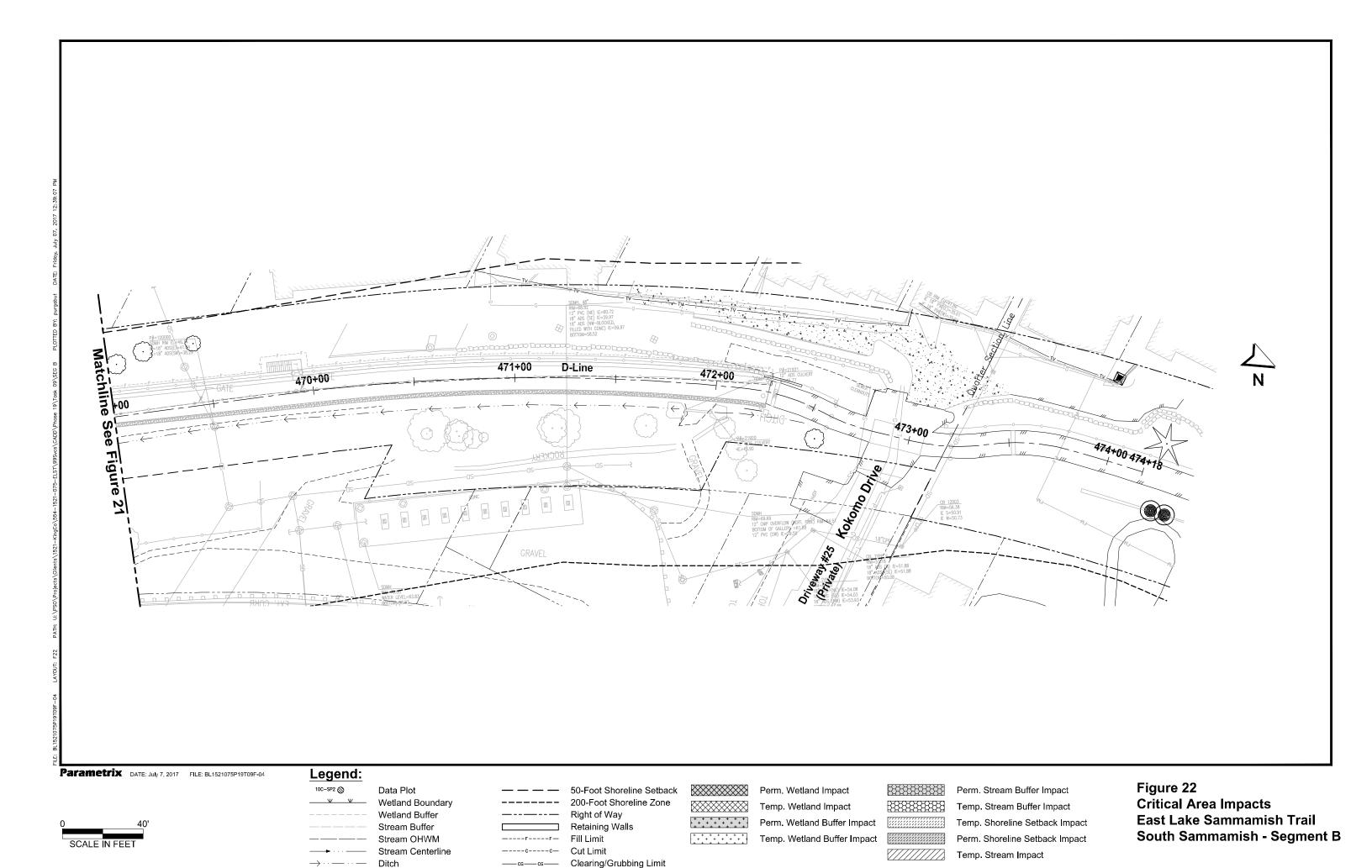
Lake OHWM

–∞— Clearing/Grubbing Limit

South Sammamish - Segment B

Temp. Stream Impact

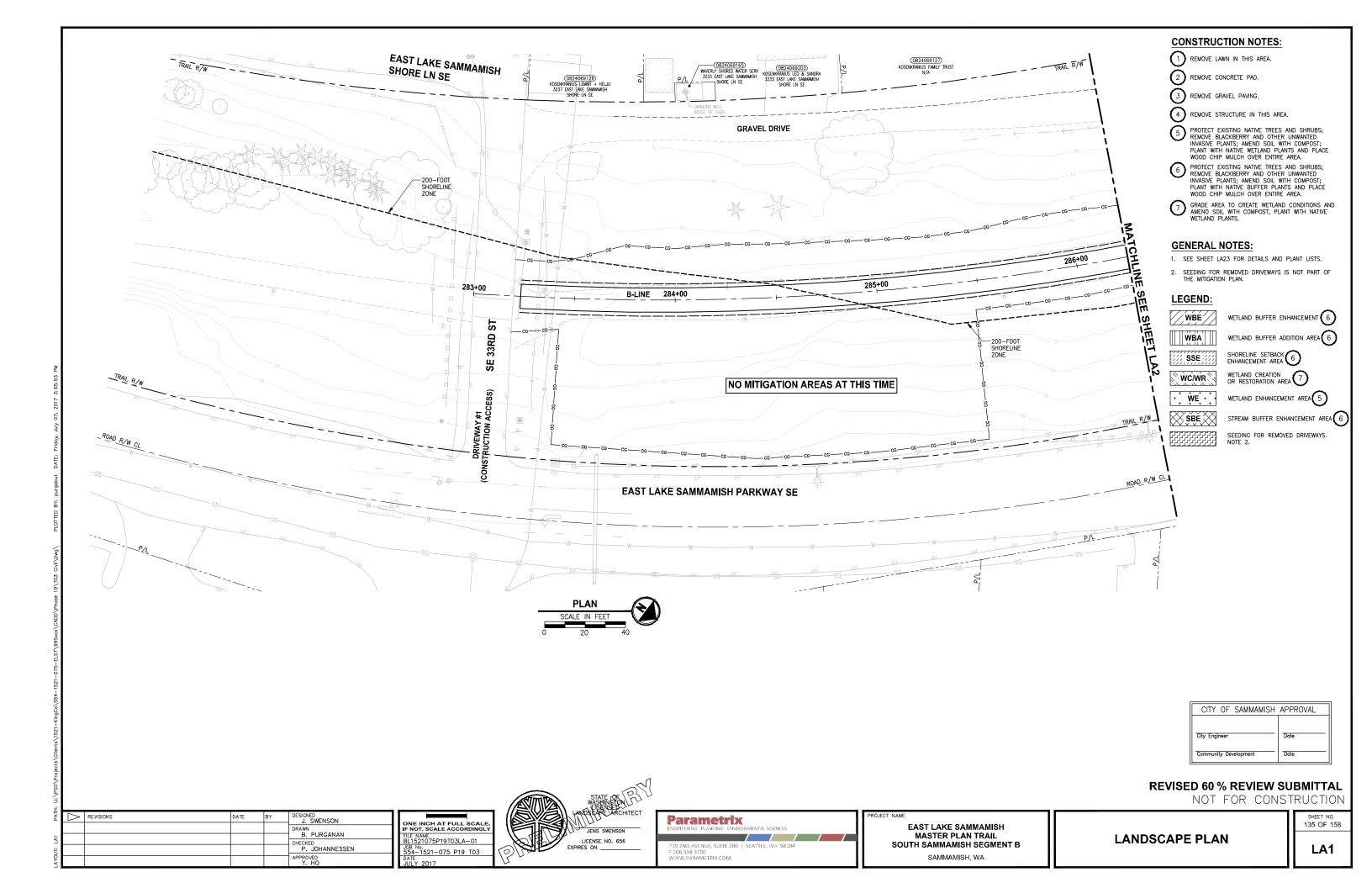


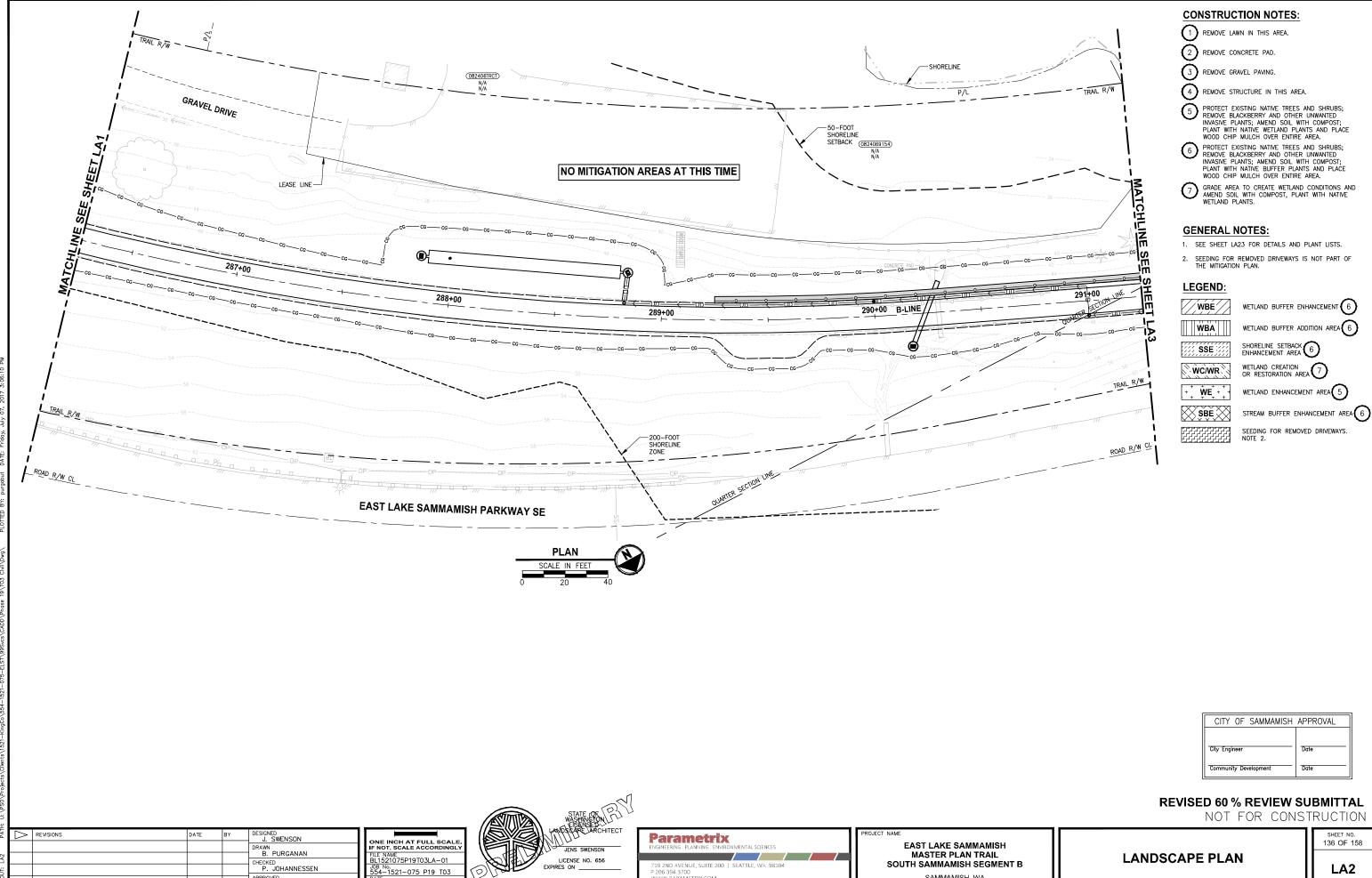


Lake OHWM

APPENDIX E

Critical Areas Mitigation Landscape Plans





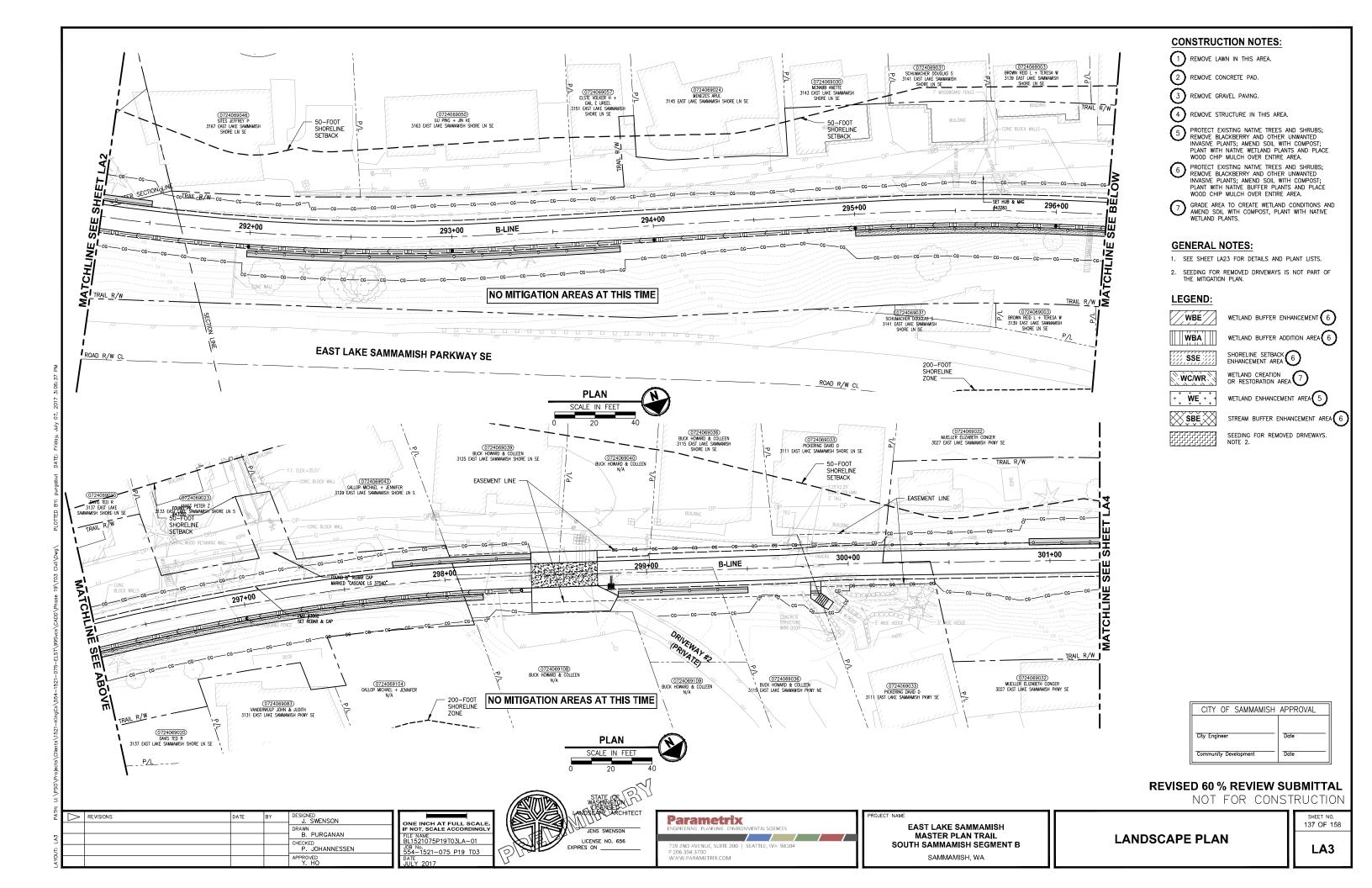
719 2ND AVENUE, SUITE 200 | SEATTLE, WA 98104 P 206.394.3700 WWW.PARAMETRIX.COM

