King County

Department of
Natural Resources and Parks
Solid Waste Division

WETLAND AND STREAM ASSESSMENT REPORT FACTORIA RECYCLING AND TRANSFER STATION REPLACEMENT PROJECT

Final
January 2012

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FACTORIA RECYCLING AND TRANSFER STATION
REPLACEMENT PROJECT

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Acronyms and Abbreviations

BLA	Boundary Line Adjustment
CHRLF	Cedar Hills Regional Landfill
CMP	corrugated metal pipe
DBH	diameter at breast height
Ecology	Washington State Department of Ecology
Factoria RTS	Factoria Recycling and Transfer Station Replacement Project
GPS	global positioning system
HDR	HDR Engineering, Inc.
HGM	hydrogeomorphic
HHW	household hazardous waste
KCSWD	King County Department of Natural Resources and Parks, Solid Waste Division
LEED	Leadership in Energy and Environmental Design
LID	Low Impact Development
LOS	Level of Service
LUC	Land Use Code
OHWM	Ordinary High Water Mark
PEM	palustrine emergent
PFO	palustrine forested
PSE	Puget Sound Energy
PSS	palustrine, scrub-shrub
RCW	Revised Code of Washington

RPW	Relatively Permanent Water
USACE	U.S. Army Corps of Engineers
USDA NRCS	U.S. Department of Agriculture, Natural Resources Conservation Service
USFWS	U.S. Fish and Wildlife Service
WAC	Washington Administrative Code
WDFW	Washington State Department of Fish and Wildlife
WDNR	Washington State Department of Natural Resources
WRIA	Water Resource Inventory Area

Chapter 1: Introduction

This report presents the methods and findings of wetland and stream delineations for the Factoria Recycling and Transfer Station (Factoria RTS) Replacement Project. It also identifies impacts to wetlands and streams that are expected to result from the project and presents a compensatory mitigation strategy to address those impacts. The report was prepared by HDR Engineering, Inc. (HDR) biologists, and is intended to provide documentation for local, state, and federal permitting activities required for the project.

1.1 Background

The King County Department of Natural Resources and Parks, Solid Waste Division (KCSWD) is conducting the design and engineering for the replacement of the Factoria Transfer Station, a solid waste transfer facility owned and operated by KCSWD. The existing Factoria Transfer Station, located at 13800 Southeast (SE) 32nd Street in Bellevue (see Figure 1), is one of eight King County transfer stations where waste is collected and transferred into large tractor-trailers. Commercial haulers as well as business and residential self-haul customers use the transfer station. The Factoria Transfer Station was constructed in the 1960s and is nearing the end of its useful life. The facility needs to be replaced because the capacity of the existing facility has been exceeded, current roof height is too low for some modern garbage hauler equipment, and it does not meet the level of service (LOS) criteria established by KCSWD for transfer stations. It is anticipated that the regional landfill that receives waste from the Factoria Transfer Station will continue to accept waste until approximately 2019. After that time, it is expected that waste will be exported to an out-of-county or out-of-state landfill.

Currently, the site is accessed from SE 32nd Street by all customers and the facility transfer haulers. In the future, facility transfer haulers would use a new driveway entrance from SE 30th Street for ingress to and egress from the facility, while all self-haul and commercial customers would continue to use the SE 32nd Street for ingress to and egress from the facility. Thus, the updated Factoria RTS layout would separate the facility transfer hauler traffic trips from the commercial and self-haul vehicles. In addition, the updated Factoria RTS layout would provide separate drives for the commercial and self-haul entrances to the facility. This would limit the commercial and self-hauler vehicle interaction on-site.

The Factoria RTS will be replaced with an improved facility designed to accommodate the growing demands of local and regional population growth. At the same time, operational improvements would be provided for enhanced compaction of solid waste to reduce the number of facility transfer hauler trips to and from the site. The number of facility transfer hauler trips would initially be reduced after the compaction improvements were completed; however, as the tonnage of waste processed increases in the future, the number of transfer hauler trips would slightly increase.

Proposed Facility Improvements

The proposed Factoria RTS (see Figure 1, Project Vicinity Map) would be situated on an approximately 8.7-acres (multiple parcels) constrained by steep topography, wetlands, streams, and a large utility corridor easement occupied by British Petroleum (BP)/Olympic Pipeline and Puget Sound Energy (PSE) distribution lines and PSE overhead power lines. The transfer station operation and household hazardous waste (HHW) collection would be contained within one large building on the site. Southeast 32nd Street dead-ends at the Factoria RTS entrance, where a small scalehouse is located to weigh vehicles upon entering and exiting the site. KCSWD intends to maintain operation of the existing transfer station during construction of its replacement on adjacent property. To help facilitate that goal, King County purchased adjacent property northwest of the site that contains two warehouse buildings (Figure 1). With the incorporation of property assumed through the boundary line adjustment (BLA), the size of the new Factoria RTS site would total approximately 16 acres.

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0 500 1,000 Feet

Legend
- Project Area
- Parcel
- Bellevue Stream Inventory

Figure 1. Project Vicinity Map

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Major features considered for the Factoria RTS are also summarized below:

- Transfer station building featuring a flat floor
- Recycling area focused on items not taken curbside
- Future second compactor
- Household Hazardous Waste (HHW) facility
- Single story administration building
- Retaining walls (temporary and permanent)
- Transfer trailer chassis storage yard
- Space on the floor for three days worth of emergency waste storage
- Scalehouse improvements; reuse existing scale plaza and scalehouse facilities (one inbound and one outbound scale) and construct new exterior facade
- Equipment maintenance and storage area
- Fueling facility hot load area
- Utility services (water, storm and sanitary sewer, electrical, standby generator, telephone, fire protection, security, and data systems)
- Perimeter fencing, lighting, and signage
- Separated traffic circulation and access (internal road network, SE 32nd Street, SE 30th Street)
- Vehicle parking (visitor, administration building, helper, staff)
- Sustainable design features (Leadership in Energy and Environmental Design [LEED], Salmon-Safe, and Low Impact Development [LID])
- Natural resources mitigation (unavoidable impacts to critical areas would be mitigated as required by federal, state, and local requirements)

The new transfer building would be centrally located on the site. The recycling area and HHW building would be on the east side of the transfer building; the customer entrance, scale plaza, and access roads would be to the south; and the container chassis storage yard would be in the northwest corner. The administrative building would be on the south side of the transfer

building. The wetland and stream located in the northeast corner of the site will be preserved and enhanced as part of the project.

1.2 Project Setting

The transfer station is located within the City of Bellevue, Washington in Section 10, Township 24 North, and Range 5 East. The existing facility is located in the light industrial area between SE 30th Street and SE 32nd Street.

The project site is centered at latitude 47° 34’ 54.54” North and longitude 122° 9' 34.79" West. Topography of the site generally slopes down from southeast to northwest. Surface elevation in the project area ranges from 65 feet to 206 feet above mean sea level (King County 2010).

Chapter 2: Methods

Wetlands and streams were identified through a two-step process. HDR biologists first reviewed existing documents, including soil surveys, wetland and stream inventories, aerial photographs, and other reports that concern wetlands and streams in the project vicinity. After this review, HDR biologists completed a thorough field investigation of the project area. The field review included verification of some of the findings derived by earlier studies and modification of the earlier studies to confirm existing conditions as well as delineation and classification of new streams and wetlands.

Wetlands and streams outside the project area were not formally delineated; these areas were assessed based on characteristics visible from public rights-of-way and on information obtained from existing documents and studies, maps, and aerial photographs.

2.1 Review of Existing Information

Existing documents reviewed for this wetland and stream study included the following:

- Soil Survey of King County Area (Snyder et al. 1973)
- U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory Web site (USFWS 2010)
- City of Bellevue Sensitive Areas Notebook (City of Bellevue 1987)
- Bellevue Critical Areas Updated Wetland Inventory (City of Bellevue 2003b)
- Bellevue Critical Areas Updated Stream Inventory (City of Bellevue 2003a)
- Washington State Department of Fish and Wildlife (WDFW) Priority Habitat and Species List (WDFW 2010a)
- WDFW (2010b) SalmonScape Web site
- Washington State Department of Natural Resources (WDNR) Natural Heritage Information Request Self-Service System (WDNR 2010)
- *A Catalog of Washington Streams and Salmon Utilization*, Volume 1, Puget Sound (Williams et al. 1975)
- *King County Factoria Transfer Station Wetland Delineation Report* (Jones and Stokes 1991)

- *Factoria Transfer/Recycling Station: Draft Environmental Impact Statement* (City of Bellevue 1993)
- *Stream Study of an Unnamed Tributary of East Creek at 13440 S.E. 30th Street Bellevue, WA 98005* (J.S. Jones and Associates 2005)
- *Wetland Assessment of the H.D. Fowler Site* (J.S. Jones and Associates 2004)
- *A&M Auto East Creek Tributary Rehabilitation Project Critical Areas Report* (David Evans and Associates 2008)
- *Report of Wetland Delineation and Assessment, and Restoration Plan for Repair of milepost 101.8 Erosion Feature: Olympic Pipe Line Company* (GeoEngineers 2001)
- *Draft Factoria Transfer Station Wetland and Stream Delineation Report* (Herrera Environmental Consultants 2007)
- Stormwater/Utility As-built documentation
- Aerial photography of the project area (King County 1934 and 2009)
- Site topographic survey (King County 2010)

These documents provide background information on the soils, hydrology, land use, and wetlands and streams in the project area.

2.2 Field Investigation

Field investigation consisted of an initial field reconnaissance followed by more detailed verification/delineation of wetlands and streams in the project area. HDR biologists conducted the field investigation on January 22, February 5, March 5, and March 23, 2010. Multiple site visits were also conducted between January and July 2011.

Wetlands

For some of the wetlands, HDR biologists field-verified wetland boundaries previously flagged and delineated by Herrera Environmental Consultants (2007). HDR biologists evaluated these boundaries using survey data from the previous delineation; these data were downloaded onto a hand-held, differentially-corrected global positioning system (GPS) device (a Trimble Geo XT 2005). This device is capable of being located within one-meter accuracy of the actual location, so finding previous flags was feasible using this device. HDR biologists used the GPS device to navigate to flag locations along the boundary of each identified wetland and in most locations, the actual plastic flagging was observed. HDR biologists then determined whether this surveyed boundary accurately reflected current field conditions, and if the previous work would satisfy current delineation requirements. Formal data plots were collected in each previously

identified wetlands to reflect current field conditions, and photographs were taken of the wetlands.

HDR biologists marked newly delineated wetlands in the field with sequentially-numbered plastic flagging tape and recorded boundaries and wetland data plot locations with the Geo XT GPS device. These new boundaries were later surveyed by professional surveyors in December 2010. The resulting data were incorporated into project base maps. HDR biologists delineated newly identified wetlands using the three parameter methods described in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987), as updated by the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region* (USACE 2010). A detailed description of the field methods used in this study is provided in Appendix A. Wetland boundaries outside the project area were approximated using aerial photographs and professional judgment based on the field reconnaissance.

The City of Bellevue requires that wetlands be rated using the state wetland rating system as described in *Washington State Wetland Rating System for Western Washington – Revised*, Washington State Department of Ecology (Ecology) Publication # 04-06-025 (Hruby 2004). Using this system, wetlands were rated in the field by using the Wetlands Rating Field Data Form provided with the rating system manual (Appendix D). Table 1 lists the rating criteria for the City of Bellevue. A detailed analysis of wetland functions is not included in this report; however, a brief description of wetland functions is provided in the general description for each wetland.

Table 1. Wetland Rating System for the City of Bellevue

Regulatory Agency	Category			
	I	II	III	IV
Washington State Department of Ecology[a]	Category I wetlands: Represent a unique or rare wetland type; or Are more sensitive to disturbance than most wetlands; or Are relatively undisturbed and contain ecological attributes that are impossible to replace within a human lifetime; or Provide a high level of functions. Specific wetlands that meet the Category I criteria include: 1. Relatively undisturbed estuarine wetlands over one acre in size; or 2. Natural Heritage Wetlands, specifically, Wetlands identified by the Washington Natural Heritage Program/WDNR as high quality relatively undisturbed wetlands; and Wetlands that support state-listed threatened or endangered plants; 3. Bogs; 4. Mature and old-growth forested wetlands over one acre in size; 5. Wetlands in coastal lagoons; and 6. Wetlands that perform many functions very well, as indicated by a score of 70 or more points out of 100 on the wetland rating form.	Category II wetlands are difficult, though not impossible, to replace, and provide high levels of some functions. Specific wetlands that meet the Category II criteria include: 1. Estuarine wetlands less than one acre in size, or disturbed estuarine wetlands larger than one acre; 2. Interdunal wetlands greater than one acre; and 3. Wetlands scoring between 51 and 69 points out of 100 on the wetland rating form.	Category III wetlands provide a moderate level of functions. Specific wetlands that meet the Category III criteria include: 1. Wetlands scoring between 30 and 50 points out of 100 on the wetland rating form; and 2. Interdunal wetlands between 0.1 acre and 1.0 acre in size.	Category IV wetlands have the lowest levels of functions and are heavily disturbed. Specific wetlands that meet the Category IV criteria include: 1. Wetlands scoring less than 30 points out of 100 on the wetland rating form.
City of Bellevue[b]	Category I wetlands: 1. Represent a unique or rare wetland type; or 2. Are more sensitive to disturbance than most wetlands; or 3. Are relatively undisturbed and contain ecological attributes that are impossible to replace within a human lifetime; or 4. Provide a high level of functions.	Category II wetlands: 1. Wetlands scoring between 51-69 points (out of 100) on the questions related to the functions.	Category III wetlands: 1. Wetlands with a moderate level of functions (scores between 30 -50 points).	Category IV wetlands: 1. Wetlands larger than 2,500 square feet. 2. Wetlands with a low level of functions (scores less than 30 points) and are often heavily disturbed.

[a] Hruby (2004)
[b] Bellevue Land Use Code (LUC 20.25H.095.B)

Streams

The City of Bellevue defines a stream as an aquatic area where surface water produces a channel, not including a wholly artificial channel, unless the artificial channel is:

1. Used by salmonids; or
2. Used to convey a stream that occurred naturally before construction of the artificial channel (LUC 20.25H.075).

Similar to the procedure used for wetland boundaries, HDR biologists field-verified stream boundaries previously flagged and delineated by Herrera Environmental (2007). HDR biologists evaluated these boundaries using survey data from the previous delineation; these data were downloaded onto the Trimble Geo XT 2005 GPS device. HDR biologists then determined whether flagging was still in place and whether this surveyed boundary accurately reflected current field conditions and satisfied current delineation requirements.

In July 2011, HDR biologists also visually assessed the drainage features in the project area to determine if they would meet the definitions of a stream described in the City of Bellevue Land Use Code (LUC). The basic characteristics of the channels and surface water present were recorded with respect to fish habitat, which included the size of the channel, general riparian vegetation, and type of substrate. The wetted and bankfull width and water depth were recorded at sites along stream 0263 where the ordinary high water mark (OHWM) was delineated. Ditch A was visually assessed along its length within the project area, and the width and depth were measured in two locations. Photographs were also taken and are presented in Appendix C.

Streams identified in the project area were classified according to the stream definitions and typing systems detailed in LUC 20.25H.075. Stream classifications within the City of Bellevue are based on the state's stream typing system (WAC 222-16-030) with some minor differences. Criteria for this typing system are described in Table 2. Buffer widths were assigned to streams based on their classification. Buffer widths for the project area were based on the river reach designation presented in LUC 20.25H.075.C. Fish presence was determined through the review of previous studies, interviews with the City of Bellevue staff, an assessment of the available habitat, and the hydrologic condition of all identified surface waters.