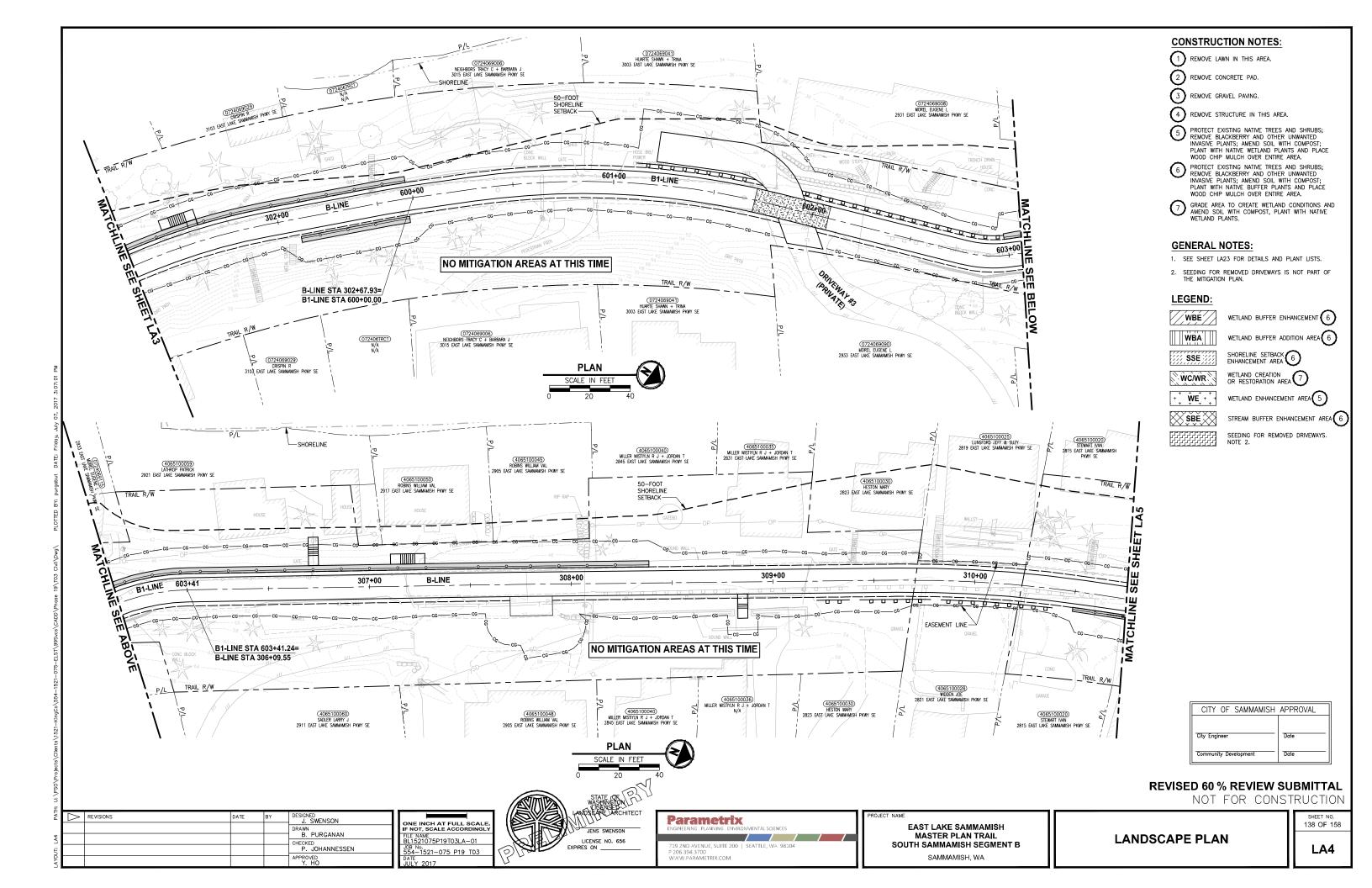
SAMMAMISH, WA

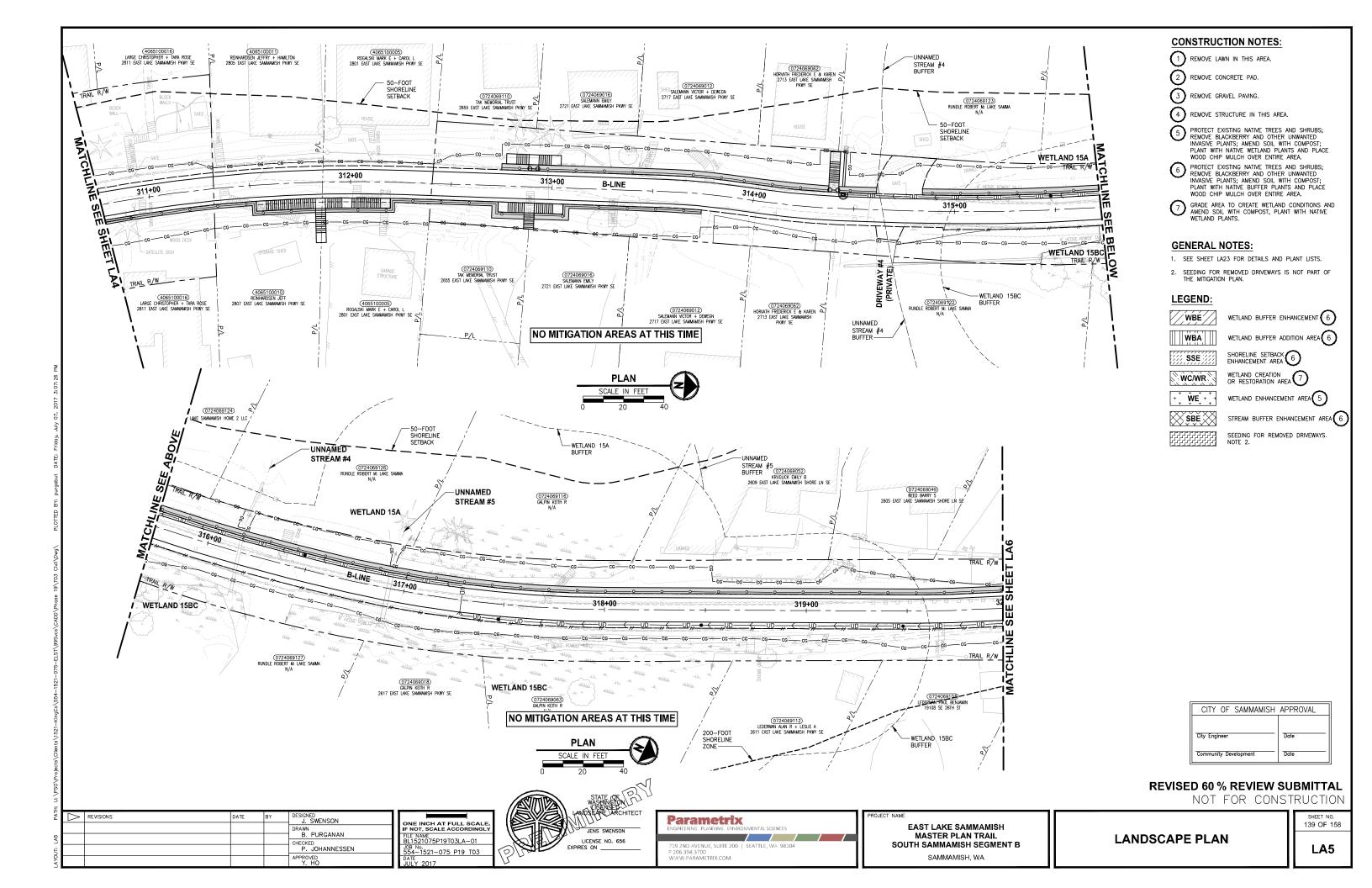
CHECKED P. JOHANNESSEN

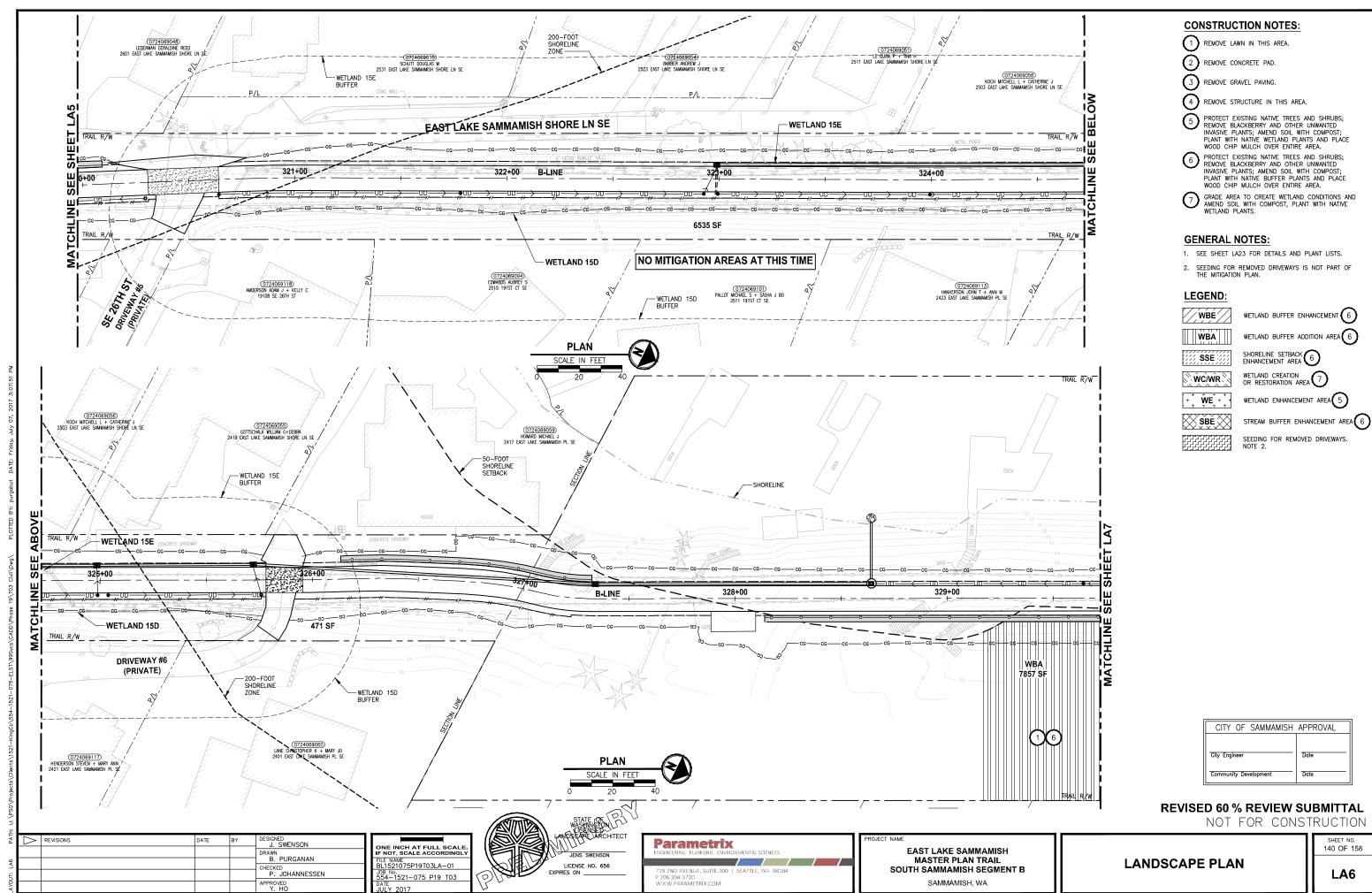
LANDSCAPE PLAN

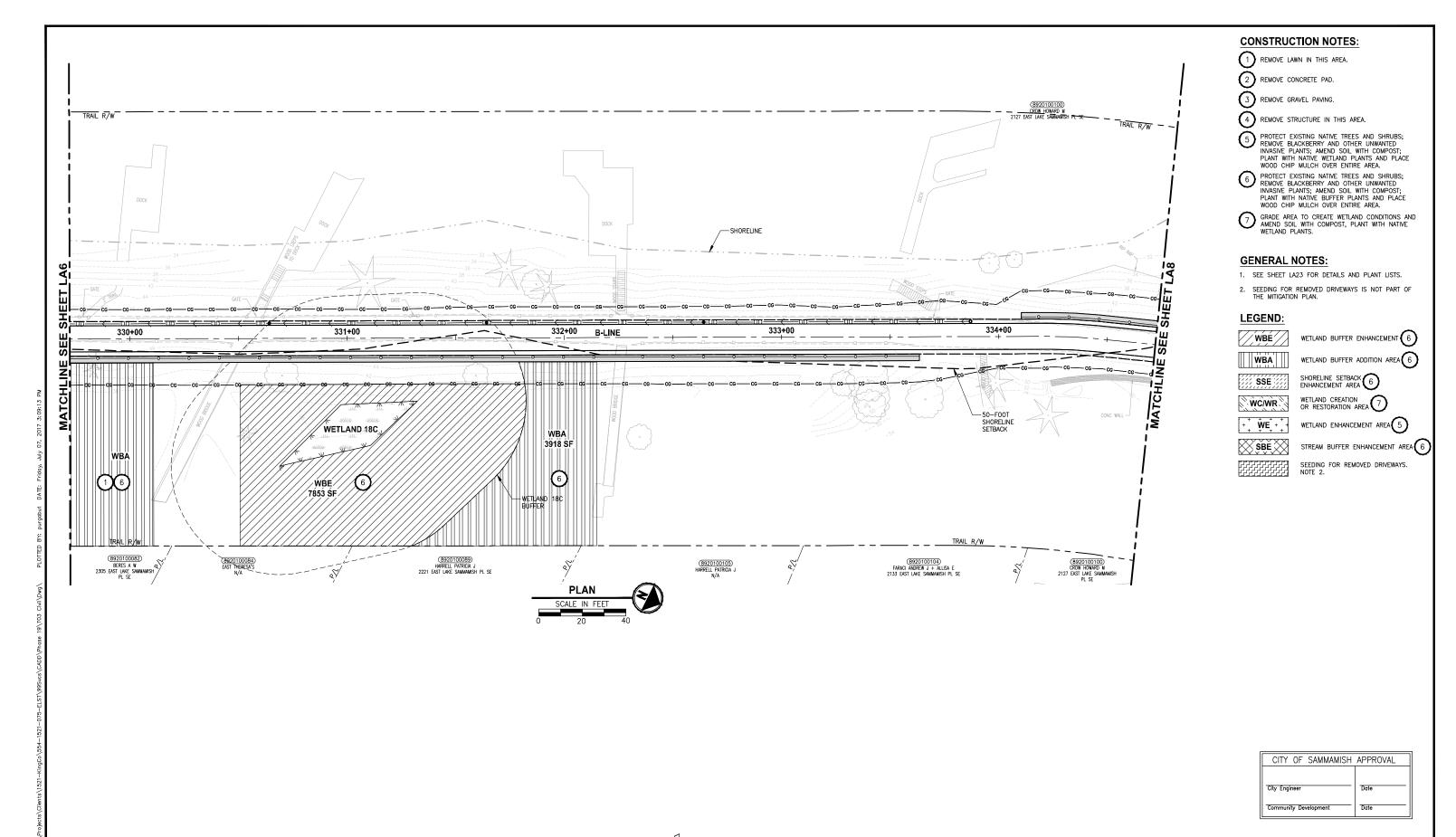
LA2











Parametrix

719 2ND AVENUE, SUITE 200 | SEATTLE, WA 98104 P 206.394.3700 WWW.PARAMETRIX.COM

REVISED 60 % REVIEW SUBMITTAL NOT FOR CONSTRUCTION

SHEET NO. 141 OF 158

LA7

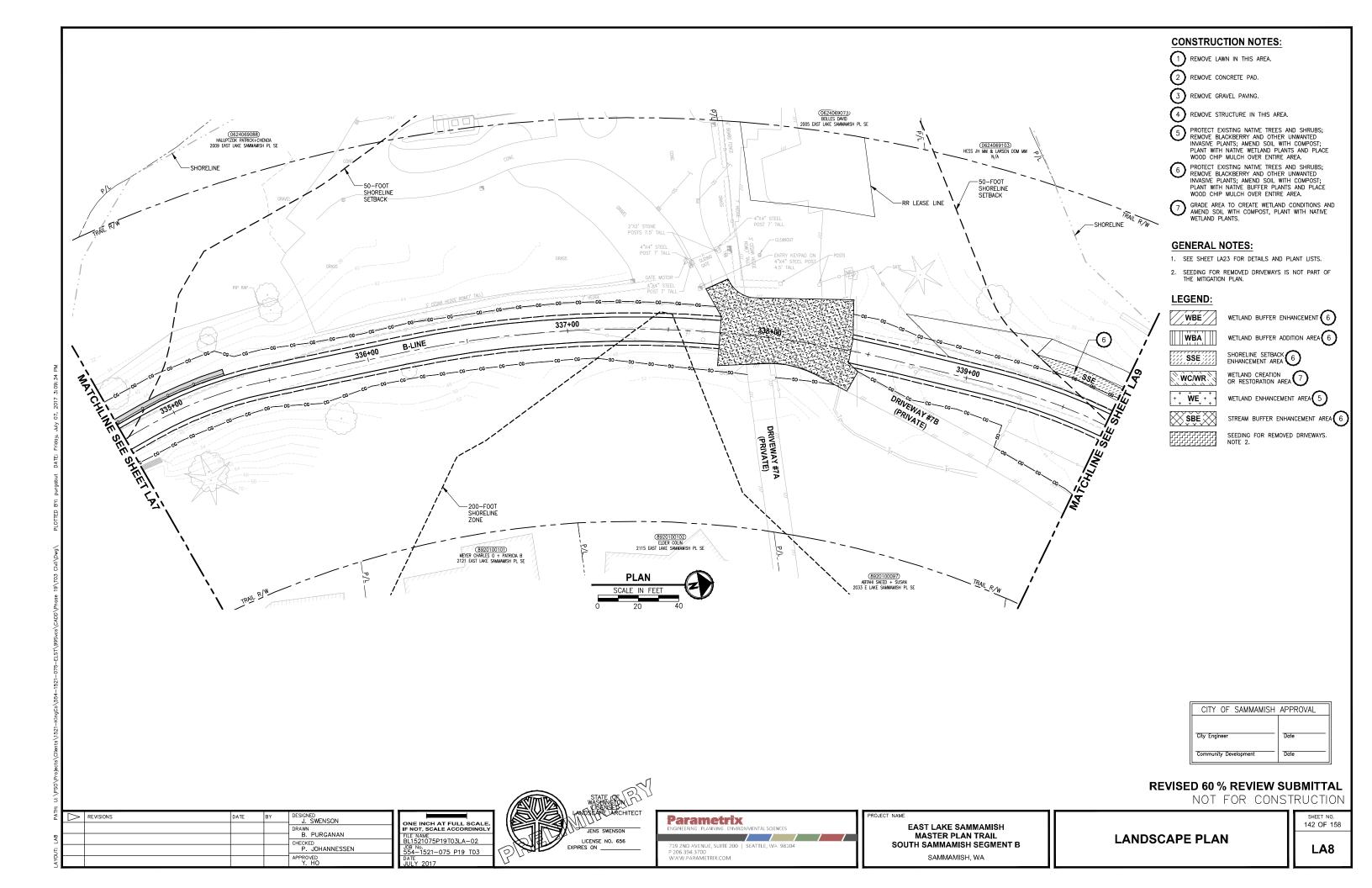
LANDSCAPE PLAN

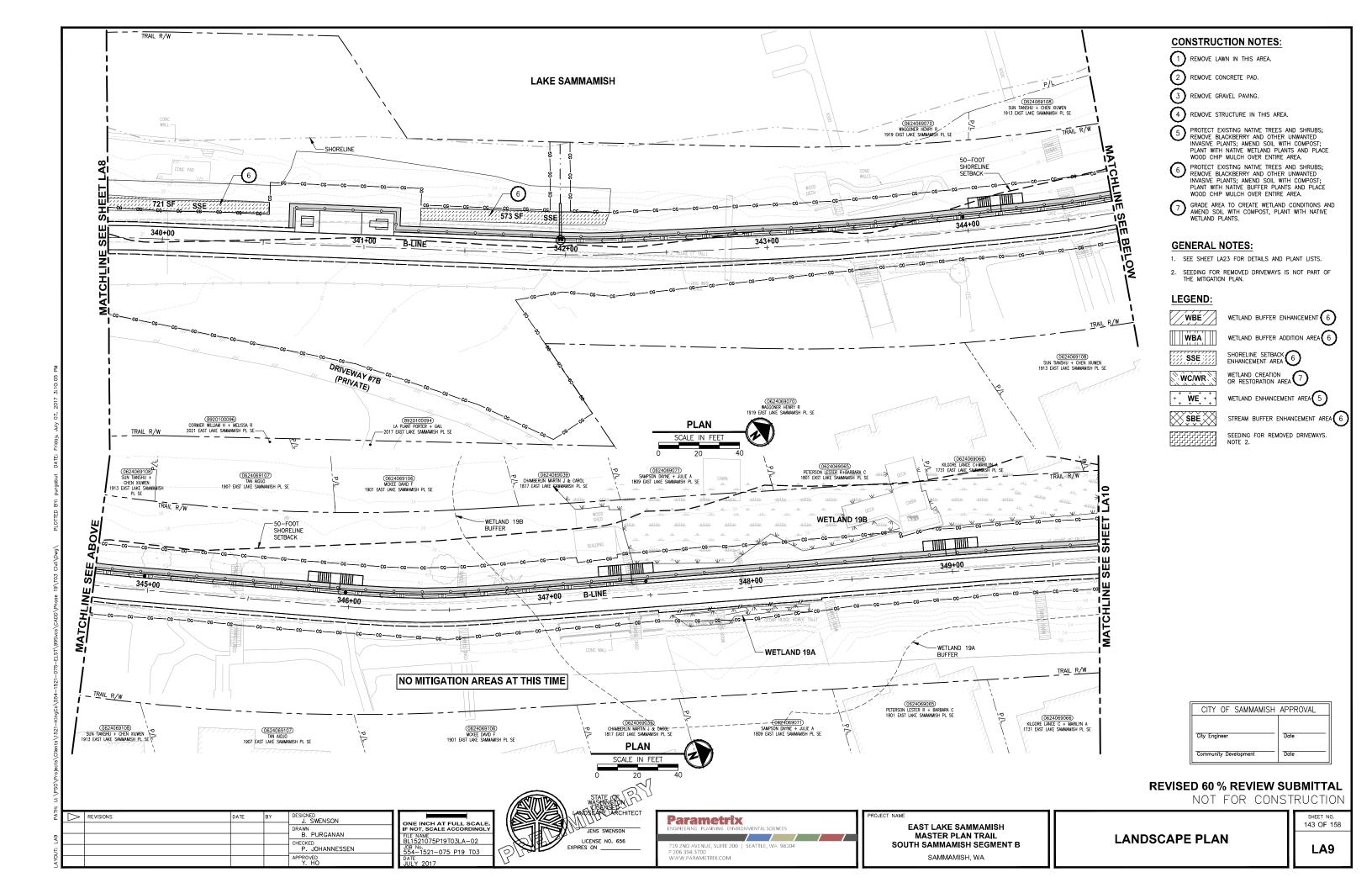
EAST LAKE SAMMAMISH MASTER PLAN TRAIL SOUTH SAMMAMISH SEGMENT B

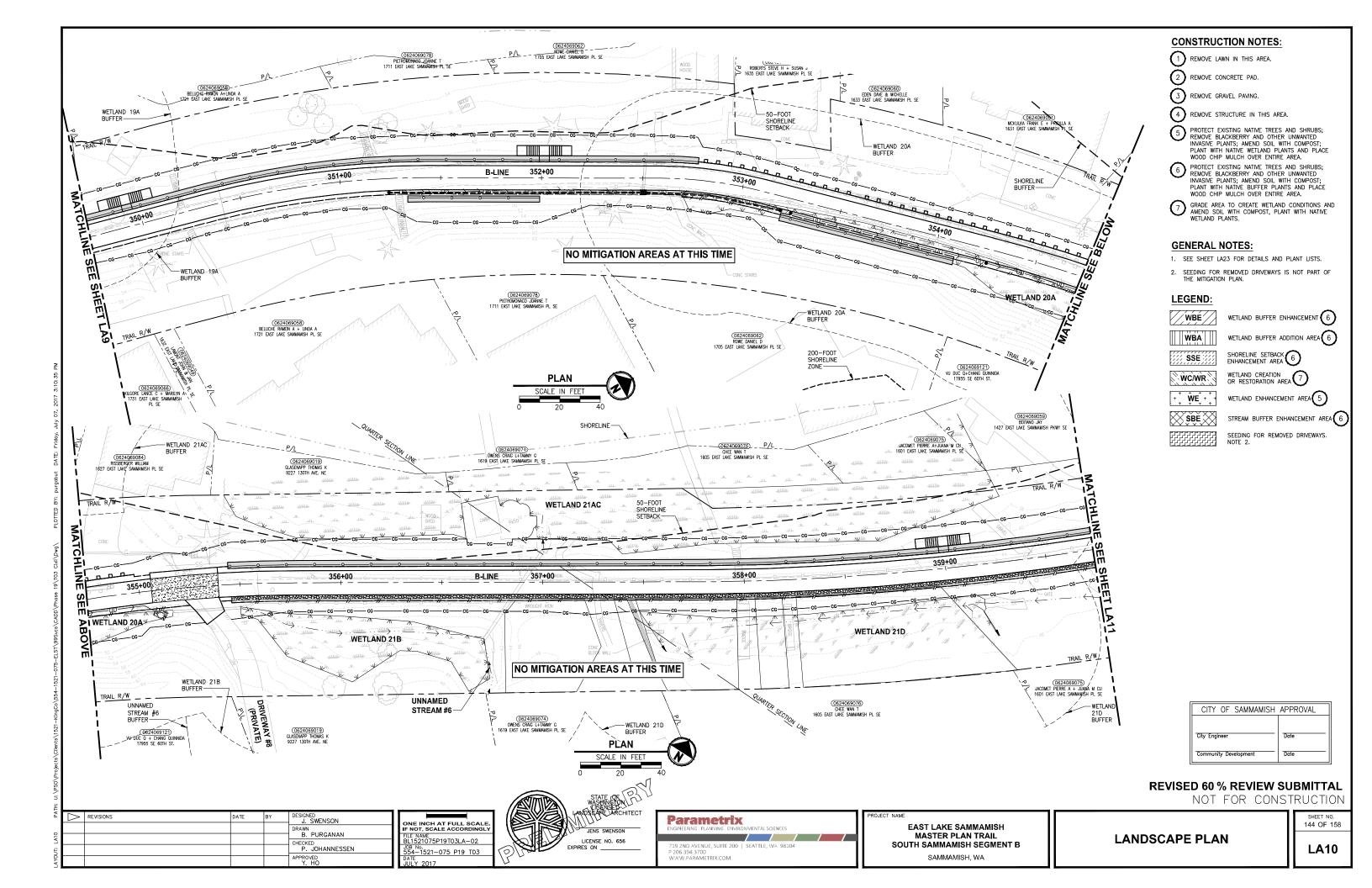
SAMMAMISH, WA

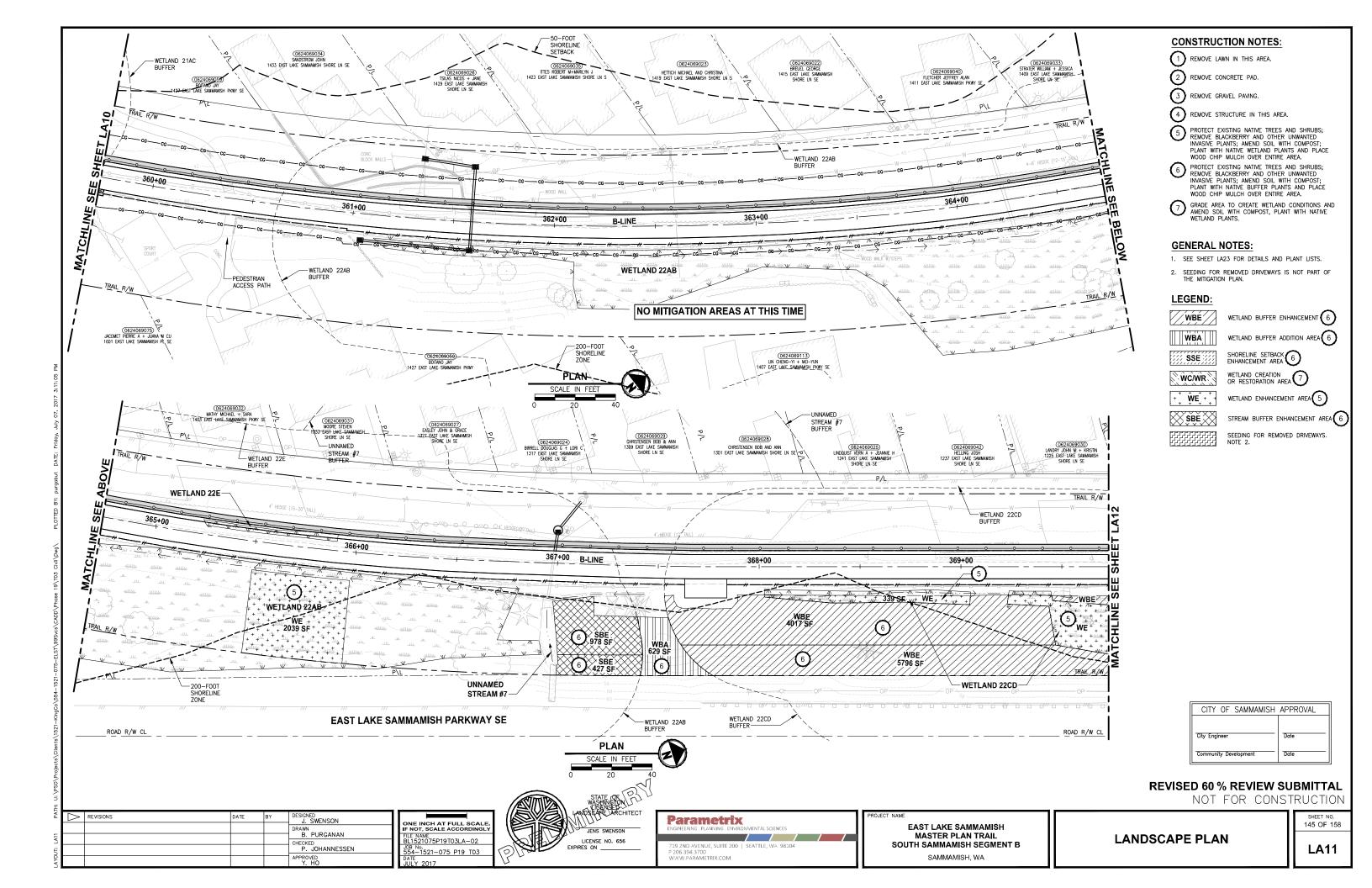
REVISIONS J. SWENSON B. PURGANAN CHECKED P. JOHANNESSEN ONE INCH AT FULL SCALE FILE NAME BL1521075P19T03LA-02 J0B No. 554-1521-075 P19 T03