Table 2. Summary of the Water Typing System for the City of Bellevue

Stream Type	Definition[a]
S	All waters, other than shoreline critical areas designated under LUC 20.25E.017, within their bankfull width, as inventoried as "shorelines of the state" under Chapter 90.58 RCW and the rules promulgated pursuant to Chapter 90.58 RCW including periodically inundated areas of their associated wetlands.
F	All segments of waters that are not Type S waters and that contain fish or fish habitat, including waters diverted for use by a federal, state, or tribal fish hatchery from the point of diversion for 1,500 feet or the entire tributary if the tributary is highly significant for protection of downstream water quality.
N	All segments of waters that are not Type S or Type F waters and that are physically connected to a Type S or F waters by an above ground channel system, stream or wetland.
O	All segments of waters that are not Type S, F, or N waters and that are not physically connected to Type S, F, or N waters by an above ground channel system, stream, or wetland.

[a] Definitions are summarized from Bellevue Land Use Code 20.25H.075B and WAC 222-16-030.

The Washington State Department of Natural Resources (DNR) does not include a Type O and further divides the Type N streams into two sub-categories, Np and Ns. Type Np (Non-Fish Perennial) refers to streams that have flow year round, but do not meat the criteria of a fish bearing or Type F stream. Type Ns (Non-Fish Seasonal) refers to streams that are non fish bearing and do not have flow during at least some part of the year.

Chapter 3: Results

Presence of wetlands and streams in the study area have been identified and classified based on the methods described in the previous chapter. Our findings on streams and wetlands were submitted to U.S. Army Corps of Engineers (USACE) on June 7, 2010 for a jurisdictional determination. On September 15, 2010, USACE issued a preliminary jurisdictional determination indicating that all streams and wetlands that have been identified on the project site have been delineated correctly and that these resources fall under USACE jurisdiction under the Clean Water Act. This determination also includes two of the ditches identified in the project area. Descriptions of wetlands, streams, and other drainage features are included in the following section.

3.1 Wetlands within the Project Area

HDR biologists verified the extent and location of four previously-identified wetlands in the project area and delineated one additional wetland. Wetlands were distinguished from adjoining uplands by the presence of indicators for wetland hydrology, hydric soils, and hydrophytic vegetation. Wetland delineation data sheets are provided in Appendix B, and photographs are provided in Appendix C.

While flags were missing in some locations, HDR biologists found a sufficient number of flags to determine the accuracy of the previous delineation. The previous delineation appears to be correct for most of the previously delineated wetlands, with regard to the location and extent of wetland boundaries. The locations of wetlands, streams, and data plots are shown in Figure 2. Table 3 summarizes the size, rating, and classification of wetlands found in the project area.

Table 3. Wetland Size, Rating, Classification, and Buffer Width for Wetlands in the Project Area

Wetland Name	Delineated Area (overall wetland size)[a]	Hydrogeomorphic (HGM) Classification	Cowardin Classification[c]	Score for Water Quality	Score for Hydrologic Functions	Score for Habitat Functions	Total Score for Functions	Wetland Rating City of Bellevue[b]	Buffer Width[b]
2	0.38 acre	Slope	PSS/PFO	4	6	15	25	IV	40
3	0.96 acre (1.8 acre)	Slope	PEM/PSS/PFO	6	16	23	45	III	110
4	0.06 acre	Slope	PSS	14	8	10	32	III	60
A	0.01 acre	Depressional	PSS	6	5	6	17	IV	N/A[d]
C	0.04 acre	Depressional	PFO	10	7	9	26	IV	N/A[d]

[a] Overall wetland size is the total area of wetland delineated or estimated based on aerial photograph interpretation and field reconnaissance. Area of delineated portions of the wetlands is based on the survey data.
[b] Wetland ratings and buffer widths are based on City of Bellevue LUC 20.25H.095.
[c] Cowardin et al. (1979). All wetlands are palustrine. PSS = palustrine, scrub-shrub; PFO = palustrine forested; PEM = palustrine emergent.
[d] The City of Bellevue does not require buffer for Category IV wetlands less than 2,500 square feet (Bellevue LUC 20.25H.095C).


Stream 0263
Alluvial Fan
Wetland 3
(Category III)
3-1
3-2
Stream 0263
4
4-3
Ditch A
Wetland 2
(Category IV)
ISET CREEK
NAGE BASIN
Wetland 4
(Category III)
4-1
4-2
4-3
Factoria Transfer
Station
SE 32nd St
Ditch C
A-1
A-2
Wetland A
(Category IV)
Scalehouse
Ditch B
PSE Transmission
Line Easement
Sunset Creek
Wetland C
(Category IV)
C-1
C-2
EAST CREEK
DRAINAGE BASIN
SE Eastgate Way

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Wetland Functions

Using Ecology's Wetland Rating form for Western Washington, scores were calculated for each of three types of services that wetlands generally provide: water quality improvement functions, hydrologic support functions, and wetland-dependent habitat functions.

Wetlands in the project area are slope or depressional wetlands that are fed by groundwater discharge, subsurface interflow, and surface flow from off-site areas. Wetlands evaluated with the project area received low to moderate scores for water quality, hydrologic, and habitat functions. This is reflected in the overall ratings of these wetlands, nearly all of which are Category III to Category IV. None of the wetlands on-site met the criteria for wetlands needing special protection (Hruby 2004). Details regarding the individual wetlands are provided in Section 3.2, and general functions that existing wetlands provide are divided by their hydrogeomorphic classification and discussed in the following paragraphs.

Slope

Three wetlands were identified as slope wetlands in the project area. Slope wetlands in the project area are associated with hillsides and stream valley walls, and they generally provide water quality and hydrologic function at relatively low levels (scores less than 20 points in these categories) due to the vegetation types and topographic structure of the slope wetlands. All slope wetlands in the project area have low potential to provide floodwater detention and water quality improvement even though they occur within a landscape with multiple pollution generating sources. These nonpoint sources from surround areas provide opportunities for the wetlands to perform these functions.

The low to moderate habitat scores of slope wetlands in the project area reflect the limited habitat features and the poorly-developed vegetation strata, as well as low to moderate interspersion between vegetation communities within the wetlands. Wetland 3 scored higher than the other two slope wetlands because of its size, higher diverse structural conditions (alder snags), and its association with Stream 0263, as well as its landscape position in terms of its proximity to other wetlands and habitat types.

Depressional

Depressional wetlands in the project area are formed in topographic depressions where water accumulates. Two depressional wetlands were identified in the project area, and they are both small, highly disturbed, and perform water quality, hydrologic, and habitat functions at low levels.

No outlets were found in Wetland C, whereas Wetland A discharges via a culvert at the east end of the wetland. Both wetlands areas have low potential to provide water quality and hydrologic functions due to their size, landscape positions, and physical characteristics. These functions include denitrification, trapping of sediments, and floodwater detention. The presence

of surrounding pollutant sources provides opportunity for Wetland A to perform water quality functions, but there are no opportunities present for Wetland C.

Depressional wetlands in the project area also provide low habitat functions due to limited habitat features and vegetation strata, low species diversity, and low interspersion between vegetation communities within the wetlands. These wetlands have limited opportunity to provide wildlife habitat support because they are not well connected to other habitat types.

Wetlands

Wetland 2

Palustrine scrub-shrub/forested
Category IV
0.38 acre in project area/0.38 acre overall

Description

Wetland 2 is a slope wetland located on a moderate to steep slope northwest of the existing transfer station (Figure 2). Wetland 2 is down slope from a paved driveway (SE 32nd Street) to the west, and is approximately 120 feet wide and 200 feet long.

Vegetation

Wetland 2 is comprised of palustrine scrub-shrub and forested broad-leaved deciduous habitat types (Cowardin et al. 1979). The forest community in Wetland 2 includes black cottonwood and red alder with an understory of salmonberry, Himalayan blackberry, vine maple (*Acer circinatum*), Pacific willow (*Salix lasiandra*), English ivy (*Hedera helix*), and trailing blackberry (*Rubus ursinus*). The scrub-shrub community in Wetland 2 is dominated by salmonberry, Himalayan blackberry, and reed canarygrass (*Phalaris arundinacea*). The presence of these species meets the wetland vegetation criteria.

Soils

Soils in Wetland 2 are mapped as Urban Land (Snyder et al. 1973). The typical soil profile observed within 18 inches of the soil surface consists of dark gray (10YR 4/1) loam or sandy loam over at least 13 inches of olive gray (5Y 4/2) sandy loam or gray to dark gray (10YR 4/1 to 10YR 5/1) gravelly sandy loam with redoximorphic features. The soils in Wetland 2 meet the hydric soil indicators for Depleted Matrix.

Hydrology

No primary hydrology indicators were observed at the data plots during the site visit, but water-stained leaves and drainage patterns indicate that wetland hydrology is present at the sample plot locations. Surface flow was observed throughout the wetland. Two main drainages in the wetland are formed on the hillside. Stream 0263 flows northwest out of the project area and eventually joins East Creek. The other drainages flow west and discharge into Ditch A and a

stormwater catch basin near the southeast corner of the warehouse building. A culvert is located approximately 40 feet southeast of Data Plot SP-3; the culvert appears to convey runoff from the existing transfer station. At the culvert location, a very low flow of water was observed flowing down the hillside and disappearing into the ground. No distinct drainage channel is present in this area. Based on the biologists' observations, runoff from the transfer station and seeps from the hillside appear to be the primary sources of wetland hydrology for Wetland 2.

Wetland Rating and Buffer Width

Wetland 2 is rated as Category IV in the Ecology's rating system (see Table 1), with a low score for water quality function (4/24 points), a low score for hydrologic function (6/16 points), and a moderate score for habitat function (15/36 points). Wetland 2 has low potential to provide water quality functions and hydrologic functions because Wetland 2 has limited potential to trap sediments and pollutants due to its steeply-sloped configuration and lack of dense vegetation. Surrounding urban land use provides opportunity for Wetland 2 to perform water quality functions and hydrologic functions. Wetland 2 also has some potential and opportunity to provide habitat functions because it has some habitat diversity and has connectivity to other habitat types. Category IV wetlands that are over 2,500 square feet in the City of Bellevue require 40-foot buffers.

Buffer Conditions

The vegetated buffer of Wetland 2 is mainly comprised of sword fern, English ivy, reed canarygrass, Himalayan blackberry, and salmonberry with some black cottonwood, red alder, and big-leaf maple (*Acer macrophyllum*) trees. Buffer soils consist of dark gray (10YR 4/1) gravelly sandy loam over at least 13 inches of dark grayish brown (2.5Y 4/2) gravelly sandy loam. No redoximorphic features were observed in the soil profile. There were no primary or secondary indicators of wetland hydrology.

Wetland 3

Palustrine emergent/scrub-shrub/forested
Category III
0.96 acre in project area/1.8 acres overall

Description

Wetland 3 is a slope wetland located at the north end of the project area and east of SE 30th Street. Wetland 3 continues to extend north outside the project area and is likely to extend up to the PSE facility and its private driveway located at the east end of SE 30th Street. The PSE transmission line easement is located east of the project area, running north-to-south, and two underground fuel pipelines owned by the Olympic Pipeline Company cross Wetland 3 within the easement. Stream 0263 also runs through Wetland 3.

Vegetation

Wetland 3 is comprised of palustrine emergent persistent, scrub-shrub, and forested broad-leaved deciduous habitat types (Cowardin et al. 1979). The forest community in Wetland 3 is located at the southern and eastern ends of the wetland boundary, and it is comprised of red alder, vine maple, salmonberry, piggy-back plant (*Tolmiea menziesii*), and reed canarygrass. Himalayan blackberry, wax currant (*Ribes divaricatum*), trailing blackberry, false lily-of-the-valley (*Maianthemum dilatatum*), lady fern (*Athyrium filix-femina*), skunk cabbage (*Lysichiton americanum*), and giant horsetail are also present in smaller quantities. The scrub-shrub community in Wetland 3 is primarily located along Stream 0263 and the PSE driveway at the end of SE 30th Street. Dominant vegetation in the scrub-shrub community includes Pacific willow (*Salix lasiandra*), Himalayan blackberry, and reed canarygrass. However, some willows that were located within the PSE transmission line easement had been recently cleared. The emergent community in Wetland 3 is primarily located within the PSE transmission line easement and is comprised of reed canarygrass, soft rush (*Juncus effusus*), common cattail (*Typha latifolia*), and small-fruited bulrush (*Scirpus microcarpus*). The presence of these species meets the wetland vegetation criteria.

Soils

Soils in Wetland 3 are mapped as Urban Land and Everett gravelly sandy loams (Snyder et al. 1973). Soils in Wetland 3 consist of at least 11 inches of very dark gray (10YR 3/1) sandy loam over at least 7 inches of dark grayish brown (2.5Y 4/2) gravelly sandy loam. No redoximorphic features were observed in the soil profile. Sulfidic odor was present within 11 inches of the soil profile; therefore, soils in Wetland 3 meet the hydric soil indicators for hydrogen sulfide.

Hydrology

Primary indicators of hydrology include surface water present near the sample plot location, saturated soils present at the surface, and free water at 9 inches below the surface. Seeps from the hillside appear to be the primary source of wetland hydrology for Wetland 3.

Wetland Rating and Buffer Width

Wetland 3 is rated as a Category III wetland in the Ecology rating system, with a low score for water quality (6/24 points), a high score for hydrologic function (16/16 points), and a moderate score for habitat function (23/36 points). Wetland 3 has low potential to provide water quality functions and hydrologic functions due to its limited potential to trap sediments and pollutants. Surrounding urban land use provides opportunity for Wetland 3 to perform water quality functions and hydrologic functions. Wetland 3 also provides high habitat functions because it has moderate habitat diversity and interspersion, and because of its connection to other habitat types located nearby. In the City of Bellevue, Category III wetlands with 20 to 28 habitat points require 110-foot buffers.

Buffer Conditions

The vegetated buffer of Wetland 3 is comprised of beaked hazelnut (*Corylus cornuta*), vine maple (*Acer circinatum*), Pacific breeding heart (*Dicentra formosa*), and sword fern. Buffer soils consist of very dark gray (10YR 3/1) loam over at least 7 inches of very dark grayish brown (10YR 3/2) gravelly sandy loam with no redoximorphic features. There were no primary or secondary indicators of wetland hydrology.

Wetland 4

Palustrine scrub-shrub
Category III
0.06 acre in project area/0.06 acre overall

Description

Wetland 4 is a slope wetland located immediately north of SE 32nd Street and west of the existing transfer station (Figure 2). It is located on a gently-sloped hillside that slopes down from a paved driveway (SE 32nd Street) to the north. A concrete foundation and an abandoned house are located adjacent to Wetland 4. Wetland 4 is approximately 40 feet wide and 100 feet long.

Vegetation

Wetland 4 is a palustrine scrub-shrub wetland (Cowardin et al. 1979) and is primarily dominated by English ivy (*Hedera helix*a). The other species observed in Wetland 4 include salmonberry, vine maple, Himalayan blackberry, ornamental viburnum (*Vivurnum spp.*), giant horsetail, and lady fern. English ivy appears to be rooted outside of the wetland; however it has successfully established throughout the wetland and acts as an aggressive invasive plant by dominating the ground and preventing other plants to grow. Based on the local topography and the presence of hydric soil and wetland hydrology, the vegetation community still meets the wetland vegetation criteria for the problematic hydrophytic vegetation, particularly under the aggressive invasive plants criteria. (USACE 2010).