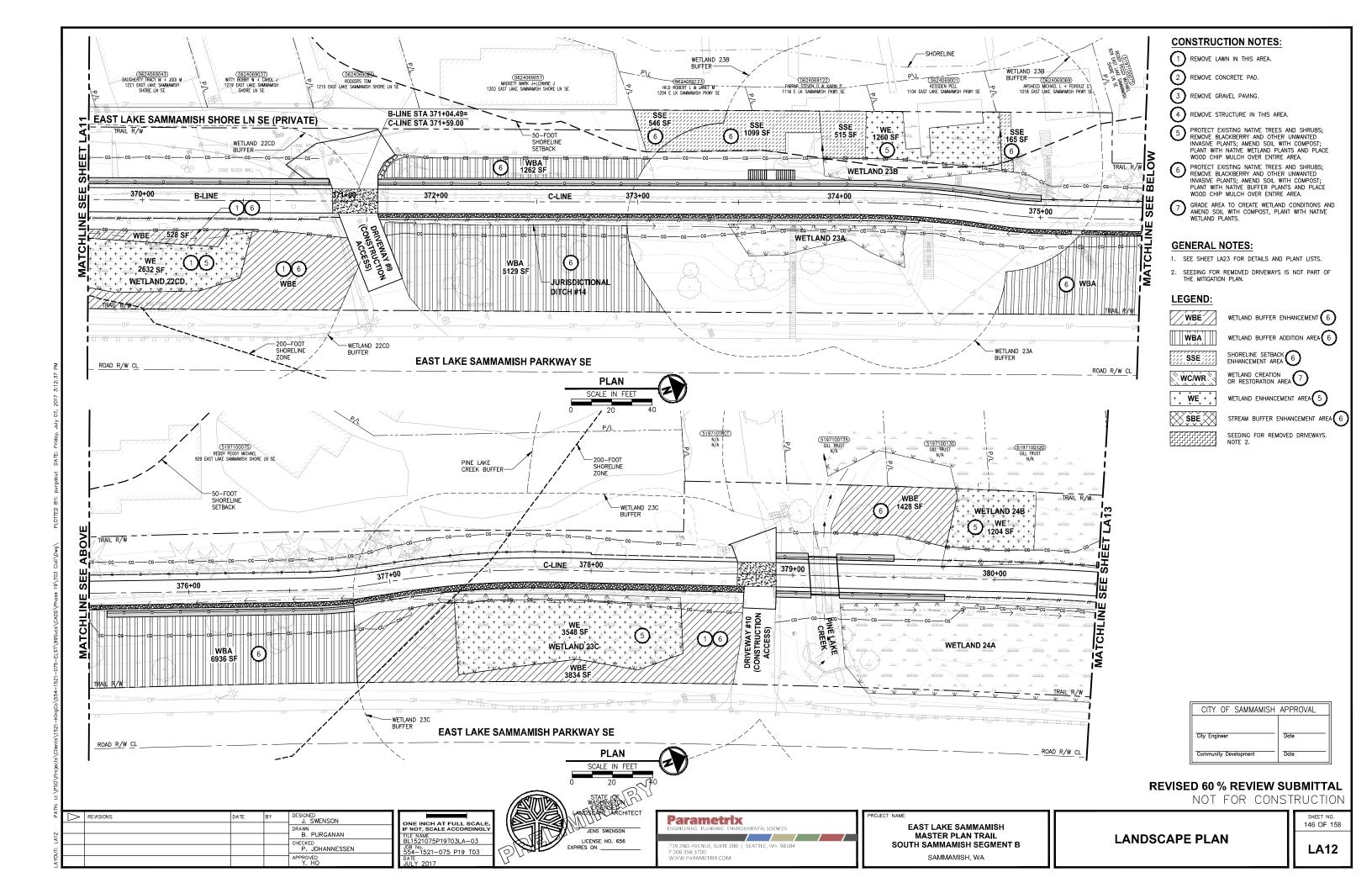


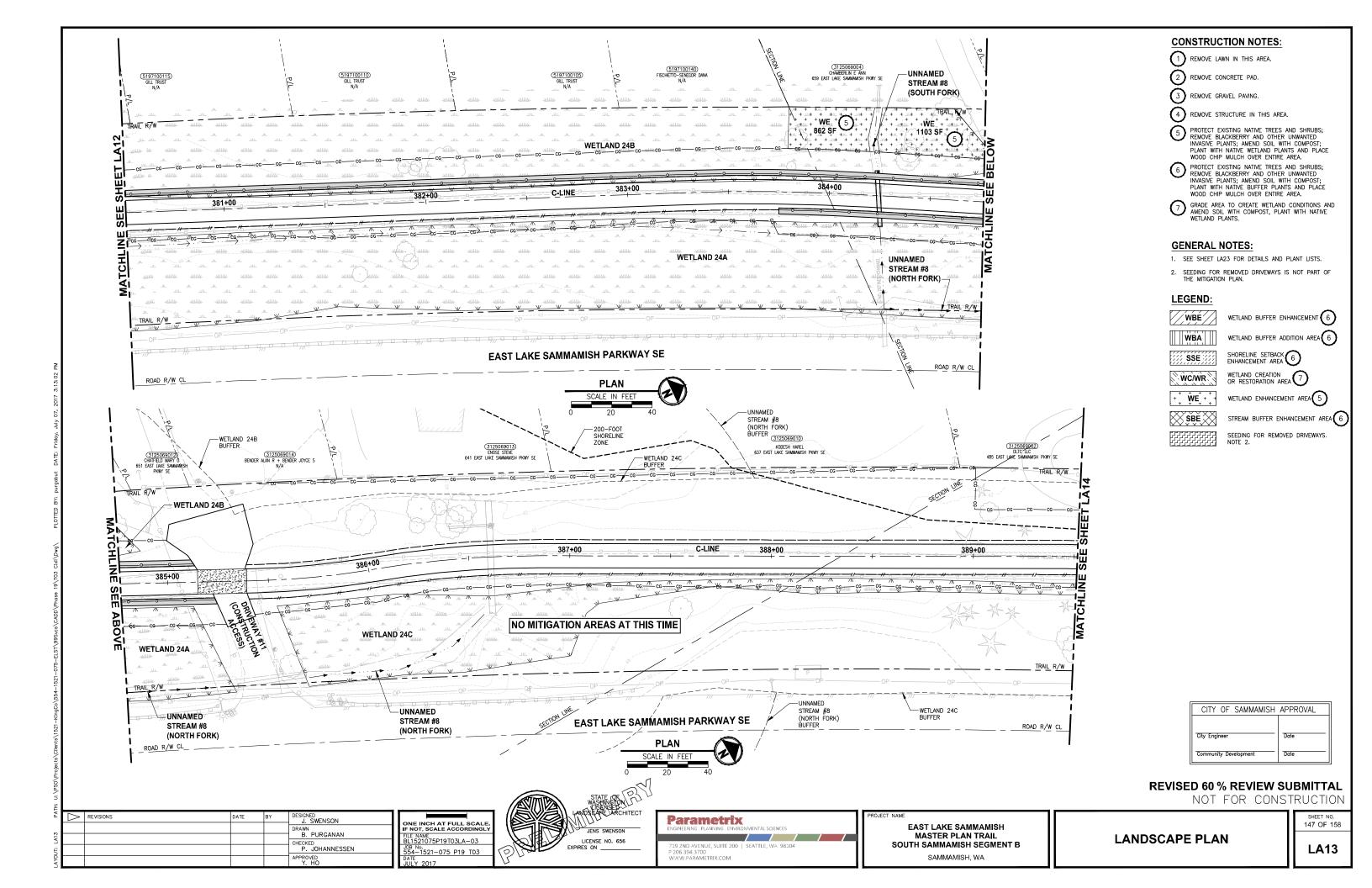


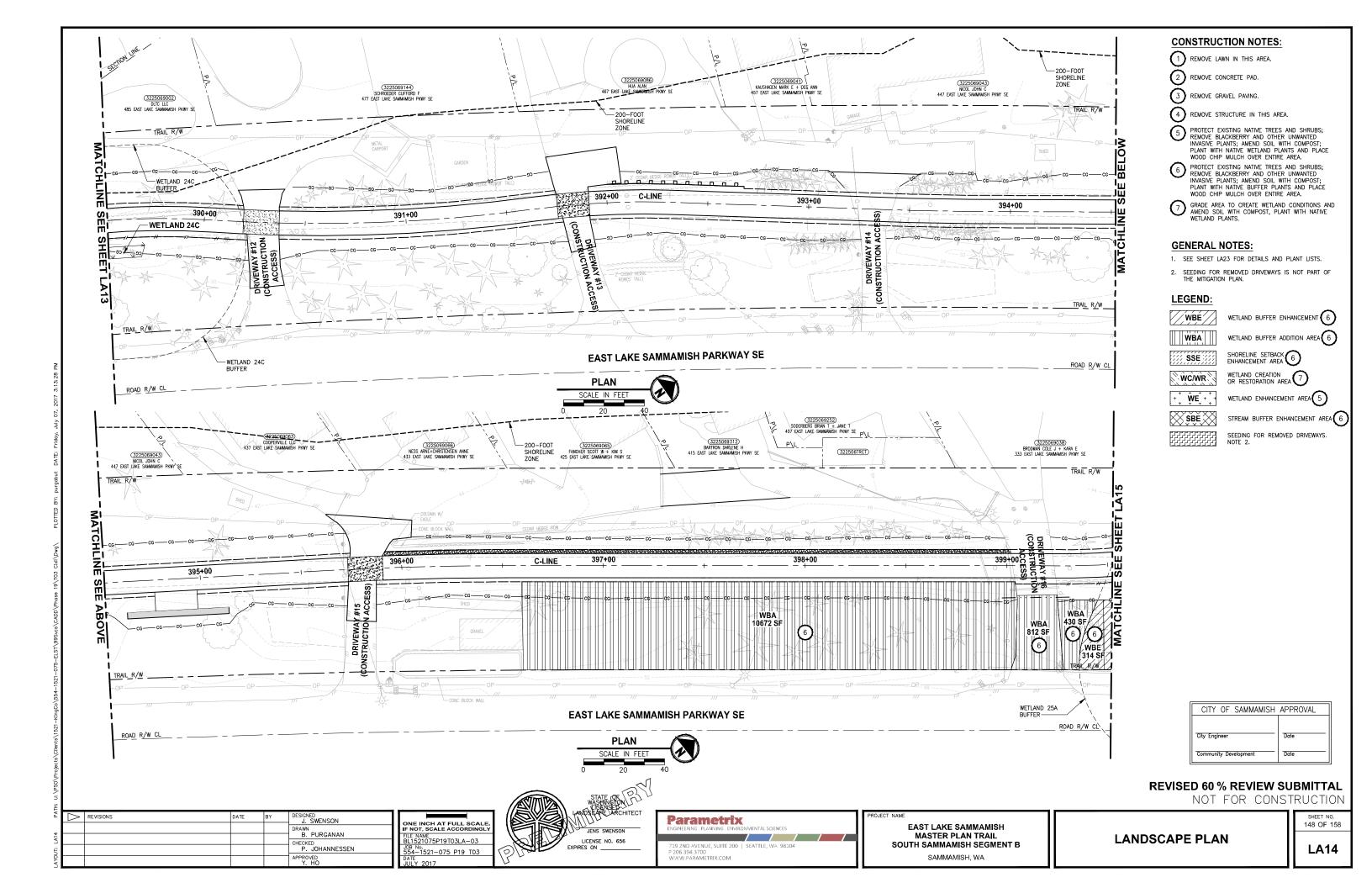


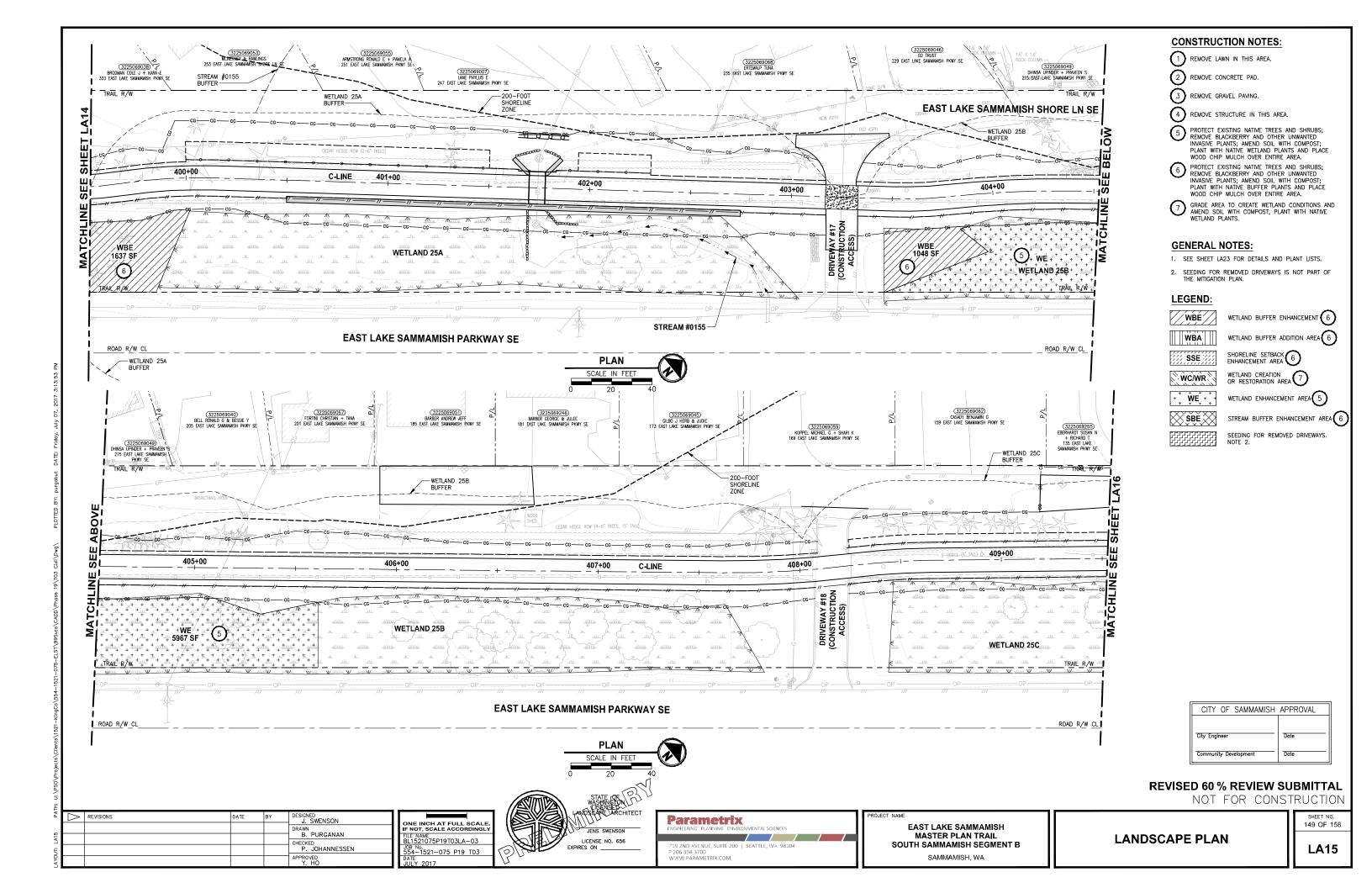


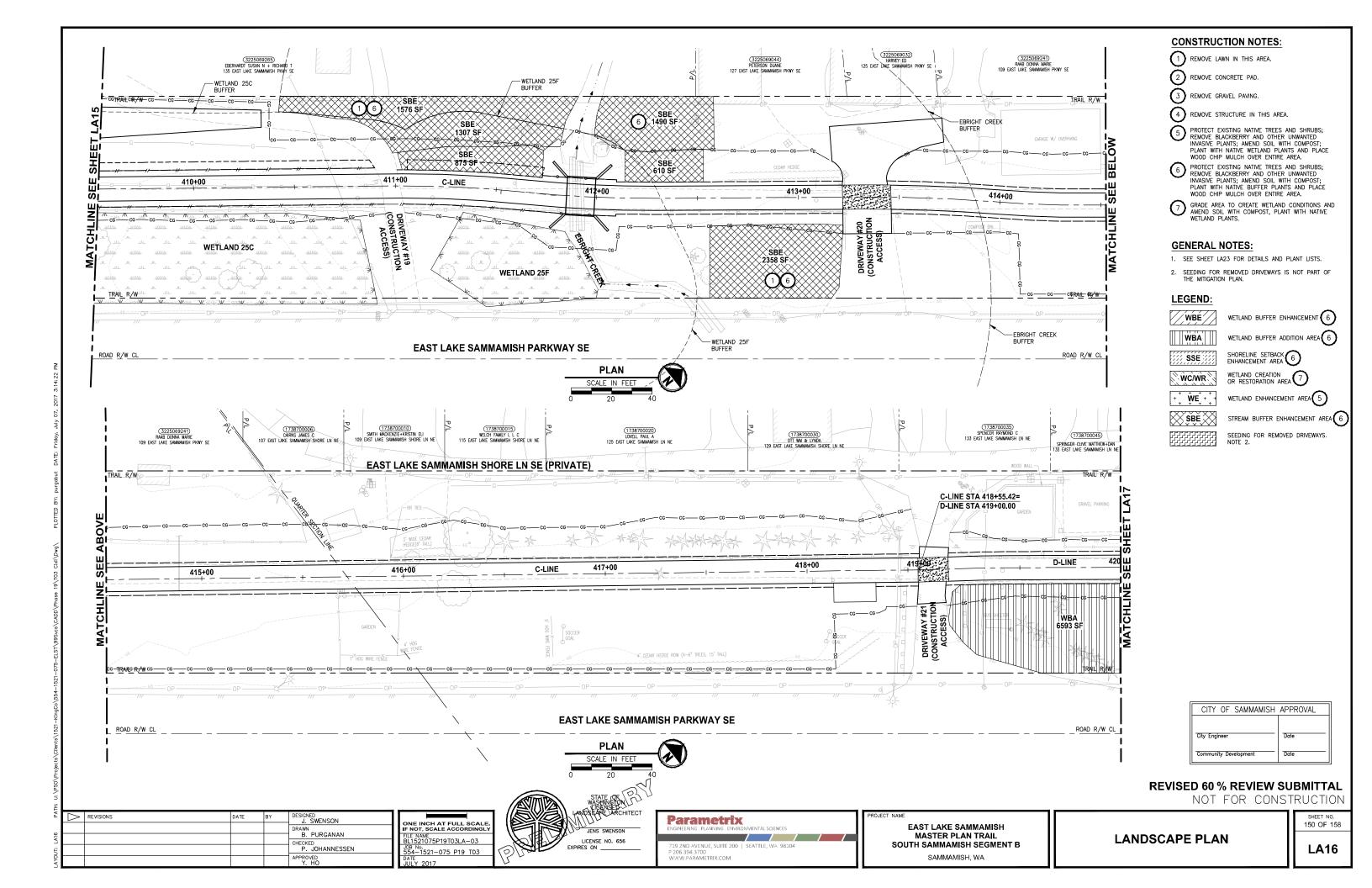


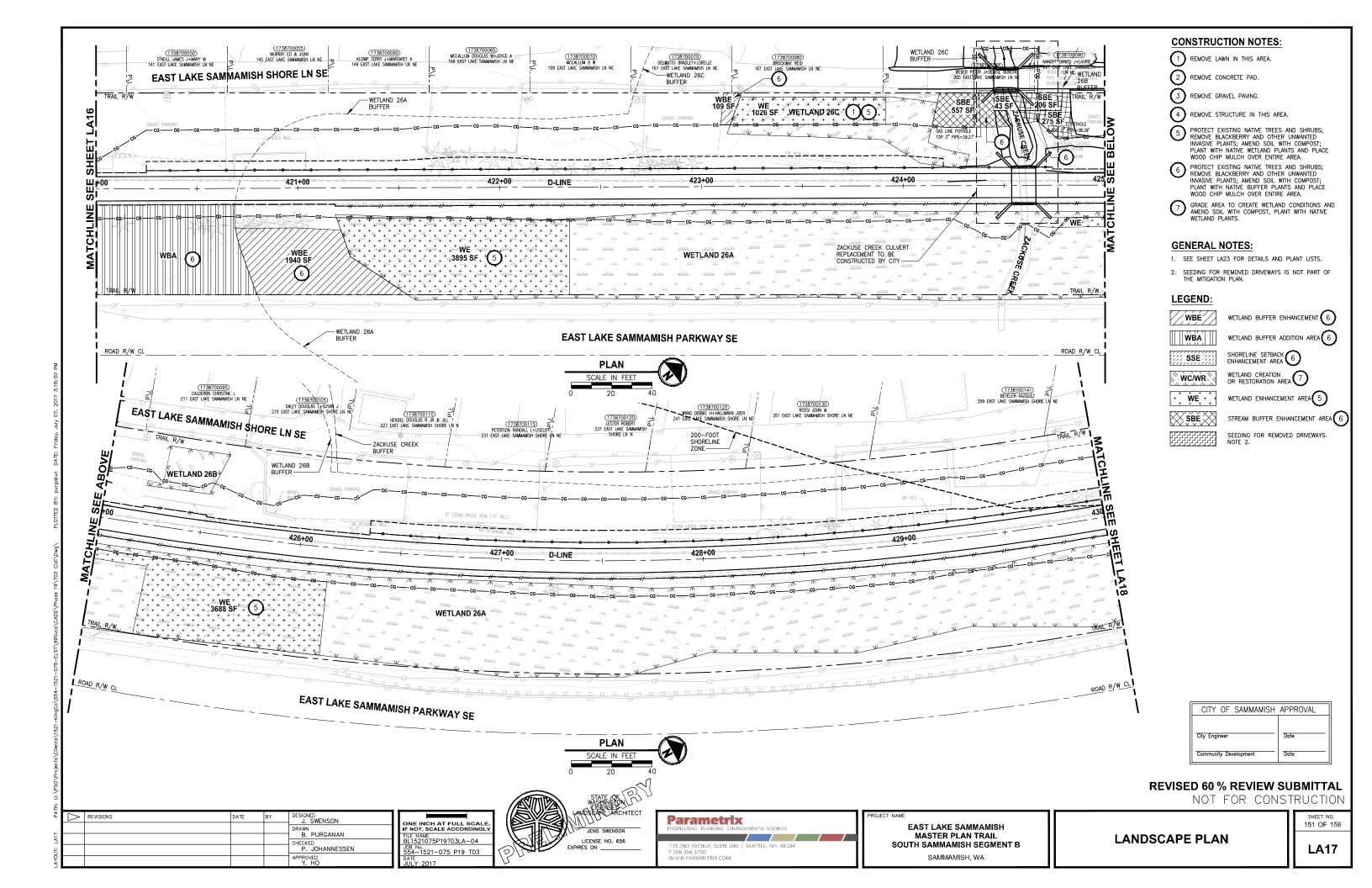


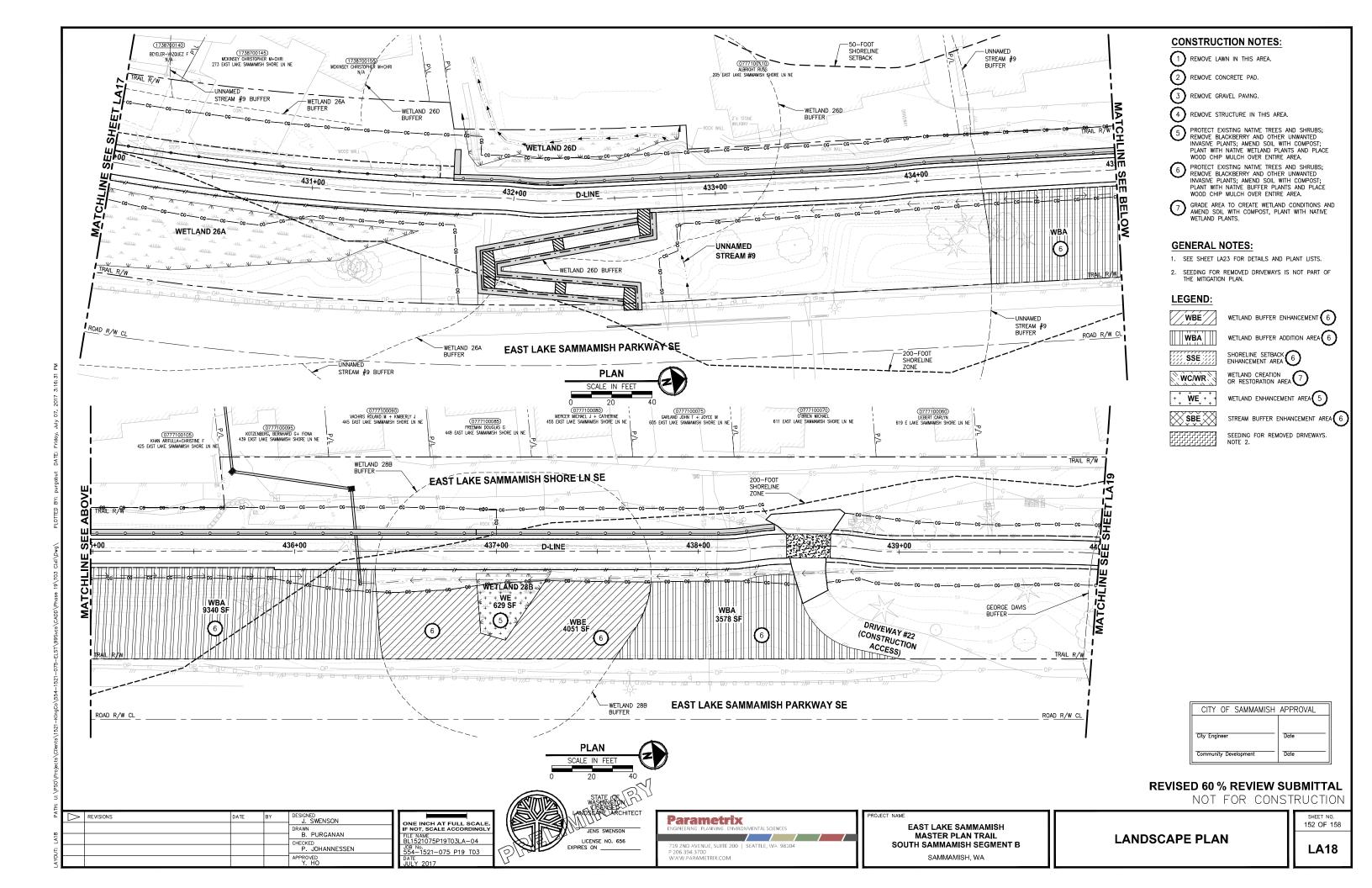


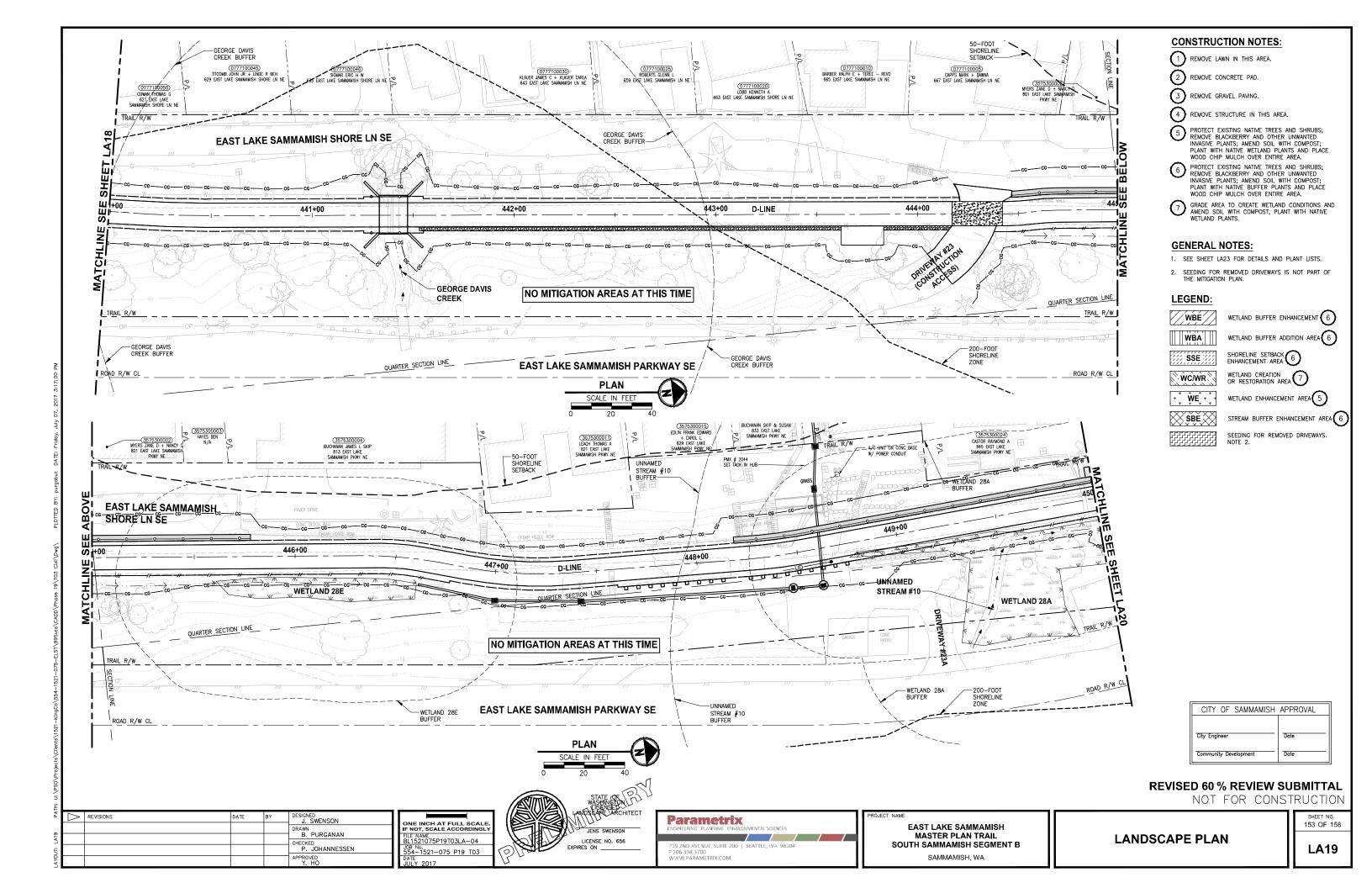


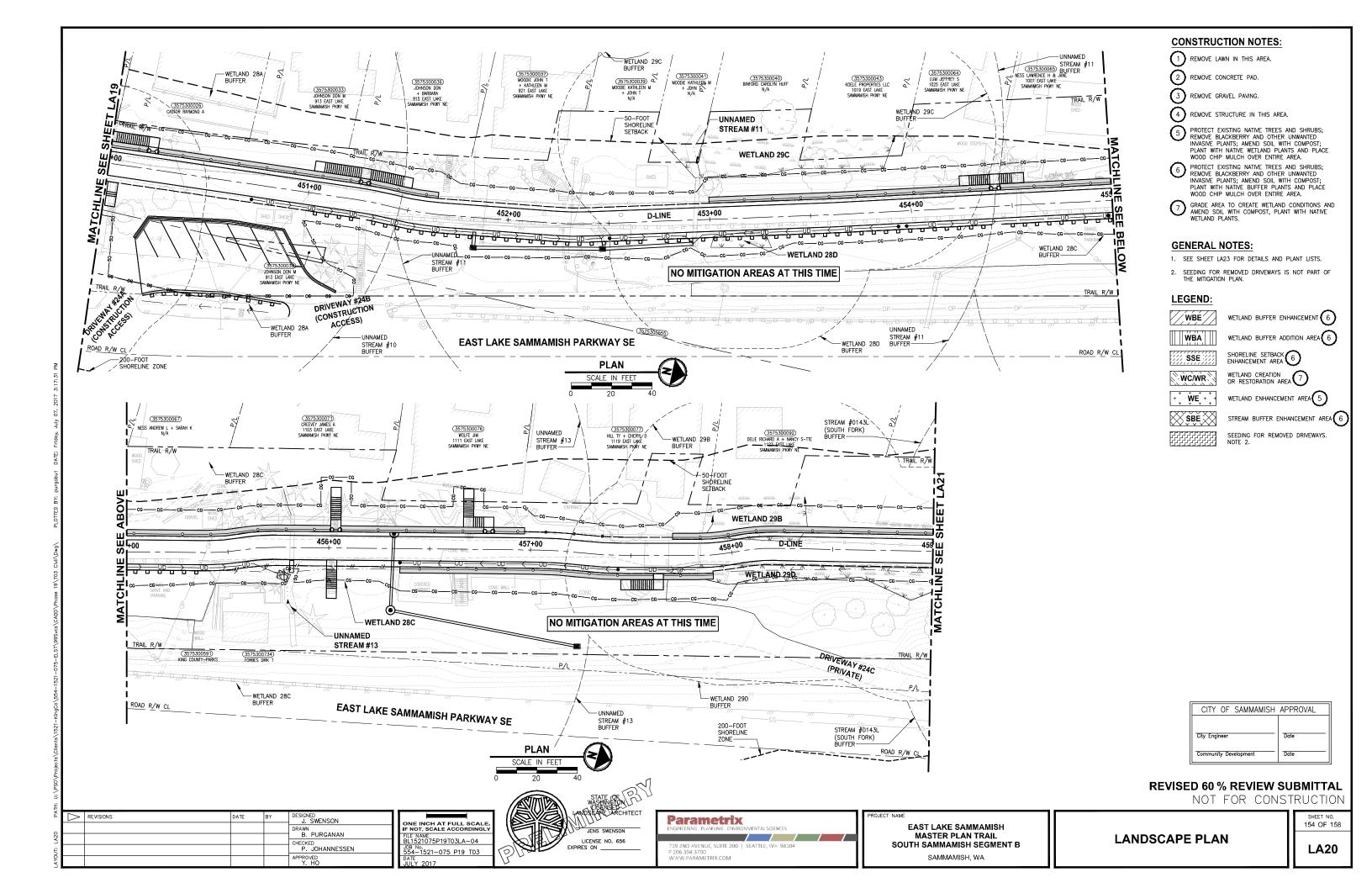


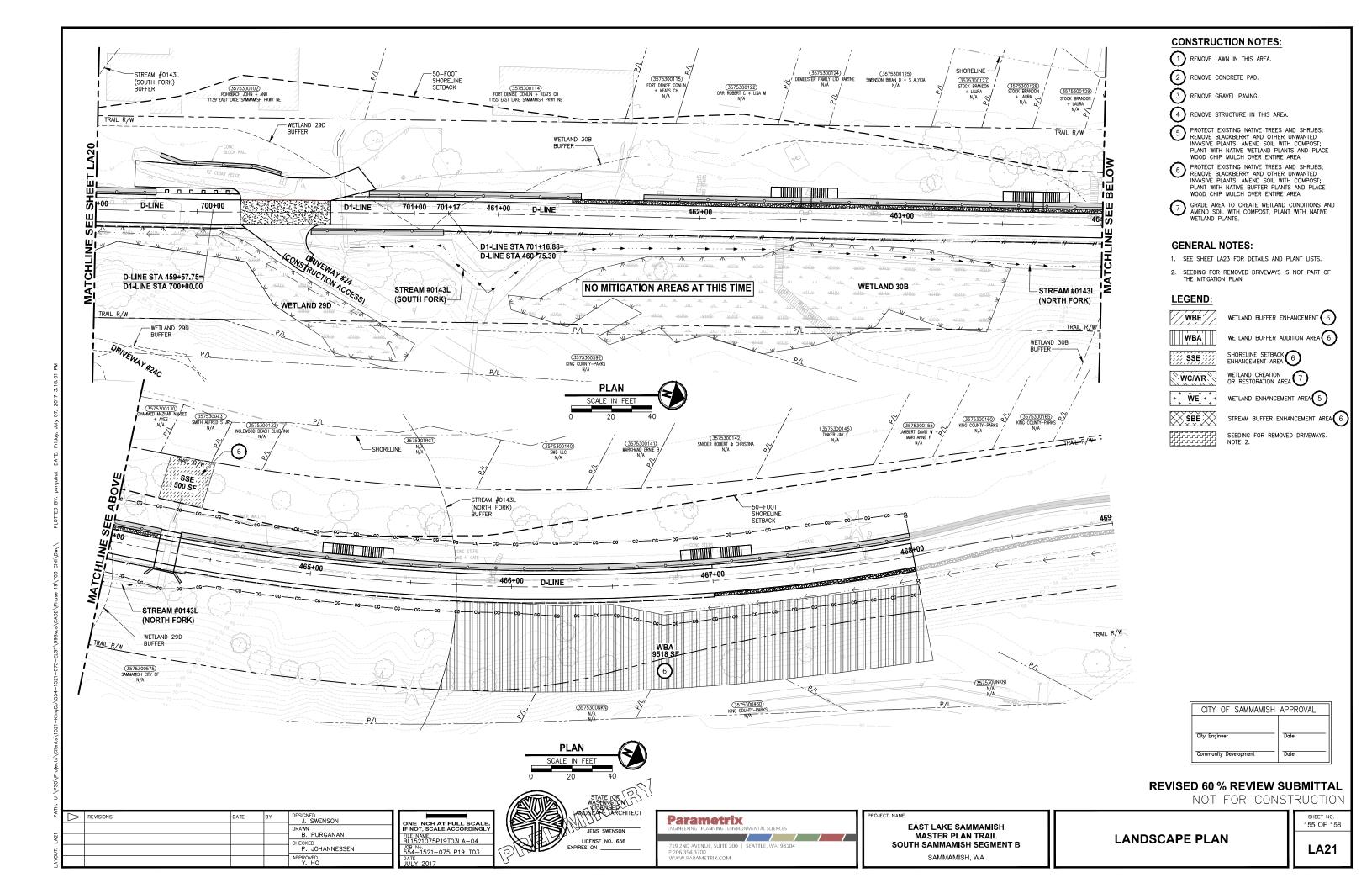


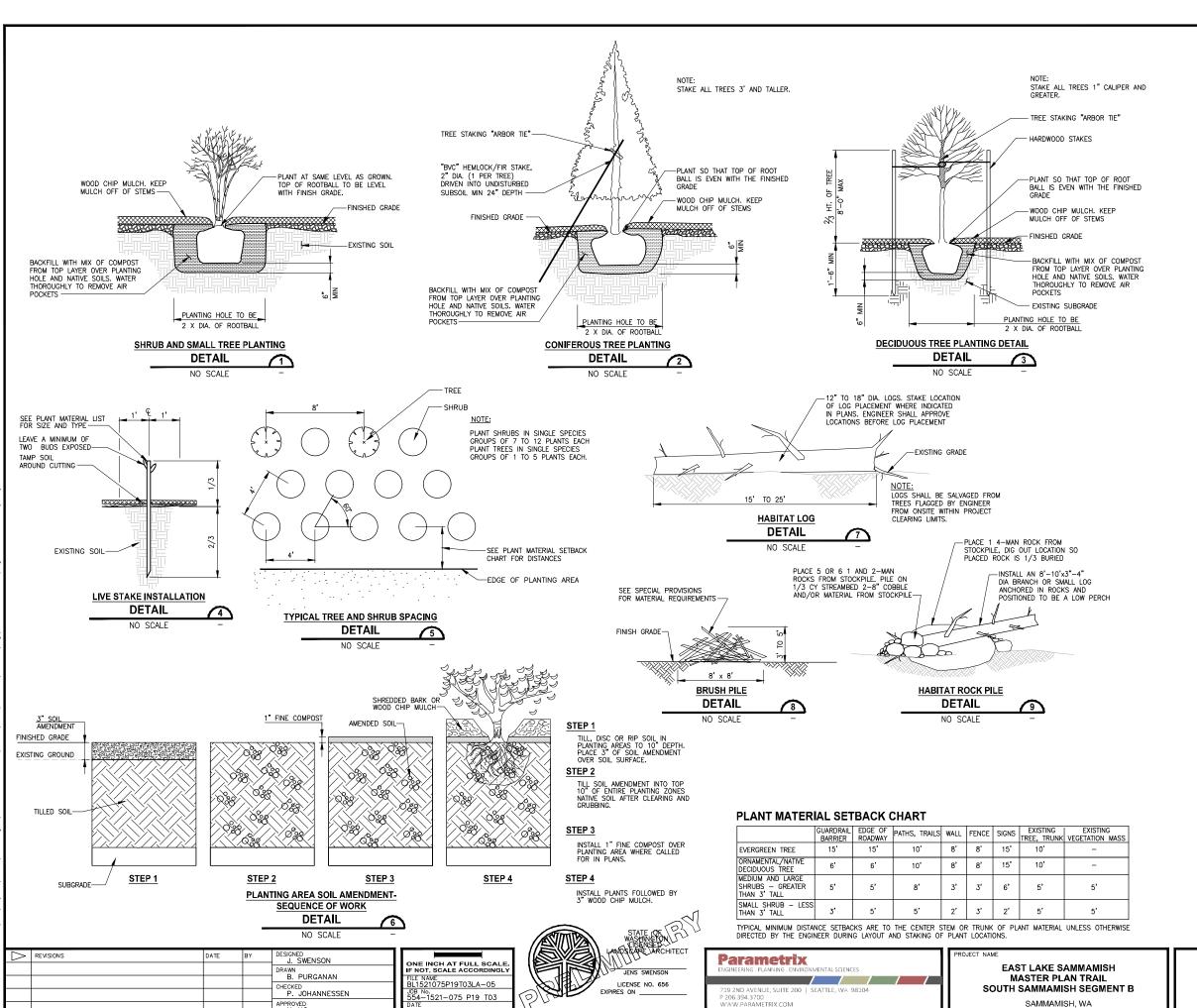












PLANTING AREA MASTER PLANT LISTS			
SHORELINE SETBACK AND			
WETLAND BUFFER ENHANCEMENT AND			
ADDITION PLANTING (AREAS			
SSE, WBE, WBA)			
COMMON NAME	BOTANICAL NAME	NOTES	
TREES			
AMELANCHIER ALNIFOLIA	WESTERN SERVICEBERRY	SPACE TREES 8 TO 10-FEET ON CENTER	
ACER MACROPHYLLUM	BIG LEAF MAPLE	CENTER	
PICEA SITCHENSIS	SITKA SPRUCE	_	
PRUNUS EMARGINATA	BITTER CHERRY		
PSUEDOTSGA MENZIESII	DOUGLAS FIR	_	
THUJA PLICATA	WESTERN RED CEDAR	_	
TSUGA HETEROPHYLLA	WESTERN HEMLOCK		
SHRUBS			
ACER CIRCINATUM	VINE MAPLE	SPACE SHRUBS TO 6-FEET ON	
CORYLUS CORNUTA	WESTERN HAZEL	CENTER	
HOLODISCUS DISCOLOR	OCEAN SPRAY	_	
OEMLARIA CERASIFORMIS	INDIAN PLUMB	1	
PHYSOCARPUS CAPITATUS	PACIFIC NINEBARK	_	
ROSA NUTKANA	NOOTKA ROSE		
SYMPHORICARPOS ALBUS	SNOWBERRY		
WETLAND ENHANCEMENT PLANTING AREAS (AREA WE)			
TREES FRAXINUS LATIFOLIA	OREGON ASH	SPACE TREES 8	
PICEA SITCHENSIS		TO 10-FEET ON	
	SITKA SPRUCE	CENTER	
SALIX L. SSP. LASIANDRA SALIX SCOULERIANA	PACIFIC WILLOW SCOULERS WILLOW	4	
THUJA PLICATA	WESTERN RED CEDAR	4	
SHRUBS	WESTERN RED CEDAR		
CORNUS ALBA	RED-TWIG DOGWOOD	SPACE SHRUBS	
		TO 6-FEET ON	
MALUS FUSCA	PACIFIC CRAB APPLE	CENTER	
PHYSOCARPUS CAPITATUS	PACIFIC CRAB APPLE PACIFIC NINEBARK	-	
ROSA PISOCARPA		-	
	CLUSTERED ROSE SITKA WILLOW	-	