Soils

The observed soils in Wetland 4 generally consist of 10 inches of dark reddish gray (2.5YR 4/1) fine sandy loam over at least 8 inches of greenish gray (10G 6/1) fine sandy loam or at least 30 inches of gray (5Y 5/1) sandy loam with redoximorphic features. The soils in Wetland 4 meet the hydric soil indicators for Loamy Gleyed Matrix or Depleted Matrix.

Hydrology

Primary indicators of hydrology include surface water present near the sample plot location, saturated soils, and free water present at the surface. A buried culvert is located at the northeast corner of Wetland 4; however, no water was observed at either end of the culvert during the field investigation. Seeps from the hillside along SE 32nd Street and surface water

runoff from the surrounding pavements appear to be the primary sources of hydrology for Wetland 4. Surface water from Wetland 4 drains northwest along a shallow swale approximately 70 feet before infiltrating into the ground.

Wetland Rating and Buffer Width

Wetland 4 is rated as a Category III wetland in the Ecology rating system, with moderate scores for water quality (14/24 points) and hydrologic functions (8/16 points), and a low score for habitat function (10/36 points). Wetland 4 has some potential to provide water quality functions and hydrologic functions because it can trap sediments and pollutants due to its topography and dense vegetation. Surrounding urban land use also provides opportunity for Wetland 4 to perform a water quality function, but Wetland 4 does not provide opportunities for hydrologic functions because there are no surface water connections to drainage ways. Wetland 4 has limited habitat functions due to low habitat diversity and interspersion, and limited connection to other habitat types nearby. The City of Bellevue requires a 60-foot-wide buffer for Category III wetlands that receive less than 20 habitat points.

Buffer Conditions

The vegetated buffer of Wetland 4 is comprised of big-leaf maple, rose (*Rosa* spp.), snowberry, Himalayan blackberry, and English ivy. The upper horizon of buffer soils is very dark grayish brown (10YR 3/2) gravelly sandy loam over a mixture of dark grayish brown (10YR 3/2) and brown (10YR 4/3) gravelly sandy loam with no redoximorphic features. There were no primary or secondary indicators of wetland hydrology.

Wetland A

Palustrine scrub-shrub
Category IV
0.01 acre in project area/0.01 acre overall

Description

Wetland A is a depressional wetland located south of SE 32nd Street, approximately 150 feet southwest of the existing scalehouse (Figure 2). Wetland A is a linear feature approximately 5 feet wide and 70 feet long located in a topographic depression. A 12-inch-diameter corrugated metal pipe (CMP) culvert is situated at the east end of the wetland and appears to drain water from Wetland A to an underground stormwater conveyance system.

Vegetation

Wetland A is a palustrine scrub-shrub wetland that is dominated by Himalayan blackberry and English ivy. Plant communities observed in Wetland A are considered problematic because the area lacks hydrophytic vegetation and is dominated by invasive species. These plant communities have successfully established throughout the area and act as aggressive invasive plants (USACE 2010); however, based on the observation of nearby wetlands with similar topographic settings and the growth habit of Himalayan blackberry and English ivy in nearby

wetlands, presence of hydrophytic vegetation was assumed in Wetland A if invasive species were not prevalent.

Soils

Soils in Wetland A are mapped as Urban Land (Snyder et al. 1973). The observed soils in Wetland A consist of 8 inches of very dark gray (2.5Y 3/1) sandy loam over at least 7 inches of dark gray (2.5Y 4/1) sandy loam with redoximorphic features. The soils in Wetland A meet the hydric soil indicators for Depleted Matrix.

Hydrology

Primary indicators of hydrology include free water present at 7 inches below the surface and saturated soils at 11 inches below the surface. No surface water was observed at the sample plot location or at the culvert. Runoff from SE 32nd Street, slopes to the south, and direct precipitation appear to be the primary sources of hydrology for Wetland A.

Wetland Rating and Buffer Width

Wetland A is rated as a Category IV wetland in the Ecology rating system, with low scores for water quality (6/32 points), hydrologic (5/32 points), and habitat (6/36 points) functions. Wetland A has low potential to provide water quality and hydrologic functions due to its limited potential to trap sediments and pollutants. Surrounding urban land use also provides opportunity for Wetland A to perform some water quality functions, but Wetland A does not provide opportunities for hydrologic functions because there are no surface water connections to drainage ways. Wetland A has limited habitat functions due to low habitat diversity and interspersion, and limited connection to other habitat types located nearby. The City of Bellevue does not require buffers for Category IV wetlands that are smaller than 2,500 square feet.

Wetland C

Palustrine forested
Category IV
0.04 acre in project area/0.04 acre overall

Description

Wetland C is a depressional wetland located approximately 80 feet west of the PSE transmission line easement and at the southern limit of the project area. It is approximately 20 feet wide and 90 feet long in a topographic depression located between an abandoned logging road and a hill slope. No outlets or surface water inflows were observed in Wetland C during the field investigation.

Vegetation

Wetland C is a palustrine forested wetland (Cowardin et al. 1979). Vegetation in Wetland C mainly consists of red alder, black cottonwood, Himalayan blackberry, and soft rush. Japanese

knotweed (*Polygonus cuspidatum*), bentgrass (*Agrostis spp.*), giant horsetail, and fringed willowherb (*Epilobium ciliatum*) are also present in smaller quantities. The presence of these species meets the wetland vegetation criteria.

Soils

Soils in Wetland C are mapped as Pits and Everett gravelly sandy loam (Snyder et al. 1973). The observed soils in Wetland C consist of 12 inches of greenish gray (5GY 5/1) silty clay loam over at least 6 inches of greenish gray to grayish brown (5GY 5/1 to 2.5Y 5/2) silty clay loam. Redoximorphic features were observed throughout the soil profile. The soils in Wetland C meet the hydric soil indicators for Loamy Gleyed Matrix.

Hydrology

Primary indicators of hydrology include surface water present near the sample plot location, saturated soils present at the surface, and free water at 8 inches below the surface. Primary sources of hydrology for Wetland C appear to be runoff from the abandoned logging road and from the gravel pad immediately upslope of the wetland, and direct precipitation.

Wetland Rating and Buffer Width

Wetland C is rated as a Category IV wetland in the Ecology rating system, with low scores for water quality (10/32 points), hydrologic (7/32 points), and habitat (9/36 points) functions. Wetland C has some potential to provide water quality and hydrologic functions because it can trap sediments and pollutants. A gravel pad located upslope of the wetland is not currently used, and no other pollutant sources were observed near Wetland C; therefore, Wetland C does not provide opportunities for water quality functions. Furthermore, Wetland C does not provide opportunities for hydrologic functions because there are no surface water connections to drainage ways. Wetland C has limited habitat functions due to low habitat diversity and interspersion, and limited connection to other habitat types nearby. The City of Bellevue does not require buffers for Category IV wetlands that are smaller than 2,500 square feet.

3.2 Streams and Other Drainage Features in the Project Area

Streams

The project area is located in the Mercer Slough/Kelsey Creek basin of the Cedar–Sammamish Watershed (Water Resource Inventory Area [WRIA] 8). The Kelsey Creek basin consists of 9 drainage basins with more than 19 miles of streams, encompassing 10,870 acres (Kerwin 2001) and is located north of I-90. The project site is located within the East Creek drainage basin. In general, the East Creek drainage basin is characterized as a highly urbanized watershed with a high level of impervious surface area. Due to increase in impervious surface area associated with development in the basin, stream hydrology of East Creek has been altered by changes in peak flows, down-cutting, and scouring that result from the change in flow and dissociation of the stream from functioning floodplain areas.

East Creek is a tributary to Richards Creek, and contains coho salmon in its lower reaches and cutthroat trout throughout the basin (City of Bellevue 2003a). Cutthroat trout were observed in the creek just west of the project area during surveys conducted by the Watershed Company in 2001 (Watershed Company 2009). Channel modifications by culverts or other passage barriers and fine sediments are considered limiting factors for salmonid production in this basin (City of Bellevue 2003a).

Stream 0263, a tributary to East Creek, is the only stream located within the project area. This stream conveys water past the project site then through a culvert under the PSE access road at the east end of 30th street and then into East Creek. Table 4 summarizes the size, rating, and classification of Stream 0263 in the project area, and Figure 3 shows the location of Stream 0263. Photographs of this stream are provided in Appendix C. Within the project area, the upstream portion of Stream 0263 from the PSE access road is mapped by the City of Bellevue (Watershed Company 2009) as a Type N (non fish bearing) stream. The City of Bellevue requires a 50-foot-wide buffer for a Type N stream. Downstream of the project area below a culvert under the PSE access road (Figure 3) the stream is classified as Type F due to the presence of juvenile cutthroat trout found here (Watershed Company 2009).

Table 4. Summary of Streams in the Project Area

Stream Name	Tributary to	Stream Type[a]	Buffer Width[a]	USACE Jurisdiction[b]	Average Width in Project Area (ft)[c]	Approximate Length in Project Area (ft)[c]
Stream 0263	East Creek	N	50	RPW	3	280

[a] Bellevue Land Use Code 20.25H.075
[b] RPW = Relatively Permanent Water
[c] Average width and approximate length were determined based on existing survey data and field observations. The width reflects the channelized portion only.

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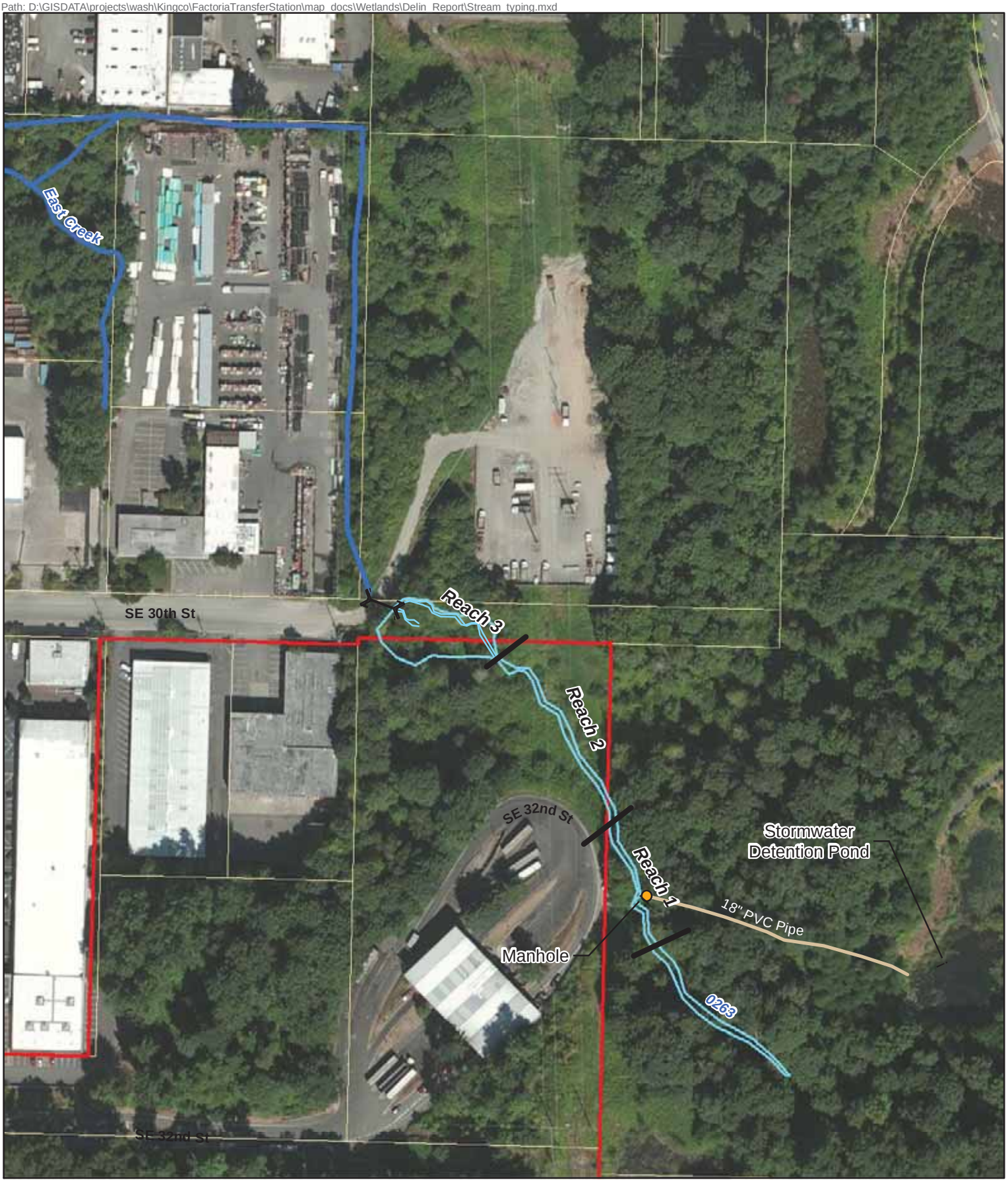

King County
Department of
Natural Resources and Parks
Solid Waste Division

0 50 100 200 Feet

Bellevue Stream Typing

- Type F Stream
- Type N Stream
- Culvert
- 18-inch PVC Pipe
- Project Area
- Parcel

Figure 3. Bellevue Stream Typing

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Stream 0263

Stream 0263 is located in the East Creek drainage basin of the Mercer Slough/Kelsey Creek basin. The size of the East Creek drainage basin is approximately 462 acres with an approximately 8,900 feet of an open channel. This drainage basin is primarily developed by mixed residential, commercial, and industrial uses, resulting in 48 percent for total impervious surface area (City of Bellevue 2003a). The project is located in the southwestern portion of the East Creek drainage basin. According to the City of Bellevue's East Creek sub-basin map (City of Bellevue 2002a); Stream 0263 originates at an outfall structure west of 139th Avenue SE, approximately 600 feet east of the existing facility. It flows northwesterly for approximately 300 feet through the northeast corner of the project area, crossing the PSE transmission line easement (Figure 3).

The riparian and channel characteristics of stream 0263 within the project area can be divided into three general reaches (Figure 3). The main demarcation between them is the transmission line corridor. Upstream of this corridor the stream is channelized through a forested riparian corridor. Under the transmissions lines, the stream flows down a series of stepped small pools and short runs. Downstream of the transmission line corridor, the stream fans out into numerous, very shallow channels that weave through heavy shrub and grass cover down a slope.

In the upstream reach to the east of the facility, the stream flows through deciduous forest cover before emerging by the PSE pipeline. The stream is well shaded by the forest cover, and the understory is fairly open immediately above the stream. This section of the stream is characterized by a shallow, incised channel downstream of an overflowing manhole (see photo 27 in Appendix C), and a smaller, less incised channel upstream of the manhole. Water from the manhole is a discharge from an underground pipe that conveys water from a nearby stormwater retention pond (Figure 3), and it contributes to surface water flows in the stream. The banks in the channel downstream of the manhole were steep and 18 to 24 inches high, while upstream of the manhole the stream was much less incised with bank heights of 10 to 12 inches. The depth of the stream during the time of the site visit was only 2 to 3 inches in the section below the manhole. Although very shallow, the predominant stream habitat in this area consisted of shallow riffles. Upstream of the manhole there was significantly less water and the stream was only about 1 inch in depth. The wetted width of the channel ranged from 17 to 48 inches, with an average width of 28 inches. The predominant substrate in this reach consisted of rounded gravel that ranged in size from 1 to 6 inches in diameter, with most areas embedded less than 25% with fines. A slope measurement was taken within the lower section of this reach where the understorey was more open allowing for a line of sight for the clinometer and was recorded at 9%.