SALIX SITCHENSIS	SITKA WILLUW	+	
STREAM BUFFER ENHANCEMENT PLANTING AREAS (AREA SBE)			
TREES			
PICEA SITCHENSIS SITKA SPRUCE		SPACE TREES 8	
SALIX L. SSP. LASIANDRA	PACIFIC WILLOW	TO 10-FEET ON CENTER	
SALIX SCOULERIANA	SCOULERS WILLOW		
THUJA PLICATA	WESTERN RED CEDAR		
IIIOJA I LICATA			
SHRUBS			
	VINE MAPLE		
SHRUBS	VINE MAPLE RED-TWIG DOGWOOD		
SHRUBS ACER CIRCINATUM		SPACE SHRUBS TO 6-FEET ON	
SHRUBS ACER CIRCINATUM CORNUS ALBA	RED-TWIG DOGWOOD		
SHRUBS ACER CIRCINATUM CORNUS ALBA LONICERA INVOLUCRATA	RED-TWIG DOGWOOD BLACK TWINBERRY	TO 6-FEET ON	
SHRUBS ACER CIRCINATUM CORNUS ALBA LONICERA INVOLUCRATA PHYSOCARPUS CAPITATUS	RED-TWIG DOGWOOD BLACK TWINBERRY PACIFIC NINEBARK	TO 6-FEET ON	

PLANT MATERIAL LIST

CITY OF SAMMAMISH	I APPROVAL
City Engineer	Date
Community Development	Date
Community Development	Date

REVISED 60 % REVIEW SUBMITTAL

NOT FOR CONSTRUCTION

MITIGATION PLANTING DETAILS

156 OF 158

LA22

REVISIONS

Mitigation Goals, Objectives, and Performance Standards

The overall goal of the mitigation effort is to replace the habitats and functions lost as a result of the project. The proposed mitigation will accomplish this by enhancing 0.65 acre of wetland, increasing the buffer of 8 wetlands by 1.53 acres, enhancing 0.75 acre of wetland buffer, enhancing 0.24 acre of stream buffer, replacing 8 fish barrier culverts on 6 Type F streams with pipes that are fish passable, and enhancing 0.09 acre of shoreline setback. In addition, mitigation for 0.22 acre of permanent wetland impacts will occur at an off-site approved mitigation bank, and thus, this mitigation will not be carried forward in the following sections. Specific goals and objectives formulated to achieve this result are presented below.