Downstream of the forested area, the stream emerges from the forest cover and flows northeast under the transmission line corridor and is referred to as reach 2 (Figure 3; Photo 29 in Appendix C). This portion of the stream is heavily covered with blackberry bushes and reed

canarygrass with no overstory trees. The stream channel throughout this reach consists of a series of cascades and a waterfall. Each set of cascades drops approximately 3 to 4 feet in height with the uppermost consisting of a single waterfall of about 4 feet in height. The heights of these falls precludes upstream movement of all but the largest salmonids such as steelhead, Chinook and coho which are capable of passing these heights (Bjorn and Reiser 1991), but are not present in this stream. The small size of this stream also precludes its use by fish of adequate size to successfully move upstream over these cascades. The channel in this reach is very heavily overgrown with overarching vegetation close to the water surface, which also makes leaping over the falls extremely difficult.

The wetted channel width ranged from 24 to 50 inches wide with an average of 43 inches. The banks were generally steep, heavily vegetated, and ranged in height from 5 to 21 inches, with the highest banks at the downstream end of the reach down the hill from the powerline corridor. The water in the channel at the time of the site visit ranged from 2 to 9 inches in depth with an average of 4 inches. The predominant substrate through this reach consisted of gravel ranging in size from <1 inch to 5 inches in diameter embedded with few fines. The upper portion of this reach upstream of where it drops down the cascades on the hillside had a slope of 11% as sighted using a clinometer.

The third 'reach' of stream 0263 within the project area consists of a sloping hillside where the stream flow spreads out over multiple, poorly defined channels under dense vegetation. The hillside is covered with dense shrub cover of Himalayan blackberry bushes and reed canarygrass being predominant. This dense vegetation and lack of sustained flows seems to prevent channel formation. The stream water flows through many poorly defined channels throughout the base of these plants and "fans out" through the wetland down the hillside. Based on multiple visits to the site during wetland assessments, the main flows through this reach can shift in location over time. The area within which these flows are contained is bounded on each side by forest cover where the ground is at higher elevation and tend to follow the delineated wetland boundary for wetland 3 (Figure 2). These flows through this wetland area are very shallow at about 1 to 2 inches deep, and the lack of defined channels creates a passage barrier to fish.

Under the PSE access road, Stream 0263 flows through an 18-inch CMP culvert. The stream is channelized by buildings and parking lots to the west and runs north for approximately 600 feet. The stream channel is approximately 3 to 7 feet wide, and its substrate is mainly dominated by silt. According to the adjacent property owner, the stream overflows during heavy precipitations and periodically floods his adjacent property (Fowler 2010). The stream at this reach is located at the toe of steep hillslope with the channel transitioning into a lower gradient channel. This change in gradient and development associated with hydromodification in the surrounding areas are likely the cause of sediment accumulation and periodical flooding at this reach.

Within the project area, the lack of defined stream channels and shallow flows on the densely vegetated hillside, as described above, precludes fish passage to the project area. This concurs with the classification of Stream 0263 upstream of the culvert under the PSE access road as non-fish bearing by the City of Bellevue, and no salmon species are documented to occur within the project area (WDFW 2010a, 2010b; City of Bellevue 1993, 2002a). Under the state typing system, this section of the stream is classified as Type Np, to indicate that the stream is non-fish bearing and is perennial. The stream above the hillside is channelized, but is too shallow to sustain its use by fish. Downstream of the PSE access road, cutthroat trout were found and this portion of the stream is classified as Type F (Watershed Company 2009). Stream 0263 then flows into East Creek, which is located well outside the project area (Figure 3). The downstream portion of East Creek was determined to contain fish including cutthroat trout and coho salmon (Watershed Company 2009).

Drainage Features

There are three ditches located in the project area: Ditch A, Ditch B, and Ditch C. Ditches A and B are considered jurisdictional based on the USACE's jurisdictional determination. Ditch C is considered non-jurisdictional due to lack of a well defined channel and surface water during multiple site visits. General characteristics of these ditches are summarized in Table 5 and described below.

Table 5. Summary of Ditches in the Project Area

Name	Approximate Length (feet)	Approximate Width (feet)	Approximate Depth (feet)	Source	Discharge Location	Jurisdictional Determination
Ditch A	604	4	<1	Stormwater runoff from the transfer station	Stormwater conveyance system located on SE 30th Street	Jurisdictional
Ditch B	133	2	1	No surface water has been observed	Wetland 4	Jurisdictional
Ditch C	150	2	<1	Stormwater runoff from SE 32nd Street	Wetland A	Non-jurisdictional

Ditch A

Ditch A is referred to as Stream A in the *Draft Factoria Transfer Station Wetland and Stream Delineation Report* (Herrera Environmental Consultants 2007). However, this classification was not supported by field observations by HDR. The portion of the channel that conveys water northward along the west edge of the project area (Figure 2) is a completely artificial channel

and contains no viable fish habitat. No fish species are known to occur in Ditch A (WDFW 2010a, 2010b; City of Bellevue 1993).

A review of the survey conducted of the existing facility reveals that stormwater runoff from the site is currently collected by a conveyance system, and the collected stormwater is discharged through a 12-inch-diameter CMP at the west end of the existing facility, which flows into Ditch A after flowing through Wetland 2 (Figure 2). Ditch A flows approximately 300 feet west and then turns 90 degrees to the north at the west end of the project area. Ditch A then flows north for approximately 300 feet where it drops approximately 4 feet over a rock wall before it enters the storm drainage system along SE 30th Street (see photos in Appendix C).

The west flowing portion of the channel is shallow and swampy and contains stagnant water and an accumulation of organic debris. The channel in this section is approximately 30 to 40 inches wide and less than 1 foot deep. Reed canarygrass, water-cress (*Rorippa* spp.), giant horsetail, and lady fern grow in the channel within this reach. As it turns north toward SE 30th Street, the channel is contained in a half-cut CMP and lined with riprap on both sides of the channel (photo 21 in Appendix C). The channel is approximately 3 feet wide with less than a foot deep of water flowing through a 3-foot deep rock lined artificial channel.

Ornamental trees are located along the parking lot immediately adjacent to the channel, and these trees are approximately 2-inch to 12-inch diameter at breast height (DBH) and 25 feet to 40 feet tall. No bedrock or gravel beds were observed in the channel.

Based on these characteristics, Ditch A is considered an artificial channel that conveys stormwater from the existing facility and does not contain fish habitat. As a result, Ditch A does not meet the definition of a stream described in Bellevue's LUC. Because Ditch A is not considered a stream, it is not regulated by the City of Bellevue and does not have a prescribed buffer.

Ditch B

Ditch B is referred as Stream B in the *Draft Factoria Transfer Station Wetland and Stream Delineation Report* (Herrera Environmental Consultants 2007). Ditch B is located south of the existing transfer facility. The channel is approximately 2 feet wide, but no surface water was observed in the channel during multiple site visits in January, February, and March 2010 and in March, April, and May 2011. The channel appears to be abandoned and is vegetated with Himalayan blackberry. A buried culvert is located south of SE 32nd Street; however, no surface water was observed at the culvert. No bedrock or gravels were observed in the channel.

Field investigations and the literature research indicate that Ditch B does not contain fish or fish habitat and not convey surface water under existing conditions. Therefore, Ditch B is not

classified as a stream and is not regulated by the City of Bellevue. No buffer widths are required for Ditch B.

Ditch C

Ditch C is approximately 2 feet wide and less than 1 foot deep. The ditch runs approximately 150 feet from west to east along SE 32nd Street and likely discharges into Wetland A, which drains into a 12-inch culvert. No surface water flow was observed in the ditch during multiple site visits, and the ditch is likely to only convey stormwater runoff from SE 32nd Street. No bedrock or gravels were observed in the channel. Ditch C does not contain fish or fish habitat. As a result, Ditch C is not classified as a stream and is not regulated by the City of Bellevue. No buffer widths are required for Ditch C.

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Chapter 4: Project Effects

The Factoria RTS design will avoid or minimize impacts to wetlands, streams, and buffers wherever feasible. However, total avoidance will not be possible due to the location of the project and the constraints associated with design guidelines and the existing terrain. Impacts are expected to result from construction of the new transfer station and its associated facilities as well as from roadway improvements.

This chapter addresses project effects to wetlands, streams, and their buffers identified in the project area. Project effects addressed in this chapter include permanent and temporary impacts. Impacts to wetlands, streams, and buffers were assessed by overlaying the proposed design onto project base maps showing wetland, stream, and buffer locations. Impact areas were identified as the area of intersection between the proposed design and the base maps. Areas where wetland and stream buffers overlap and would be affected by the proposed project were calculated as wetland impacts.

4.1 Wetlands

Permanent Impacts

Proposed construction activities would result in permanent fill in Wetland 2, Wetland 4, and Wetland A. This fill would be required due to expansion of the existing facility and roadway. The proposed project is anticipated to widen SE 32nd Street, west of the existing scale house, which would result in filling Wetland A. The proposed project entirely avoids impacts to Wetland 3 and Wetland C through site-specific design techniques and by shifting the proposed facility to the west. Permanent wetland impacts are shown in Table 5 and Figure 4.

Table 7. Summary of Permanent Wetland Impacts in Project Area

Wetland Name	Wetland Impact Area (acres)
Wetland 2	0.38
Wetland 4	0.06
Wetland A	0.01
Total	**0.45**

Wetland 2, Wetland 4, and Wetland A

Unavoidable impacts to Wetland 2, Wetland 4, and Wetland A would result in a loss of 0.45 acre of wetland area. Permanent impacts include filling of wetlands, altering wetland soils and topography, and clearing wetland vegetation. Filling and topographic alteration of wetlands would result in the elimination or reduction of the affected wetlands' ability to store surface water for hydrologic and water quality functions, or the ability to provide habitat for wetland-dependent wildlife. The removal of wetland vegetation would eliminate or reduce affected wetlands' capability to remove sediments from water, as well as overall ability to support habitat for wetland-dependent wildlife.

Based on field investigation and the wetland rating forms completed for each area, these affected areas are unlikely to provide direct water quality treatment functions because they do not trap and settle-out sediments and they are not dominated by herbaceous vegetation. They also provide very limited support to downstream hydrology because they have little capacity to store surface water. Wetlands 2 and 4 occur on a slope that is characterized by the presence of trees, and the vegetation does not impede surface flows. Wetland A is a small depressional wetland with no surface water connection. It lacks hydrophytic vegetation and is dominated by invasive species. However, these wetlands provide some level of wetland habitat, mostly for terrestrial species, and mostly to birds. Habitat functions are limited by the abundance of invasive or non-native plant species, the industrial nature of the site, and the lack of biodiversity in the area.

Temporary Impacts

Construction of the Factoria RTS may result in temporary impacts to Wetland 3 from construction-related activities in the immediate vicinity of the work area including, but not limited to, clearing, grading, and filling. It is anticipated that temporary impacts to Wetland 3 will be minimal and limited to short-term. Wetland 3 and Stream 0263 are the focus of the mitigation concepts developed for this project. Ground disturbance activities associated with the mitigation would also temporarily affect Wetland 3. All temporary impact areas will be restored to pre-existing grades and revegetated with appropriate native trees and shrubs.

4.2 Wetland Buffers

The project is expected to result in impacts to a portion of the vegetated buffer of Wetland 3. These activities would affect approximately 0.15 acre of the buffer of Wetland 3 (Figure 4).

Temporary buffer impacts would occur where the construction work is extended beyond the permanent footprint of the project. Temporary buffer impacts would mostly result from vegetation removal in southwestern portion of the buffer of Wetland 3. The temporary removal of vegetation in portions of the wetland buffer would cause a minor and temporary decrease in general habitat support and native plant species support. Revegetating disturbed areas with native woody vegetation would result in a long-term increase in plant species diversity and

general habitat support. The removal of portions of the existing Factoria RTS could also expand the vegetated buffer of Wetland 3 following construction (Figure 4). Existing concrete roadway and fill pads could be removed and planted to alleviate the encroachment onto Wetland 3 from the proposed facility.

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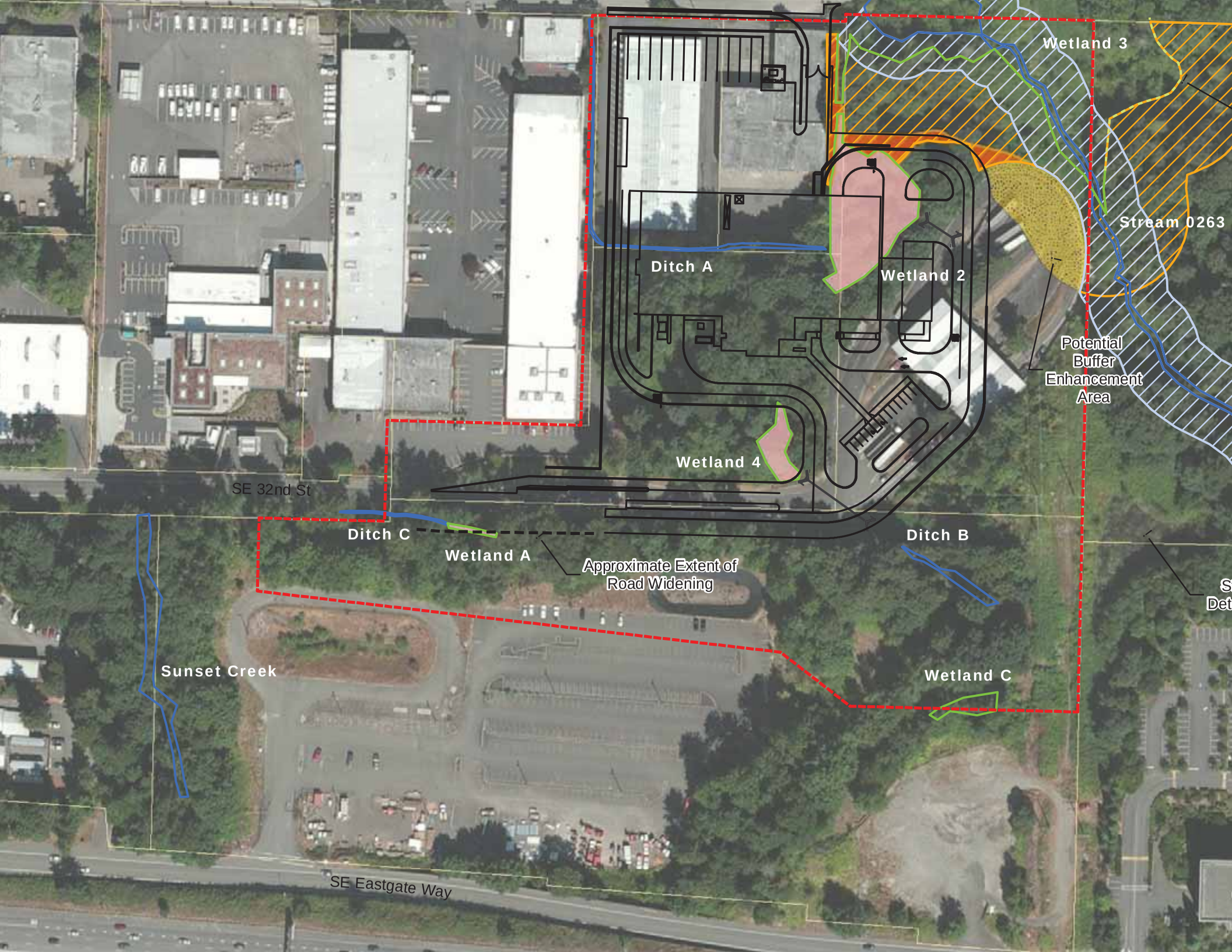
Wetland 3
Stream 0263
Ditch A
Wetland 2
Potential
Buffer
Enhancement
Area
Wetland 4
SE 32nd St
Ditch C
Wetland A
Approximate Extent of
Road Widening
Ditch B
Sunset Creek
Wetland C
SE Eastgate Way

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4.3 Streams

Permanent Impacts

Construction of the proposed project would not directly or indirectly affect Stream 0263. No in-water work would occur as a part of the project, and changes in flow and water quality are not expected to occur from this project because a) stormwater runoff from the facility does not currently drain into Stream 0263; b) proposed stormwater treatment included in the design will improve overall water quality affecting East Creek. The project is proposed to include stormwater treatment and detention features to collect, convey, treat, and detain stormwater runoff. These features include rain gardens, bioretention swales, and a detention vault. After treatment and detention, the stormwater runoff will be discharged into the existing conveyance system in SE 30th Street. There is currently no water quality treatment under existing conditions in the project area.

Temporary Impacts

Construction activities associated with mitigation for wetland impacts may occur within or directly adjacent to streams; however, these impacts are expected to be minimal and limited to short-term construction activities. Best management practices and temporary erosion control measures would also be implemented to minimize this risk during construction.

4.4 Stream Buffers

No permanent impacts to stream buffers would occur as a result of the proposed project. However, the proposed project could temporarily affect portions of the stream buffer by clearing riparian vegetation during construction, which would be primarily associated with proposed mitigation activities. These areas are dominated with invasive species and would be revegetated with native woody vegetation following construction. Revegetating disturbed areas with native woody vegetation would result in a long-term increase in plant species diversity and general habitat support.

4.5 Drainage Features

Ditch A and a portion of Ditch B will be filled permanently as a result of expansion of the paved surface area. Conveyance and biofiltration are the primary functions that these ditches provide. These functions would be mitigated onsite by construction of the stormwater treatment and detention system. The proposed system would provide additional water quality treatment that is not currently provided by the ditches.

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Chapter 5: Mitigation

Compensatory mitigation would be provided for all impacts, consistent with the requirements of the City of Bellevue's LUC and appropriate federal and state regulations. To meet the project's needs for compensatory mitigation, a few mitigation strategies have been discussed as a part of the project. These strategies are described in the *Mitigation Options Report* (HDR 2010).

5.1 Mitigation Sequence

Federal, state, and City of Bellevue (LUC 20.25H.215) regulations require that mitigation efforts follow this prescribed sequence:

A. Avoiding the impact altogether by not taking a certain action or parts of an action;

B. Minimizing impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps, such as project redesign, relocation, or timing, to avoid or reduce impacts;

C. Performing the following types of mitigation (listed in order of preference):

1. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;

2. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; or

3. Compensating for the impact by replacing, enhancing, or providing substitute resources or environments.

D. Monitoring the hazard or other required mitigation and taking remedial action when necessary.

Avoidance and Minimization

The project will be designed to avoid or minimize impacts to wetlands, streams, and buffers wherever feasible. Project impacts to wetlands and streams will be avoided or minimized using the following design/construction methods:

- Multiple design revisions were made for this project to limit disturbance to Wetland 3 and Stream 0263, the most highly-functioning natural resources in the project area. The entire facility was shifted to the west, and a retaining wall was designed along the hillside to limit the amount of fill, resulting in a reduction in impacts to wetlands and wetland buffers.

- Construction impacts will be confined to the minimum area necessary to complete the project.

- To the extent practicable, work will be performed during the dry season in wetland areas to limit potential sedimentation effects and interruptions in surface and subsurface flows.

- Construction equipment would not operate within OHWM of Stream 0263 without authorization from WDFW.

- Exposed soils will be stabilized with a vegetative cover or other erosion control treatment immediately following construction. Landscaping in compliance with City of Bellevue standards would be installed to control erosion once the facility is functional.

- Temporary disturbed areas by construction activities will be revegetated with native vegetation within one year or one growing season after construction is complete.

- During construction, erosion control BMPs would be employed. The BMPs include use of mulch, silt barriers, containment systems, interim stormwater controls, cover measures (straw or plastic), and stream bypasses, as well as reseeding of areas temporarily disturbed by construction. In addition, existing vegetation would be preserved to the extent practicable.

- Oil, fuels, or chemicals will not be discharged to surface waters or onto land where there is a potential for reentry into surface waters.

Compensatory Mitigation

Compensatory mitigation will be provided for permanent and temporary wetland, stream, and buffer impacts for this project, consistent with the requirements of the City of Bellevue LUC and appropriate federal and state regulations. A detailed mitigation plan will be provided in the final Critical Areas Report, which will include goals and performance standards, a monitoring plan, and a contingency plan.

Elements of Mitigation Plan

The purpose of the mitigation plan is to first compensate for those functions provided by the impacted wetlands. Currently, the proposed mitigation area is located within the Stream 0263 corridor in the northeast corner of the site. The proposed mitigation is located on-site and on an adjacent parcel, upstream of the project area, and is intended to provide the following objectives:

- Improve wetland habitat diversity by creating evergreen canopy, open water, emergent, scrub-shrub, and riparian habitat that would provide nesting habitat for amphibians and songbirds and enhance habitat corridor functions.

- Improve riparian habitat by removing invasive species and planting native trees and understory in the stream buffer.

- Improve riparian habitat functions by increasing riparian buffer area and improving riparian and wetland buffer conditions by installing native plants and habitat features, such a logs and large woody debris.

- Increase plant species diversity by planting native tree, shrub, and herbaceous species and providing habitat for native emergent plant species.

- Lessen ongoing watershed deficiencies by trapping and managing sediment loads prior to discharge into a wetland and stabilizing streambed that has been affected by stormwater peak flows.

- Provide better long-term protection of existing infrastructure such as the existing petroleum pipeline crossing of Stream 0263 that currently requires ongoing maintenance.

- Dedicate long-term protection and maintenance by providing sediment management and native growth protection easement.

More details and specific design criteria on the mitigation plan will be determined during final design and will be provided in the Critical Areas Report.

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Chapter 6: References

Bellevue, City of. 1987. City of Bellevue. Sensitive Areas Notebook. Bellevue, Washington. April 1987.

Bellevue, City of. 1993. Factoria Transfer/Recycling Station: Draft Environmental Impact Statement. City of Bellevue Design and Development Department. May 1993.

Bellevue, City of. 2002a. East Creek Drainage Basin Map. Bellevue, Washington. http://www.ci.bellevue.wa.us/pdf/IT/eastcreek3.pdf. February 2002.

Bellevue, City of. 2003a. Bellevue Critical Areas Updated Stream Inventory. 2003a. City of Bellevue, Planning and County Development. Bellevue, Washington. March 2003.

Bellevue, City of. 2003b. Bellevue Critical Areas Updated Wetland Inventory. 2003b. City of Bellevue, Planning and Community Development. Bellevue, Washington. March 2003.

Bjornn, T.C., and D.W. Reiser. 1991. Habitat Requirements of Salmonids in Streams. In: W.R. Meehan, ed. Influences of Forest and Rangeland Management on Salmonid Fishes and Their Habitats. American Fisheries Society Special Publication. 19:83-138.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. Government Printing Office, Washington, D.C.

David Evans and Associates, Inc. 2008. A&M Auto East Creek Tributary Rehabilitation Project Critical Areas Report. Bellevue, Washington. August 2008.

Environmental Laboratory. 1987. *Corps of Engineers Wetland Delineation Manual*. Technical Report Y-87-1. Department of the Army, Waterways Experiment Station. Vicksburg, Mississippi.

Fowler, H. 2010. Personal communication between Harold Fowler, H.D. Fowler Company, and Mike Witter and Karissa Kawamoto, HDR. Multiple communications in January and March 2010.

GeoEngineers 2001. *Report of Wetland Delineation and Assessment, and Restoration Plan for Repair of milepost 101.8 Erosion Feature: Olympic Pipe Line Company*. Bellevue, Washington. December 2001.

HDR Engineering, Inc. 2010. Wetland Mitigation Options Report. Factoria Recycling and Transfer Station. Bellevue, Washington. October 2010.

Herrera Environmental Consultants. 2007. Draft Wetland and Stream Delineation Report. Factoria Transfer Station. Bellevue, Washington. March 2007.

Hitchcock, C.L. and A. Cronquist. 1973. *Flora of the Pacific Northwest*. University of Washington Press. Seattle, Washington.

Hruby, T. 2004. *Washington State Wetlands Rating System for Western Washington – Revised.* August 2004, with 2008 revisions. Washington State Department of Ecology Publication No. 04-06-025.

Jones and Stokes Associates. 1991. Wetland Delineation Report: King County Factoria Transfer Station. Bellevue, Washington. October 1991.

J.S. Jones and Associates, Inc. 2004. Wetland Assessment of the H.D. Fowler Site. Tax Parcels 545330-0150 and 545330-0151. 13440 S.E. 30th Street Bellevue, WA 98005. Prepared for Harold Fowler, H.D. Fowler Company 13440 S.E. 30th Street Bellevue, WA 98005. December 22, 2004.

J.S. Jones and Associates, Inc. 2005. Stream Study of an Unnamed Tributary of East Creek at 13440 S.E. 30th Street. Bellevue, WA 98005. Prepared for Harold Fowler, H.D. Fowler Company 13440 S.E. 30th Street Bellevue, WA 98005. January 21, 2005.

Kerwin, J. 2001. *Salmon and Steelhead Habitat Limiting Factors Report for the Cedar-Sammamish Basin (Water Resource Inventory Area 8)*. Washington Conservation Commission. Olympia, Washington.

King County. 1934. Aerial photographs from iMap. King County spatial information interactive mapping [online]. King County, Seattle, WA. Available from: http://www.kingcounty.gov/operations/gis/Maps/iMAP.aspx

King County. 2009. Aerial photographs from iMap. King County spatial information interactive mapping [online]. King County, Seattle, WA. Available from: http://www.kingcounty.gov/operations/gis/Maps/iMAP.aspx

King County. 2010. Site topographic survey. King County Department of Transportation: Road Services Division, Survey and Mapping.

Snyder, D. E., P.S. Gale, and R.F. Pringle. 1973. *Soil Survey of King County Area, Washington*. U.S. Department of Agriculture, Soil Conservation Service in cooperation with Washington State Department of Natural Resources and Washington State University, Agriculture Research Center. http://soildatamart.nrcs.usda.gov/Manuscripts/WA633/0/wa633_text.pdf.

USACE (U.S. Army Corps of Engineers). 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region*. ERDC/EL TR-10-3. May 2010. http://www.usace.army.mil/CECW/Documents/cecwo/reg/west_mt_finalsupp.pdf.

USDA, NRCS (U.S. Department of Agriculture, Natural Resources Conservation Service). 2004. The PLANTS Database, Version 3.5 (http://plants.usda.gov). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

USDA, NRCS. 2010. *Field Indicators of Hydric Soils in the United States*, Version 7.0. G.W. Hurt and L.M. Vasilas (eds.). USDA,NRCS, in cooperation with the National Technical Committee for Hydric Soils.

USFWS (U.S. Fish and Wildlife Service). 2010. National Wetland Inventory. Wetlands Online Mapper. http://wetlandsfws.er.usgs.gov/wtlnds/launch.html. Accessed March 26, 2010.

WDFW (Washington State Department of Fish and Wildlife). 2010a. Priority Habitats and Species map and report for Section 10, Township 24 North, Range 5 East. March 5, 2010.

WDFW (Washington State Department of Fish and Wildlife). 2010b. SalmonScape. http://wdfw.wa.gov/mapping/salmonscape. Accessed March 28, 2010.

WDNR (Washington Department of Natural Resources). 2010. Natural Heritage Information Request Self-Service System. www.dnr.wa.gov/Publications/amp_nh_trs.pdf. March 28, 2010.

Watershed Company. 2009. City of Bellevue Stream Typing Inventory: Final Report. Prepared for the City of Bellevue, Washington. May 2009.

Williams, R.W., R. Laramie, and J.J. Ames. 1975. *A Catalog of Washington Streams and Salmon Utilization, Volume 1, Puget Sound*. Washington Department of Fisheries, I& E Division, Olympia, Washington. November 1975.

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Appendix A – Wetland Delineation Methodology

Wetlands are defined as areas saturated or inundated by surface or groundwater at a frequency and duration sufficient to support, and which under normal circumstances do support, a prevalence of vegetation adapted for life in saturated soil conditions. The methods used to delineate the on-site wetlands conform to methods described in the U.S. Army Corps of Engineers Wetland Delineation Manual (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (USACE 2010).

To be considered a wetland, an area must have hydrophytic vegetation, hydric soils, and wetland hydrology. HDR Engineering, Inc. staff collected data on these parameters in areas representative of typical site conditions. Staff collected additional data in associated uplands as needed to confirm wetland and stream boundaries. Delineated wetland boundaries and wetland data plot locations in the project area were surveyed by a professional surveyor.

Vegetation

The dominant plants and their wetland indicator status were evaluated to determine if the vegetation was hydrophytic. Hydrophytic vegetation is defined as vegetation adapted to wetland conditions. To meet the hydrophytic vegetation criterion, more than 50 percent of the dominant plants in each stratum must be Facultative, Facultative Wetland, or Obligate, based on the wetland indicator category assigned to each plant species by USFWS (Reed 1997, or current approved list). Table A-1 lists the definitions of the indicator categories.

Table A-1. Definitions of Wetland Plant Indicator Categories used to Determine the Presence of Hydrophytic Vegetation

Wetland Indicator Category	Symbol	Definition
Obligate Wetland Plants	OBL	Plants that almost always (> 99% of the time) occur in wetlands, but which may rarely (< 1% of the time) occur in non-wetlands.
Facultative Wetland Plants	FACW	Plants that often (67 to 99% of the time) occur in wetlands, but sometimes (1 to 33% of the time) occur in non-wetlands.
Facultative Plants	FAC	Plants with a similar likelihood (34 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: Reed (1997).

HDR biologists identified all plants to species. Scientific and common plant names follow currently accepted nomenclature. Most names are consistent with *Flora of the Pacific Northwest* (Hitchcock and Cronquist 1973) and the PLANTS Database (USDA NRCS 2004). During the field investigation, staff observed and recorded the dominant plant species on data sheets for each data plot.

Soils

Generally, an area must contain hydric soils to be a wetland. Hydric soil forms when soils are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part (12 inches). Biological activities in saturated soil result in reduced oxygen concentrations and organisms turn to anaerobic processes for metabolism. Over time, anaerobic biological processes result in certain soil color patterns, which are used as indicators of hydric soil. Typically, low-chroma colors are formed in the soil matrix, and bright-colored redoximorphic features form within the matrix. Other important hydric soil indicators include organic matter accumulations in the surface horizon, reduced sulfur odors, and organic matter staining in the subsurface (USDA NRCS 2010).

HDR Engineering, Inc. staff examined soils by excavating sample pits to a depth of 20 inches to observe soil profiles, colors, and textures. In some case, a shallower soil pit was adequate to document hydric soil indicators. Munsell color charts (Munsell Color 2009) were used to describe soil colors.

Hydrology

HDR Engineering, Inc. staff examined the area for evidence of hydrology. Wetland hydrology criteria were considered to be satisfied if it appeared that the soil was seasonally inundated or saturated to the surface for a consecutive number of days greater than or equal to 12.5 percent of the growing season (USACE 2010). The growing season generally begins when the soil reaches a temperature of 41 degrees Fahrenheit in the zone of root penetration or when certain indicators of plant biological activity are evident (USACE 2010). The growing season in the project area can be approximated using the long-term climatological data reported in WETS tables available from the USDA NRCS National Water and Climate Center (2002). Using the WETS table for the nearest station (Kent, Washington), the growing season was approximated to be from March 8 through November 11 (304 days).