Mitigation Goals

The mitigation goals are:

- Enhance 0.65 acre of wetland.
- Increase and enhance the buffer of 8 wetlands by 1.53 acres.
- Enhance 0.75 acre of wetland buffer.
- Enhance 0.24 acre of stream buffer.
- Replace 8 fish barrier culverts on 6 Type F streams with fish passable culverts.
- Enhance 0.09 acre of shoreline setback.

Achievement of these goals is expected to provide the following improvements to wetland, stream, wetland buffer, stream buffer, and shoreline setback functions:

- Provide additional fish habitat by removing fish barriers, increasing open stream channel, and opening up available upstream habitat.
- Increase the production of organic matter by planting trees and shrubs in the created/restored wetland, enhanced wetland, increased wetland buffer, enhanced wetland buffer, enhanced stream buffer, and enhanced shoreline setback.
- · Increase fish and wildlife habitat and improve biological diversity by planting with a variety of native wetland and buffer plant species and installing habitat features (habitat logs and brush piles).

Mitigation Objectives and Performance Standards

Wetlands

Objective 1: Enhance by planting native species a minimum of 0.65-acre forested and scrubshrub wetland at the enhanced wetland areas.

Performance Standards

- Year 1 Survival of planted woody species in enhanced wetland areas will be at least
- Record percent cover of native woody species in enhanced wetland area to Year 2 establish a baseline for areal cover.

ESIGNED
J. SWENSON

B. PURGANAN

P. JOHANNESSEN

Year 3	Native woody species will achieve a minimum of 25 percent areal cover,
	including desirable native volunteers, in the enhanced wetland areas.

- Native woody species will achieve a minimum of 50 percent areal cover. Year 5 including desirable native volunteers, in the enhanced wetland areas.
- Native woody species will achieve a minimum of 70 percent areal cover in the enhanced wetland areas.
- Native woody species will achieve a minimum of 80 percent areal cover in the enhanced wetland area.

Streams

Objective 2: Replace existing fish barrier culvert at the (six) trail crossings on Pine Lake Creek, Stream 0155, Ebright Creek, Zackuse Creek, George Davis Creek, Stream 0143L, and (two) downstream road crossings on Pine Lake Creek and Zackuse Creek with fish passage culvert to open up available upstream habitat.

Performance Standards:

Year 1, 2, 3, and 5 Constructed habitat elements including the new fish passable culverts, regraded channels, and streambed material will remain in place as constructed at all 8 culvert replacement sites.

Wetland and Stream Buffers Areas

Objective 3: Establish a minimum of 2.28-acre forested and scrub-shrub wetland buffer, and 0.24-acre forested stream buffer at the increased/enhanced wetland buffer and enhanced stream buffer areas.

Performance Standards:

- Survival of planted woody species in increased/enhanced wetland buffer Year 1 and enhanced stream buffer areas will be at least 80 percent.
- Record percent cover of native woody species in increased/enhanced wetland buffer and enhanced stream buffer areas to establish a baseline for
- Native woody species will achieve a minimum of 25 percent areal cover in Year 3 the increased/enhanced wetland buffer and enhanced stream buffer areas.
- Native woody species will achieve a minimum of 50 percent areal cover in Year 5 the increased/enhanced wetland buffer and enhanced stream buffer setback areas.
- Native woody species will achieve a minimum of 70 percent areal cover in the increased/enhanced wetland buffer and enhanced stream buffer areas.
- Native woody species will achieve a minimum of 80 percent areal cover in the increased/enhanced wetland buffer and enhanced stream buffer areas.

Shoreline Setback Areas

Objective 3: Establish a minimum of 0.09-acre forested habitat at the shoreline setback areas.

Performance Standards:

- Survival of planted woody species in enhanced shoreline setback areas will
- Record percent cover of native woody species in enhanced shoreline Year 2 setback areas to establish a baseline for areal cover.
- Native woody species will achieve a minimum of 25 percent areal cover in Year 3 enhanced shoreline setback areas.
- Native woody species will achieve a minimum of 50 percent areal cover in Year 5 enhanced shoreline setback areas.
- Year 7 Native woody species will achieve a minimum of 70 percent areal cover in enhanced shoreline setback areas.
- Native woody species will achieve a minimum of 80 percent areal cover in Year 10 enhanced shoreline setback areas.

Invasive Species

Objective 4: Limit invasive non-native species throughout the mitigation site planting areas.

Performance Standards:

Year 3

Year 1, 2, 3, 5, 7, and 10 Himalayan blackberry, cutleaf blackberry, Scotch broom, English ivy, reed canarygrass, and hedge false bindweed will not exceed

20 percent areal cover in all planting areas.

100 percent removal of Japanese knotweed by Year 3 in the Wetland 22CD buffer enhancement area.

Wildlife Habitat

Objective 5: Provide wildlife habitat.

Performance Standards:

Year 1, 2, 3, 5, 7, and 10 Increase in areal cover of native woody species in all mitigation areas, as measured in Objectives 1, 2, and 3, to be used as a surrogate to indicate increasing habitat functions.

Year 1, 3, 5, 7, and 10 Increase in species richness of native species over preexisting conditions in all mitigation areas, as measured in Objectives 1,

2, and 3, to be used as a surrogate to indicate increased habitat functions.

Year 1, 2, 3, 5, 7, and 10 Installed habitat features are present and functional.

Anthropogenic Disturbance

Objective 6: Protect the mitigation sites from anthropogenic disturbance.

1	
City Engineer	Date
Community Development	Date

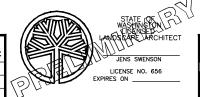
REVISED 60 % REVIEW SUBMITTAL

NOT FOR CONSTRUCTION

SHEET NO. 157 OF 158

MITIGATION NOTES

INCH AT FULL SCALE T, SCALE ACCORDINGL 521075P19T03LA-05 554-1521-075 P19 T03





REVISIONS

Performance Standards:

Year 1 through 10 Conduct qualitative monitoring to assess the status of the sites

yearly during the 10-year monitoring period to monitor for human disturbance, including but not limited to filling, trash, and

vandalism

Year 1 through 10 Install and maintain fences and appropriate signs along the trail adjacent to each site to identify their protected status.

Record Drawings

Record drawings and/or a report documenting the as-built or installed conditions will be prepared after construction and plantings are complete. The report will include the following components: (1) drawings that clearly identify the boundaries of the mitigation areas; (2) locations of the sampling and monitoring sites (including photo-point locations); (3) locations of hydrology monitoring stations; (4) photographs of the mitigation sites; and (5) an analysis of any changes to the mitigation plan that occurred during construction. A copy of the as-built report will be sent to the City and USACE within 60 days of completion of construction and planting.

Monitoring

The mitigation areas will be monitored during and after construction. During construction, monitoring will ensure that the BMPs are observed to minimize impacts, and the on-site construction work (including grading and planting) will be coordinated to ensure that the sites are constructed as designed.

After construction is completed, long-term monitoring will be performed annually to ensure that the goals and objectives of the mitigation are being met. Monitoring of the mitigation areas will be performed over a 10-year period by a qualified professional (SMC 21A.50.145; 21A.50.300). A combination of quantitative and qualitative monitoring activities will be used to assess the management objectives and associated performance standards described in the mitigation plan. Activities will include site visits to monitor unnatural site disturbance, photographs to document site development, and data collection for the quantitative evaluation of performance standards. The results of the monitoring will be submitted to the permitting agencies.

Appropriate contingency measures will be developed, as needed, by a qualified professional to ensure that the sites develop healthy vegetation that meets the obligations described in this mitigation plan and the associated permits.

Quantitative Monitoring

The following bulleted items describe the methods to be used for the quantitative monitoring, monitoring schedule, and report deadlines.

- The planting sites will be assessed by an appropriate quantitative vegetative field assessment methodology. The line intercept method will be used for determining percent areal cover for woody and invasive species. Plant richness will be determined by a count of native tree and shrub species
- Quantitative vegetation assessments will follow the same method in each consecutive monitoring year

- Quantitative vegetation assessments will be performed between June 15 and September 15 of each monitoring year.
- Monitoring reports will be sent to agencies requiring monitoring reports by February 15 of the following year.
- Permanent photographic stations will be established to monitor the development of the sites. Photographs will be taken along transect lines and from vantage points that capture the general mitigation area. All photographs will be labeled to identify locations.

Qualitative Monitoring

Qualitative monitoring will be conducted as follows:

- A qualified professional will qualitatively assess the constructed habitat elements including the new fish passable culverts, regraded channels, and streambed material for the first 3 years.
- Qualitative assessment will be performed yearly to visually assess the health of plants and identify areas that may need control of non-native invasive species or other maintenance activities.
- During all qualitative monitoring years, photographic documentation of the sites will occur from permanent photograph stations.

Maintenance

The proposed mitigation is intended to achieve the performance standards with minimal ongoing maintenance. However, King County will manage and maintain the site for 10 years, or until all performance standards are met and the site is closed with the approval of permitting agencies.

As mentioned previously, King County Parks has a formal maintenance program for its trail mitigation projects. The County understands that regular maintenance is necessary to achieve its mitigation commitments in public trail corridors.

Planted vegetation species are adapted to varying site conditions in the Puget Sound lowland, although supplemental irrigation may be needed during the first two growing seasons after installation to ensure the long-term survival of the plants. The need for irrigation will be evaluated based on the conditions observed during the establishment period.

To ensure rapid establishment of the plant community, trees and shrubs will be planted closer together than would generally occur in natural mature stands. Some natural mortality is expected to occur during the monitoring period. All dead and downed woody material will be left in place to provide microhabitats for wildlife. Plants will be replaced as needed to meet performance standards.

Maintenance to control nuisance species in the mitigation areas will likely be necessary. During the monitoring period, if it becomes evident that invasive species are impeding establishment of desirable native plants, measures will be implemented to control nuisance species. A progressively aggressive approach will be used to control nuisance species. Control measures will first include hand cutting and/or grubbing and removal; if this fails, an environmentally sensitive herbicide (e.g., Rodeo or equivalent) may be applied.

Contingency Measures

Adaptive management is driven by the monitoring results and the performance standards. If the performance standards are not met, adaptive management activities will be implemented to achieve the desired condition. Management activities may include implementation of contingencies described in Table 5-5, or other appropriate measures. Site conditions will be evaluated to determine the cause of the problem and the most appropriate countermeasure.

Information from the annual monitoring program will be used to identify any maintenance and/or corrective actions. If problems are identified in monitoring, King County biologists will determine the cause of the problem and implement proper maintenance or corrective activities. These activities will be discussed in the annual monitoring report.

Performance Security/Financial Assurance

This mitigation project will be sponsored by King County. The County will implement a suitable mechanism to ensure that the project is implemented successfully and monitored for a minimum of 10 years, or until the project mitigation is deemed a success by achieving its performance standards.

Site Protection

The County owns the property underlying the mitigation sites. They will protect the mitigation sites in perpetuity through a legal mechanism that permits maintenance and monitoring of the mitigation area. This mechanism shall be retained by the County and may be submitted to the USACE after permit issuance, if required. In addition, permanent fencing and/or signs indicating that the area is a natural or sensitive or critical area to be protected from disturbance will be posted along the boundaries of each mitigation area.

Table 5-5. Contingency Measures for the Mitigation Sites

Problem	Contingency Measure	
Less than 80% of planted woody species survive in Year 1	King County biologists (or other qualified biologist) will assess the sites to determine what conditions are preventing the plants from thriving. Appropriate measures will be taken to correct any conditions that are limiting growth. Plants will be replaced with appropriate native species to achieve the Year I standard. Additional measures (such as providing additional protection) will be considered if necessary.	
Percent cover for woody species not met during Years 3, 5, or 7	King County biologists (or other qualified biologist) will assess the sites to determine what conditions are preventing the plants from thriving. Appropriate measures, such as increased weed control or extra plantings, will be taken to correct any conditions that are limiting growth.	
Invasive species exceed percent cover threshold	Implement/revise invasive species control plan.	
Performance standards not met at Year 10	Continue the monitoring regime for 1 additional year. The sites will continue to be evaluated every year until each site has met the stated performance standards associated with management objectives. Other contingency measures may be implemented during this period.	

Long-term Management Plan

The mitigation sites are located on King County property. After attainment of performance standards and acceptance of the mitigation project by the USACE, the County will implement a long-term management plan for the sites as part of trail operations, if required.

Site management activities will include noxious weed control, damage repair from vandalism, trash removal, and signage maintenance.

Monitoring reports or technical memoranda will document annual management activities and identify key issues and actions needed for the following year. Reports are anticipated to be submitted every year to the USACE, by the end of the calendar year, for the first 10 years following attainment of

The County will issue a letter of assurance to cover long-term management costs of the mitigation site to the USACE ensuring the County's compliance with the long-term management plan.

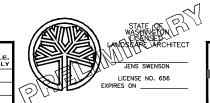
City Engineer Date	CITY OF	SAMMAMISH	APPROVAL
Community Development Date			

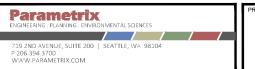
REVISED 60 % REVIEW SUBMITTAL

NOT FOR CONSTRUCTION

MITIGATION NOTES

ESIGNED S. SWENSON ONE INCH AT FULL SCALE F NOT, SCALE ACCORDINGL B. PURGANAN 521075P19T03LA-05 P. JOHANNESSEN 554-1521-075 P19 T03





158 OF 158