Wetland hydrology indicators are divided into two categories – primary and secondary indicators (USACE 2010). Primary indicators of hydrology include surface inundation, high water table, and saturated soils. The presence of one primary indicator is sufficient to conclude that wetland hydrology is present. In the absence of a primary indicator, observation of two or more secondary indicators is required to conclude that wetland hydrology is present. Secondary indicators of hydrology include drainage patterns, water-stained leaves, and geomorphic setting (USACE 2010).

References

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.

Hitchcock, C.L. and A. Cronquist. 1973. *Flora of the Pacific Northwest*. University of Washington Press, Seattle, Washington.

Munsell Color. 2009. Munsell soil color charts.

Pojar, J. and A. MacKinnon. 1994. *Plants of the Pacific Northwest Coast*. Lone Pine Publishing, Redmond, Washington.

Reed, P.B., Jr. 1997. *Revision of the national list of plant species that occur in wetlands*. U.S. Department of Interior, Fish and Wildlife 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*. ERDC/EL TR-10-3. May 2010. http://www.usace.army.mil/CECW/Documents/cecwo/reg/west_mt_finalsupp.pdf.

USDA, NRCS (U.S. Department of Agriculture, Natural Resources Conservation Service). 2002. Climate Information for King County in the State of Washington. http://www.wcc.nrcs.usda.gov/ftpref/support/climate/wetlands/wa/53033.txt. Created March 30, 2010.

USDA, NRCS. 2010. *Field Indicators of Hydric Soils in the United States*, Version 7.0. G.W. Hurt and L.M. Vasilas (eds.). USDA,NRCS, in cooperation with the National Technical Committee for Hydric Soils.

USDA, NRCS (U.S. Department of Agriculture, Natural Resources Conservation Service). 2004. The PLANTS Database, Version 3.5 (http://plants.usda.gov). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

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Appendix B – Wetland Data Sheets

licant/Owner: King County | State: WA | Sampling Point: SP-1 (UPL)

stigator(s): Danielski/Dalzell | Section, Township, Range: 10/T24N/R5E

dform (hillslope, terrace, etc): | Local relief (concave, convex, none): | Slope (%):

region (LRR): A | Lat: 47.583337 | Long: -122.158996 | Datum: NAD83

Map Unit Name: Urban Land | NWI Classification: --

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

Vegetation Soil Or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Vegetation Soil Or Hydrology Naturally problematic? (If needed, explain any answers in Remarks)

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

rophytic Vegetation Present? Yes No x

ric Soil Present? Yes x No

land Hydrology Present? Yes No x

Is the Sampled Area within a Wetland? **Yes** **No** x

arks: Two out of three criteria are absent; therefore the sample plot is not within a wetland.

The sample plot is located less than 10 feet south of the boundary of the west arm of Wetland 3

GETATION – Use scientific names of plants.

e Stratum Plot size:	Absolute % Cover	Dominant Species?	Indicator Status
	0	= Total Cover	

ling/Shrub Stratum Plot size:			
Rubus procerus	30	Y	FACU
Rubus spectabilis	5	N	FAC
	35	= Total Cover	

b Stratum Plot Size:			
Phalaris arundinacea	30	Y	FACW
	30	= Total Cover	

ody Vine Stratum Plot Size:			
	0	= Total Cover	

are Ground in Herb Stratum 70

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL Species		x1 =	0
FACW Species	30	x2 =	60
FAC Species	5	x3 =	15
FACU Species	30	x4 =	120
UPL Species		x5 =	0
Column Totals:	65 (A)		195 (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:

- Dominance Test is >50%
- x Prevalence Test is ≤ 3.0[1]
- Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- Wetland Non-Vascular Plants[1]
- Problematic Hydrophitic Vegetation[1] (explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic vegetation present?

Yes **No** x

arks: Area does not meet hydrophytic vegetation criteria based on prevalence test alone since hydric soil/hydro not present.

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

epth nches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]		
0-6	10YR 4/1	100	--	--	--	--	gravelly sandy loam	
6-20+	2.5Y 4/2	100	--	--	--	--	gravelly sandy loam	

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

c Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils[3]:

istosol (A1)
istic Epipedon (A2)
lack Histic (A3)
ydrogen Sulfide (A4)
epleted Below Dark Surface (A11)
hick Dark Surface (A12)
andy Mucky Mineral (S1)
andy Gleyed Matrix (S4)

___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)(except MLRA1)
___ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

___ 2 cm Muck (A10) (**LRR B**)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

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

rictive Layer (if present):

ype:
epth (inches):

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

arks:

3 meets hydric soil criteria.

ROLOGY

and Hydrology Indicators:

ary Indicators (minimum of 1 required: check all that apply)

urface Water (A1)
igh Water Table (A2)
aturation (A3)
Vater Marks (B1)
ediment Deposits (B2)
rift Deposits (B3)
gal Mat or Crust (B4)
on Deposits (B5)
urface Soil Cracks (B6)
undation Visible on Aerial Imagery (B7)
parsely Vegetated Concave Surface (B8)

___ Water-Stained Leaves (B9) (**except MLRA 1,2,4A, and 4B**)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plants (D1) (**LRR A**)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) (**MLRA 1,2,4A, 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)

Observations:

ce Water Present? Yes ___ No x Depth (inches): --
r Table Present? Yes ___ No x Depth (inches): >20
ration Present? Yes ___ No x Depth (inches): >20
udes capillary fringe)

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

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

arks:

o primary indicators of hydrology in late winter/early growing season. No secondary indicators.

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

Project/Site: Factoria Transfer Station City/County: Bellevue/King Sampling Date: 2/5/2010
Applicant/Owner: King County State: WA Sampling Point: SP-2 (WL)
Investigator(s): Danielski/Dalzell Section, Township, Range: 10/T24N/R5E
Landform (hillslope, terrace, etc): Floodplain Local relief (concave, convex, none): None Slope (%): ~ 0%
Subregion (LRR): A Lat: 47.583316 Long: -122.159018 Datum: NAD83
Soil Map Unit Name: Urban Land NWI Classification: PSS
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
Are Vegetation ____ Soil ____ Or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____ Soil ____ Or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks)

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

Hydrophytic Vegetation Present?	Yes X	No 0	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X	No 0	
Wetland Hydrology Present?	Yes X	No 0	

Remarks: All three criteria are met; therefore the sample plot is within a wetland.
The sample plot is located just south of the west arm of Wetland 3, approximately 20 feet east from the warehouse building and 10 feet south from SP-1.

VEGETATION – Use scientific names of plants.

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

Sapling/Shrub Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Rubus spectabilis*	50	Y	FAC
2 *Rubus procerus*	50	Y	FACU
3			
4			
5			
	100 = Total Cover		

Herb Stratum (Plot Size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Phalaris arundinacea*	10	Y	FACW
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
	10 = Total Cover		

Woody Vine Stratum (Plot Size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
	0 = Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL Species	x1 =	0
FACW Species 10	x2 =	20
FAC Species 50	x3 =	150
FACU Species 50	x4 =	200
UPL Species	x5 =	0
Column Totals: 110 (A)		370 (B)

Prevalence Index = B/A 3.36

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%
____ Prevalence Test is ≤ 3.0[1]
____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
____ Wetland Non-Vascular Plants[1]
____ Problematic Hydrophitic Vegetation[1] (explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic vegetation present?

Yes X No ____

Remarks: Dominant test indicates that hydrophytic vegetation is present at the sample plot.

US Army Corps of Engineers

SOIL

Sampling Point: **SP-2 (WL)**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 4/1	100	--	--	--	--	GSL	
5-18+	10YR 4/1	40	7.5YR 4/6	20	C	M	GSL	
	10YR 5/1	40						

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils[3]:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)(except MLRA1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

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

Remarks:

F3 meets hydric soil criteria.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of 1 required: check all that apply)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):	N/A
Water Table Present?	Yes X	No ___	Depth (inches):	6"
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches):	6"

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

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

Remarks:

A2 and A3 meet wetland hydrology criteria.

US Army Corps of Engineers

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

Project/Site: Factoria Transfer Station | City/County: Bellevue/King | Sampling Date: 2/5/2010
Applicant/Owner: King County | State: WA | Sampling Point: SP-3 (UPL)
Investigator(s): Danielski/Dalzell | Section, Township, Range: 10/T24N/R5E
Landform (hillslope, terrace, etc): Hillslope | Local relief (concave, convex, none): None | Slope (%): >5%
Subregion (LRR): A | Lat: 47.583055 | Long: -122.15856 | Datum: NAD83
Soil Map Unit Name: Urban Land | NWI Classification: --
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)
Are Vegetation ____ Soil ____ Or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____ Soil ____ Or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks)

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

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: Three criteria are absent; therefore the sample plot is not within a wetland.

The sample plot is located approximately 5 feet east of the boundary of Wetland 2

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Populus balsamifera*	30	Y	FAC
2 *Alnus rubra*	10	N	FAC
3 *Acer macrophyllum*	20	Y	FACU
4			
	60	= Total Cover	

Sapling/Shrub Stratum (Plot size: ____)			
1 *Acer circinatum*	15	Y	FAC
2 *Rubus spectabilis*	5	N	FAC
3 *Rubus procerus*	50	Y	FACU
4			
5			
	70	= Total Cover	

Herb Stratum (Plot Size: ____)			
1 *POLYSTICHUM MUNITUM (KAULF.)*	40	Y	FACU
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
	40	= Total Cover	

Woody Vine Stratum (Plot Size: ____)			
1 *Hedera helix*	70	Y	NI
2 *RUBUS URSINUS CHAM. & SCHLE*	10	N	FACU
	80	= Total Cover	

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL Species		x1 =	0
FACW Species		x2 =	0
FAC Species	60	x3 =	180
FACU Species	190	x4 =	760
UPL Species		x5 =	0
Column Totals:	250 (A)		940 (B)

Prevalence Index = B/A 3.76

Hydrophytic Vegetation Indicators:

____ Dominance Test is >50%
____ Prevalence Test is ≤ 3.0[1]
____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
____ Wetland Non-Vascular Plants[1]
____ Problematic Hydrophitic Vegetation[1] (explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic vegetation present?

Yes ____ No X

Remarks: Dominant test indicates that hydrophytic vegetation is absent at the sample plot.

US Army Corps of Engineers

SOIL

Sampling Point: **SP-3 (UPL)**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 4/1	100	--	--	--	--	GSL	
7-20+	2.5Y 4/3	100	--	--	--	--	GSL	Damp in spots, not saturated

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils[3]:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)(except MLRA1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:

No hydric soil indicators were observed at the sample plot.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of 1 required: check all that apply)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):	N/A
Water Table Present?	Yes ___	No X	Depth (inches):	> 20"
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	> 20"

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

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

Remarks:

No wetland hydrology indicators were observed at the sample plot.

Note: B horizon was damp in spots but not saturated.

US Army Corps of Engineers

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

Project/Site: Factoria Transfer Station | City/County: Bellevue/King | Sampling Date: 2/5/2010
Applicant/Owner: King County | State: WA | Sampling Point: SP-4 (WL)
Investigator(s): Danielski/Dalzell | Section, Township, Range: 10/T24N/R5E
Landform (hillslope, terrace, etc): Hillslope | Local relief (concave, convex, none): None | Slope (%): >5%
Subregion (LRR): A | Lat: 47.583029 | Long: -122.15862 | Datum: NAD83
Soil Map Unit Name: Urban Land | NWI Classification: PFO
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)
Are Vegetation ____ Soil ____ Or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____ Soil ____ Or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks)

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

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?**	**Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____		
Wetland Hydrology Present?	Yes X	No ____		

Remarks: All three criteria are met; therefore the sample plot is within a wetland.

The sample plot is located in Wetland 2, approximately 20 feet southwest from SP3, 10 feet west from the wetland boundary.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Populus balsamifera*	60	Y	FAC
2 *Alnus rubra*	30	Y	FAC
3			
4			
	90	= Total Cover	

Sapling/Shrub Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Acer circinatum*	10	N	FAC
2 *Rubus spectabilis*	60	Y	FAC
3 *Rubus procerus*	10	N	FACU
4 *Salix lasiandra*	20	Y	FACW
5			
	100	= Total Cover	

Herb Stratum (Plot Size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
	0	= Total Cover	

Woody Vine Stratum (Plot Size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Hedera helix*	70	Y	NI
2 *RUBUS URSINUS CHAM. & SCHLE*	10	N	FACU
	80	= Total Cover	

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That are OBL, FACW, or FAC: 80% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL Species		x1 =	0
FACW Species	20	x2 =	40
FAC Species	160	x3 =	480
FACU Species	90	x4 =	360
UPL Species		x5 =	0
Column Totals:	270 (A)		880 (B)

Prevalence Index = B/A 3.26

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%
____ Prevalence Test is ≤ 3.0[1]
____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
____ Wetland Non-Vascular Plants[1]
____ Problematic Hydrophitic Vegetation[1] (explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic vegetation present?

Yes X **No** ____

Remarks: Dominant test indicates that hydrophytic vegetation is present at the sample plot.

US Army Corps of Engineers

SOIL

Sampling Point: **SP-4 (WL)**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/1	100	--	--	--	--	Loam	
6-20+	5Y 4/2	85	10YR 4/6	15	C	M	Sandy Loam	Charcoal present in the profile

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils[3]:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)(except MLRA1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:

F3 meets the hydric soil criteria.

Note: Sulfidic odor in the bottom of the B horizon.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of 1 required: check all that apply)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):	N/A
Water Table Present?	Yes ___	No X	Depth (inches):	> 20"
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	> 20"

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

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

Remarks:

B9 and B10 meet the wetland hydrology criteria. The sample plot is located near the drainage way, seeps from the hillside, approximately 20 feet south from the sample plot.

US Army Corps of Engineers

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

Project/Site: Factoria Transfer Station | City/County: Bellevue/King | Sampling Date: 3/23/2010
Applicant/Owner: King County | State: WA | Sampling Point: SP3-1
Investigator(s): Danielski/Dalzell | Section, Township, Range: 10/T24N/R5E
Landform (hillslope, terrace, etc): Hillside | Local relief (concave, convex, none): None | Slope (%): ~5%
Subregion (LRR): A | Lat: 47.58359 | Long: -122.158656 | Datum: NAD83
Soil Map Unit Name: Urban Land | NWI Classification: --
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)
Are Vegetation ____ Soil ____ Or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____ Soil ____ Or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks)

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

Hydrophytic Vegetation Present? Yes X No ____
Hydric Soil Present? Yes X No ____
Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? Yes X No ____

Remarks: All three criteria are met; therefore the sample plot is within a wetland.

Note: SP 3-1 is in Wetland 3, approximately 3 feet lower in elevation and approximately 15 feet north from SP 3-2.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Alnus rubra*	30	Y	FAC
2			
3			
4			
	30	= Total Cover	

Sapling/Shrub Stratum (Plot size: ____)			
1 *Acer circinatum*	40	Y	FAC
2 *Rubus spectabilis*	15	Y	FAC
3 *Rubus procerus*	5	N	FACU
4 *Ribes divaricatum*	10	N	FAC
5 *RUBUS URSINUS CHAM. & SCHLE*	3	N	FACU
	73	= Total Cover	

Herb Stratum (Plot Size: ____)			
1 *Tolmiea menziesii*	35	Y	FAC
2 *Phalaris arundinacea*	20	Y	FACW
3 *Maianthemum dilatatum*	15	N	FAC
4 *Athyrium filix-femina*	10	N	FAC
5 *Lysichiton americanum*	10	N	OBL
6 *Equisetum telmateia*	7	N	FACW
7			
8			
9			
10			
11			
	97	= Total Cover	

Woody Vine Stratum (Plot Size: ____)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum 3%

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 5 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL Species	10	x1 =	10
FACW Species	27	x2 =	54
FAC Species	155	x3 =	465
FACU Species	8	x4 =	32
UPL Species		x5 =	0
Column Totals:	200 (A)		561 (B)

Prevalence Index = B/A 2.81

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%
X Prevalence Test is ≤ 3.0[1]
____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
____ Wetland Non-Vascular Plants[1]
____ Problematic Hydrophitic Vegetation[1] (explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic vegetation present? Yes X No ____

Remarks: Dominant test and prevalence test indicate that hydrophytic vegetation is present at the sample plot.

SOIL

Sampling Point: **SP3-1**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-11	10YR 3/1	100	--	--	--	--	SL	Sulfidic odor
11-18+	2.5Y 4/2	100	--	--	--	--	GSL	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils[3]:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- X Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)(except MLRA1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:

A4 meets hydric soil criteria.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of 1 required: check all that apply)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes X	No ___	Depth (inches):	1"
Water Table Present?	Yes X	No ___	Depth (inches):	9"
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches):	Surface

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

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

Remarks:

A1, A2, and A3 meet wetlahd hydrology criteria.

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

Project/Site: Factoria Transfer Station | City/County: Bellevue/King | Sampling Date: 3/23/2010
Applicant/Owner: King County | State: WA | Sampling Point: SP 3-2 (UPL)
Investigator(s): Danielski/Dalzell | Section, Township, Range: 10/T24N/R5E
Landform (hillslope, terrace, etc): Hillside | Local relief (concave, convex, none): None | Slope (%): 0%
Subregion (LRR): A | Lat: 48.583531 | Long: -122.158593 | Datum: NAD83
Soil Map Unit Name: Urban Land | NWI Classification: --
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)
Are Vegetation ____ Soil ____ Or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____ Soil ____ Or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks)

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

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: None of the three criteria are met; therefore the sample plot is not within a wetland.

Note: SP 3-2 is approximately X feet east and ~ 3 feet upslope of SP 3-1

VEGETATION – Use scientific names of plants.

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

Sapling/Shrub Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Corylus cornuta*	60	Y	FACU
2 *Acer circinatum*	5	N	FAC
3			
4			
5			
	65	= Total Cover	

Herb Stratum (Plot Size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Maianthemum dilatatum*	85	Y	FAC
2 *DICENTRA FORMOSA (ANDR.) WA*	10	N	FACU
3 *POLYSTICHUM MUNITUM (KAULF.,*	5	N	FACU
4			
5			
6			
7			
8			
9			
10			
11			
	100	= Total Cover	

Woody Vine Stratum (Plot Size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0%

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL Species	0	x1 = 0
FACW Species		x2 = 0
FAC Species	90	x3 = 270
FACU Species	75	x4 = 300
UPL Species		x5 = 0
Column Totals:	165 (A)	570 (B)

Prevalence Index = B/A 3.45

Hydrophytic Vegetation Indicators:

____ Dominance Test is >50%
____ Prevalence Test is ≤ 3.0[1]
____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
____ Wetland Non-Vascular Plants[1]
____ Problematic Hydrophitic Vegetation[1] (explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic vegetation present?

Yes ____ No x

Remarks: Area does not pass dominance or prevalence test. No other indicators present.

US Army Corps of Engineers

SOIL

Sampling Point: **SP 3-2 (UPL)**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-13	10YR 3/1	100	--	--	--	--	loam	
13-20+	10YR 3/2	100	--	--	--	--	gravelly sandy loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils[3]:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)(except MLRA1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ____ **No** ____

Remarks:

Sample does not meet hydric soil indicators for applicable textures

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of 1 required: check all that apply)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): --

Water Table Present? Yes ___ No X Depth (inches): >20"

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): >20"

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

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

Remarks:

No primary indicators of wetland hydrology during early part of growing season. No secondary indicators.

US Army Corps of Engineers

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

Project/Site: Factoria Transfer Station | City/County: Bellevue/King | Sampling Date: 3/5/2010
Applicant/Owner: King County | State: WA | Sampling Point: SP 4-1 (WL)
Investigator(s): Danielski/Dalzell | Section, Township, Range: 10/T24N/R5E
Landform (hillslope, terrace, etc): Hillslope | Local relief (concave, convex, none): None | Slope (%): <5%
Subregion (LRR): A | Lat: 47.582036 | Long: -122.159424 | Datum: NAD83
Soil Map Unit Name: Urban Land | NWI Classification: PSS
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)
Are Vegetation ____ Soil ____ Or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____ Soil ____ Or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks)

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

Hydrophytic Vegetation Present? Yes X No ____
Hydric Soil Present? Yes X No ____
Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? Yes X No ____

Remarks: All three criteria are met; therefore the sample plot is within a wetland. No indications of underlying fill material that may be preventing infiltration of water.
The sample plot is located in Wetland 4, approximately 10 feet east of flag 4-1.

VEGETATION – Use scientific names of plants.

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

Sapling/Shrub Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Rubus spectabilis*	25	Y	FAC
2			
3			
4			
5			
	25 = Total Cover		

Herb Stratum (Plot Size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Equisetum telmateia*	5	Y	FACW
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
	5 = Total Cover		

Woody Vine Stratum (Plot Size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Hedera Helix*	95	Y	NI
2			
	95 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL Species		x1 =	0
FACW Species	5	x2 =	10
FAC Species	25	x3 =	75
FACU Species	0	x4 =	0
UPL Species	95	x5 =	475
Column Totals:	125 (A)		560 (B)

Prevalence Index = B/A 4.48

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%
____ Prevalence Test is ≤ 3.0[1]
____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
____ Wetland Non-Vascular Plants[1]
____ Problematic Hydrophitic Vegetation[1] (explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic vegetation present? Yes X No ____

Remarks: Dominant test indicates that hydrophytic vegetation is present at the sample plot.

US Army Corps of Engineers

SOIL

Sampling Point: **SP 4-1 (WL)**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-14	5Y 5/1	100	--	--	--	--	loamy sand	
14-32	5Y 5/1	90	2.5Y 5/6	10	C	M	sandy loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils[3]:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)(except MLRA1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:

Soils meet depleted matrix criteria. Soil profile does not appear disturbed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of 1 required: check all that apply)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes x	No ___	Depth (inches): ~1"
Water Table Present?	Yes x	No ___	Depth (inches): surface
Saturation Present? (includes capillary fringe)	Yes s	No ___	Depth (inches): surface

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

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

Remarks:

Area has surface water and high water table during early part of growing season (site visited 2-5-10 and 3-5-10).

US Army Corps of Engineers

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

Project/Site: Factoria Transfer Station | City/County: Bellevue/King | Sampling Date: 3/5/2010
Applicant/Owner: King County | State: WA | Sampling Point: SP 4-2 (UPL)
Investigator(s): Danielski/Dalzell | Section, Township, Range: 10/T24N/R5E
Landform (hillslope, terrace, etc): Hillslope | Local relief (concave, convex, none): None | Slope (%): >5%
Subregion (LRR): A | Lat: 47.582064 | Long: -122.159379 | Datum: NAD83
Soil Map Unit Name: Urban Land | NWI Classification: Upland shrub
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)
Are Vegetation ____ Soil ____ Or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____ Soil ____ Or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks)

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

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: Two out of three criteria are absent; therefore the sample plot is not within a wetland.

The sample plot is located upslope of Wetland 4, less than 10 feet southwest of flag 4-1

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Acer macrophyllum*	30	Y	FACU
2			
3			
4			
	30	= Total Cover	

Sapling/Shrub Stratum (Plot size: ____)			
1 *Rosa spp.*	15	Y	NI
2 *Symphoricarpos albus*	15	Y	FACU
3 *Rubus procerus*	40	Y	FACU
4			
5			
	70	= Total Cover	

Herb Stratum (Plot Size: ____)			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
	0	= Total Cover	

Woody Vine Stratum (Plot Size: ____)			
1 *Hedera Helix*	10	Y	NI
2			
	10	= Total Cover	

% Bare Ground in Herb Stratum 90

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL Species		x1 =	0
FACW Species		x2 =	0
FAC Species		x3 =	0
FACU Species	85	x4 =	340
UPL Species	10	x5 =	50
Column Totals:	95 (A)		390 (B)

Prevalence Index = B/A 4.11

Hydrophytic Vegetation Indicators:

____ Dominance Test is >50%
____ Prevalence Test is ≤ 3.0[1]
____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
____ Wetland Non-Vascular Plants[1]
____ Problematic Hydrophitic Vegetation[1] (explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic vegetation present?

Yes ____ No X

Remarks: Area does not meet criteria for dominant hydrophytic vegetation

US Army Corps of Engineers

SOIL

Sampling Point: **SP 4-2 (UPL)**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR 3/2	100	--	--	--	--	gravelly sandy loam	
15-20+	10YR 3/2	50	--	--	--	--	gravelly sandy loam	
	10YR 4/3	50	--	--	--	--		

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils[3]:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)(except MLRA1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:

Soils do not meet hydric soil criteria for applicable textures

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of 1 required: check all that apply)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): _____

Water Table Present? Yes ___ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): _____

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

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

Remarks:

Lack of primary indicators of hydrology in early part of growing season. No secondary indiciators

US Army Corps of Engineers

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

Project/Site: Factoria Transfer Station | City/County: Bellevue/King | Sampling Date: 3/5/2010
Applicant/Owner: King County | State: WA | Sampling Point: SP 4-3 (WL)
Investigator(s): Danielski/Dalzell | Section, Township, Range: 10/T24N/R5E
Landform (hillslope, terrace, etc): Hillslope | Local relief (concave, convex, none): None | Slope (%): >5%
Subregion (LRR): A | Lat: 47.58215 | Long: -122.159261 | Datum: NAD83
Soil Map Unit Name: Urban Land | NWI Classification: PSS1
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)
Are Vegetation ____ Soil ____ Or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____ Soil ____ Or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks)

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

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?**	**Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____		
Wetland Hydrology Present?	Yes X	No ____		

Remarks: All three criteria are met; therefore the sample plot is within a wetland.

The sample plot is located in northeast portion of Wetland 4, near north boundary.

VEGETATION – Use scientific names of plants.

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

Sapling/Shrub Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Viburnum spp.*	20	Y	NI
2 *Acer circinatum*	10	Y	FAC
3			
4			
5			
	30 = Total Cover		

Herb Stratum (Plot Size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
	0 = Total Cover		

Woody Vine Stratum (Plot Size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Hedera Helix*	95	Y	NI
2			
	95 = Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL Species		x1 = 0
FACW Species		x2 = 0
FAC Species	10	x3 = 30
FACU Species	0	x4 = 0
UPL Species	115	x5 = 575
Column Totals:	125 (A)	605 (B)

Prevalence Index = B/A 4.84

Hydrophytic Vegetation Indicators:

____ Dominance Test is >50%
____ Prevalence Test is ≤ 3.0[1]
____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
____ Wetland Non-Vascular Plants[1]
X Problematic Hydrophitic Vegetation[1] (explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic vegetation present?

Yes X **No** ____

Remarks: Area has problematic vegetation. Assume hydrophtic vegetaion is present based on hydrology/soils.

US Army Corps of Engineers

SOIL

Sampling Point: **SP 4-3 (WL)**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	2.5YR 4/1	90	10YR 4/6	10	C	M	fine sandy loam	
10-18+	10G 6/1	75	10YR 4/6	25	C	M	fine sandy loam	compacted

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils[3]:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)(except MLRA1)
- X Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:

Soil meets criteria for loamy gleyed matrix

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of 1 required: check all that apply)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No x Depth (inches): _____

Water Table Present? Yes x No ___ Depth (inches): 8"

Saturation Present? (includes capillary fringe) Yes x No ___ Depth (inches): surface

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

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

Remarks:

Area has high water table and surface saturation during early part of growing season (site visited 2-5-10 and 3-5-10).

US Army Corps of Engineers

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

Project/Site: Factoria Transfer Station | City/County: Bellevue/King | Sampling Date: 3/23/2010
Applicant/Owner: King County | State: WA | Sampling Point: SP A-1 (UPL)
Investigator(s): Danielski/Dalzell | Section, Township, Range: 10/T24N/R5E
Landform (hillslope, terrace, etc): Hillside | Local relief (concave, convex, none): None | Slope (%): 0%
Subregion (LRR): A | Lat: 47.581772 | Long: -122.161207 | Datum: NAD83
Soil Map Unit Name: Urban Land | NWI Classification: --
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)
Are Vegetation ____ Soil ____ Or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____ Soil ____ Or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks)

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

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: None of the criteria are met; therefore the sample plot is not within a wetland.

Note: SP A-1 is upslope and southwest of Wetland A.

VEGETATION – Use scientific names of plants.

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

Sapling/Shrub Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Cornus stolonifera*	40	Y	FACW
2 *Lonicera involucrata*	5	N	FAC
3			
4			
5			
	45 = Total Cover		

Herb Stratum (Plot Size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
	0 = Total Cover		

Woody Vine Stratum (Plot Size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1 *RUBUS URSINUS CHAM. & SCHLE*	15	Y	FACU
2			
	15 = Total Cover		

% Bare Ground in Herb Stratum 85%

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL Species		x1 =	0
FACW Species	40	x2 =	80
FAC Species	5	x3 =	15
FACU Species	15	x4 =	60
UPL Species		x5 =	0
Column Totals:	60 (A)		155 (B)

Prevalence Index = B/A 2.58

Hydrophytic Vegetation Indicators:

____ Dominance Test is >50%
X Prevalence Test is ≤ 3.0[1]
____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
____ Wetland Non-Vascular Plants[1]
____ Problematic Hydrophitic Vegetation[1] (explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic vegetation present? Yes ____ No X

Remarks: Area does not meet hydrophytic vegetation test based on prevalence test alone since hydric soil/hydro not present.

SOIL

Sampling Point: **SP A-1 (UPL)**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-11	10YR 4/2	100	--	--	--	--	sandy loam	
11-20+	10YR 4/2.5	>95	10YR 4/6	<5	C	M	sandy loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils[3]:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)(except MLRA1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ____ **No** x

Remarks:

Sample does not meet depleted below dark surface, or depleted matrix criteria

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): --

Water Table Present? Yes ___ No X Depth (inches): >20"

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): >20"

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

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

Remarks:

No primary indicators of hydrology during early part of the growing season. No secondary indicators.

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

Project/Site: Factoria Transfer Station | City/County: Bellevue/King | Sampling Date: 3/23/2010
Applicant/Owner: King County | State: WA | Sampling Point: SPA-2 (WL)
Investigator(s): Danielski/Dalzell | Section, Township, Range: 10/T24N/R5E
Landform (hillslope, terrace, etc): Hillside | Local relief (concave, convex, none): None | Slope (%): 0%
Subregion (LRR): A | Lat: 47.581792 | Long: -122.161046 | Datum: NAD83
Soil Map Unit Name: Urban Land | NWI Classification: --
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)
Are Vegetation ____ Soil ____ Or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____ Soil ____ Or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks)

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

Hydrophytic Vegetation Present? Yes X No ____
Hydric Soil Present? Yes X No ____
Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? Yes X No ____

Remarks: Area meets all three indicators.

Note: SP A-2 is in the west portion of Wetland A.

VEGETATION – Use scientific names of plants.

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

Sapling/Shrub Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Rubus procerus*	2	N	FACU
2			
3			
4			
5			
	2 = Total Cover		

Herb Stratum (Plot Size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
	0 = Total Cover		

Woody Vine Stratum (Plot Size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Hedera helix*	10	Y	NI
2			
	10 = Total Cover		

% Bare Ground in Herb Stratum: 88 %

Dominance Test worksheet:

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL Species	0	x1 = 0
FACW Species		x2 = 0
FAC Species		x3 = 0
FACU Species	2	x4 = 8
UPL Species		x5 = 0
Column Totals:	2 (A)	8 (B)

Prevalence Index = B/A: 4.00

Hydrophytic Vegetation Indicators:

____ Dominance Test is >50%
____ Prevalence Test is ≤ 3.0[1]
____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
____ Wetland Non-Vascular Plants[1]
X Problematic Hydrophitic Vegetation[1] (explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic vegetation present? Yes X No ____

Remarks: Area has problematic vegetation. Assume hydrophtic vegetaion is present based on hydrology/soils.

US Army Corps of Engineers

SOIL

Sampling Point: **SPA-2 (WL)**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	2.5Y 3/1	100	--	--	--	--	sandy loam	
8-15+	2.5Y 4/1	85	10YR 5/6	15	C	M	sandy loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils[3]:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)(except MLRA1)
- ___ Loamy Gleyed Matrix (F2)
- x Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

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

Remarks:

Sample plot filled with water below 15". Soil meets criteria for depleted matrix.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of 1 required: check all that apply)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):	--
Water Table Present?	Yes X	No ___	Depth (inches):	7"
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches):	11"

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

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

Remarks:

Saturation and free water within 12" of surface.

US Army Corps of Engineers

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

Project/Site: Factoria Transfer Station | City/County: Bellevue/King | Sampling Date: 3/23/2010
Applicant/Owner: King County | State: WA | Sampling Point: SPC-1 (WL)
Investigator(s): Danielski/Dalzell | Section, Township, Range: 10/T24N/R5E
Landform (hillslope, terrace, etc): Hillside | Local relief (concave, convex, none): None | Slope (%): 0%
Subregion (LRR): A | Lat: 47.581186 | Long: -122.158136 | Datum: NAD83
Soil Map Unit Name: Urban Land | NWI Classification: --
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)
Are Vegetation ____ Soil ____ Or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____ Soil ____ Or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks)

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

Hydrophytic Vegetation Present? Yes X No ____
Hydric Soil Present? Yes X No ____
Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? Yes X No ____

Remarks: All three criteria are met; therefore the sample plot is within a wetland.

Note: SP C-1 is in Wetland C, approximately 5 feet west of SP C-2, and 5 feet east of the access road.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Alnus rubra*	60	Y	FAC
2 *Populus balsamifera*	20	Y	FAC
3			
4			
	80	= Total Cover	

Sapling/Shrub Stratum (Plot size: ____)			
1 *Rubus procerus*	40	Y	FACU
2 *Polygonum cuspidatum*	30	Y	FACU
3			
4			
5			
	70	= Total Cover	

Herb Stratum (Plot Size: ____)			
1 *Juncus effusus*	30	Y	FACW
2 *Epilobium ciliatum*	10	N	FACW
3 *Agrostis sp.*	20	Y	FAC
4 *Equisetum telmateia*	10	N	FACW
5			
6			
7			
8			
9			
10			
11			
	70	= Total Cover	

Woody Vine Stratum (Plot Size: ____)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum 30%

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 6 (B)
Percent of Dominant Species That are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL Species	0	x1 = 0
FACW Species		x2 = 0
FAC Species		x3 = 0
FACU Species		x4 = 0
UPL Species		x5 = 0
Column Totals:	(A)	0 (B)

Prevalence Index = B/A ____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%
____ Prevalence Test is ≤ 3.0[1]
____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
____ Wetland Non-Vascular Plants[1]
____ Problematic Hydrophitic Vegetation[1] (explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic vegetation present? Yes X No ____

Remarks: Dominant test indicates that hydrophytic vegetation is present at the sample plot.

SOIL

Sampling Point: **SPC-1 (WL)**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	5GY 5/1	80	10YR 4/3	20	C	M	SiCL	
12-18+	5GY 5/1	35	10YR 4/3	30	C	M	SiCL	Compacted
	2.5Y 5/2	35						

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils[3]:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)(except MLRA1)
- X Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

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

Remarks:

F2 meets hydric soil criteria.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of 1 required: check all that apply)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): ~1"

Water Table Present? Yes X No ___ Depth (inches): 8"

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): Surface

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

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

Remarks:

A1, A2, and A3 meet wetlahd hydrology criteria.

US Army Corps of Engineers

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

Project/Site: Factoria Transfer Station | City/County: Bellevue/King | Sampling Date: 3/23/2010
Applicant/Owner: King County | State: WA | Sampling Point: SPC-2 (UPL)
Investigator(s): Danielski/Dalzell | Section, Township, Range: 10/T24N/R5E
Landform (hillslope, terrace, etc): Hillside | Local relief (concave, convex, none): None | Slope (%): 0%
Subregion (LRR): A | Lat: 47.581159 | Long: -122.158096 | Datum: NAD83
Soil Map Unit Name: Urban Land | NWI Classification: --
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)
Are Vegetation ____ Soil ____ Or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____ Soil ____ Or Hydrology ____ Naturally problematic? (If needed, explain any answers in Remarks)

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

Hydrophytic Vegetation Present?	Yes ____	No X	
Hydric Soil Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Wetland Hydrology Present?	Yes ____	No X	

Remarks: Two out of three criteria were not met. The hillslope appears to have been disturbed. It may have been cut into to accommodate road (now abandoned), thus overlying soils may have been removed and soils that meet hydric indicators were exposed.
Note: SP C-2 is approximately 5 feet southeast of SP C-2, upslope ~ 1foot from the wetland boundary.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Populus balsamifera*	50	Y	FAC
2			
3			
4			
	50	= Total Cover	

Sapling/Shrub Stratum (Plot size: ____)			
1 *Rubus procerus*	5	Y	FACU
2			
3			
4			
5			
	5	= Total Cover	

Herb Stratum (Plot Size: ____)			
1 *Polystchum munitum*	5	Y	FACU
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
	5	= Total Cover	

Woody Vine Stratum (Plot Size: ____)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum 95%

Dominance Test worksheet:

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL Species	x1 =	0
FACW Species	x2 =	0
FAC Species 50	x3 =	150
FACU Species 10	x4 =	40
UPL Species	x5 =	0
Column Totals: 60	(A)	190 (B)

Prevalence Index = B/A 3.17

Hydrophytic Vegetation Indicators:

____ Dominance Test is >50%
____ Prevalence Test is ≤ 3.0[1]
____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
____ Wetland Non-Vascular Plants[1]
____ Problematic Hydrophitic Vegetation[1] (explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic vegetation present?

Yes ____ No X

Remarks: Plot is covered with dead Himalayn blackberry canes. Area does not pass dominance or prevalence test.

US Army Corps of Engineers

SOIL

Sampling Point: **SPC-2 (UPL)**

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5Y 4/2	100	--	--	--	--	sandy clay loam	
6-14	2.5Y 4/1	90	10YR 4/6	10	C	M	sandy clay loam	Compacted
14-20	2.5Y 5/3	95	10YR 5/8	5	C	M	gscl	Compacted

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils[3]:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)(except MLRA1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

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

Remarks:

Meets depleted matrix criteria

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of 1 required: check all that apply)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):	--
Water Table Present?	Yes ___	No X	Depth (inches):	>20
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	>20

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

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

Remarks:

No primary indicators of hydrology during early part of the growing season. No secondary indicators.

Appendix C – Wetland and Stream Photographs

Photo 1. Wetland 2 facing south near the eastern boundary.

Photo 2. Wetland 2 facing northwest near the south boundary.

Photo 3. Wetland 2 facing south from the northern boundary.

Photo 4. Culvert located west of the transfer station, upslope of Wetland 2

Photo 5. Wetland 3 facing north from SP3-1.

Photo 6. Wetland 3 facing north from the southern boundary towards SE 30th Street.

Photo 7. Wetland 3 in the power line corridor facing north.

Photo 8. Wetland 4 facing north from SE 32nd Street.

Photo 9. Wetland 4 facing northwest.

Photo 10. Surface water in the English ivy patch within Wetland 4

Photo 11. Wetland A facing east from SP A-1.

Photo 12. SP A-1 facing east

Photo 13. Outlet located at the east end of Wetland A

Photo 14. Wetland C facing east

Photo 15. Wetland C facing southwest

Photo 16. Stream 0263 facing downstream at the southeast end of the project study area.

Photo 17. Stream 0263 looking down the channel.

Photo 18. Ditch A facing east towards Wetland 2.

Photo 19. Ditch A facing west

Photo 20. Ditch A facing north towards SE 30th Street.

Photo 21. Ditch A facing north – the channel lined with a half-cut CMP

Photo 22. Ditch A with a vertical drop structure facing south from SE 30th Street.

Photo 23. Ditch B facing southeast from the culvert crossing

Photo 24. Buried culvert located south of SE 32nd Street, north end of Stream

Photo 25. Buried culvert located north of SE 32nd Street, east of Wetland 4

Photo 26. Ditch C along SE 32nd Street facing east

Photo 27: Overflowing manhole in upstream reach of stream 0263 east of the project facility.

Photo 28: Steep banks in forested portion of stream 0263 in the project area.

Photo 29: Stream 0263 by pipeline and transmission corridor

Photo 30: One of the small cascades where stream 0263 flows down the shrub covered hillside below the powerline corridor.

Photo 31: Culvert located at the PSE access road. Photo taken from downstream of the culvert facing southeast.

King County
Department of Natural Resources and Parks
Solid Waste Division

0 50 100 200 Feet

Legend

Wetland | Approximate Wetland Boundary | Project Area | Photo Location

Stream/Ditch | Approximate Stream Location | Parcel

Photo Location Map

Factoria Recycling and Transfer Station Replacement Project| Bellevue, Washington

Appendix D – Ecology Rating Forms

ıd name or number Wetland 2

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): Factoria RTS: Wetland 2 Date of site visit: 3-5-10, 3-23-10 2-5-10

Rated by Witter / Danielski Trained by Ecology? Yes X No___ Date of training 2005

SEC: 10 TWNSHP: 24N RNGE: 5E Is S/T/R in Appendix D? Yes___ No X

Map of wetland unit: Figure ____ Estimated size ~0.38 ac

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III___ IV X

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

Score for Water Quality Functions	4
Score for Hydrologic Functions	6
Score for Habitat Functions	15
TOTAL score for Functions	25

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply X

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

Summary of basic information about the wetland unit

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

Wetland name or number 2

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

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

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

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

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

Wetland name or number 2

Classification of Wetland Units in Western Washington

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

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

NO – go to 2 **YES** – the wetland class is **Tidal Fringe**

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

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

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

NO – go to 3 **YES** – The wetland class is **Flats**

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

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

___ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;

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

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

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

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 type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*

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

Wetland name or number 2

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

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

____ The overbank flooding occurs at least once every two years.

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

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

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

NO – go to 7 **YES** – The wetland class is **Depressional**

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

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM clases. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

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

Wetland name or number 2

S	Slope Wetlands WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to improve water quality	Points (only 1 score per box)
S	**S 1. Does the wetland unit have the potential to improve water quality?**	*(see p.64)*
S	S 1.1 Characteristics of average slope of unit: Slope is1% or less *(a 1% slope has a 1 foot vertical drop in elevation for every 100 ft horizontal distance)* points = 3 Slope is 1% - 2% points = 2 Slope is 2% - 5% points = 1 Slope is greater than 5% points = 0 ~8% average slope	Ø
S	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES = 3 points NO = 0 points	Ø
S	S 1.3 Characteristics of the vegetation in the wetland that trap sediments and pollutants: *Choose the points appropriate for the description that best fits the vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.* Dense, uncut, herbaceous vegetation > 90% of the wetland area points = 6 Dense, uncut, herbaceous vegetation > 1/2 of area points = 3 Dense, woody, vegetation > ½ of area points = 2 Dense, uncut, herbaceous vegetation > 1/4 of area points = 1 Does not meet any of the criteria above for vegetation points = 0 Aerial photo or map with vegetation polygons	Figure ___ 2
S	**Total for S 1** *Add the points in the boxes above*	2
S	**S 2. Does the wetland unit 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 150ft ✓ Untreated stormwater discharges to wetland — Tilled fields, logging, or orchards within 150 feet of wetland ✓ Residential, urban areas, or golf courses are within 150 ft upslope of wetland — Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	*(see p.67)* multiplier 2
S	**TOTAL - Water Quality Functions** Multiply the score from S1 by S2 ***Add score to table on p. 1***	4

Comments

Wetland name or number 2

S	Slope Wetlands HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream erosion	Points (only 1 score per box)
	S 3. Does the wetland unit have the potential to reduce flooding and stream erosion?	*(see p.68)*
S	S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms. *Choose the points appropriate for the description that best fit conditions in the wetland. (stems of plants should be thick enough (usually > 1/8in), or dense enough, to remain erect during surface flows)* Dense, uncut, **rigid** vegetation covers > 90% of the area of the wetland. points = 6 Dense, uncut, **rigid** vegetation > 1/2 area of wetland (points = 3) Dense, uncut, **rigid** vegetation > 1/4 area points = 1 More than 1/4 of area is grazed, mowed, tilled or vegetation is not rigid points = 0	3
S	S 3.2 Characteristics of slope wetland that holds back small amounts of flood flows: The slope wetland has small surface depressions that can retain water over at least 10% of its area. YES points = 2 NO (points = 0)	0
S	*Add the points in the boxes above*	3
S	**S 4. Does the wetland have the opportunity to reduce flooding and erosion?** *(see p. 70)* Is the wetland in a landscape position where the reduction in water velocity it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows? *Note which of the following conditions apply.* — Wetland has surface runoff that drains to a river or stream that has flooding problems Surface water discharges to Stream A, trib to Richards Cr. — Other *(Answer NO if the major source of water is controlled by a reservoir (e.g. wetland is a seep that is on the downstream side of a dam)* **YES** multiplier is **2** **NO** multiplier is **1**	multiplier 2
S	**TOTAL - Hydrologic Functions** Multiply the score from S 3 by S 4 ***Add score to table on p. 1***	6

Comments

Wetland name or number 2

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the <u>potential</u> to provide habitat for many species?	
H 1.1 <u>Vegetation structure</u> ***(see p. 72)***	**Figure ___**
Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.	
___Aquatic bed	
___Emergent plants	
_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	2
Add the number of vegetation structures that qualify. If you have:	
4 structures or more points = 4	
3 structures points = 2	
2 structures points = 1	
1 structure points = 0	
Map of Cowardin vegetation classes	
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 ¼ acre to count. (see text for descriptions of hydroperiods)	
___Permanently flooded or inundated — 4 or more types present — points = 3	
_X_ Seasonally flooded or inundated — 3 types present — points = 2	
___Occasionally flooded or inundated — 2 types present — point = 1	
_X_ Saturated only — 1 type present — points = 0	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**	
___ ***Freshwater tidal wetland* = 2 points** Map of hydroperiods	
H 1.3. <u>Richness of Plant Species</u> ***(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	
List species below if you want to: 5 - 19 species points = 1 (circled)	
< 5 species points = 0	1
HEDHE RUDI ALRU SALU RUSP RILA ATFI EQTE GEMA OECE POBA	

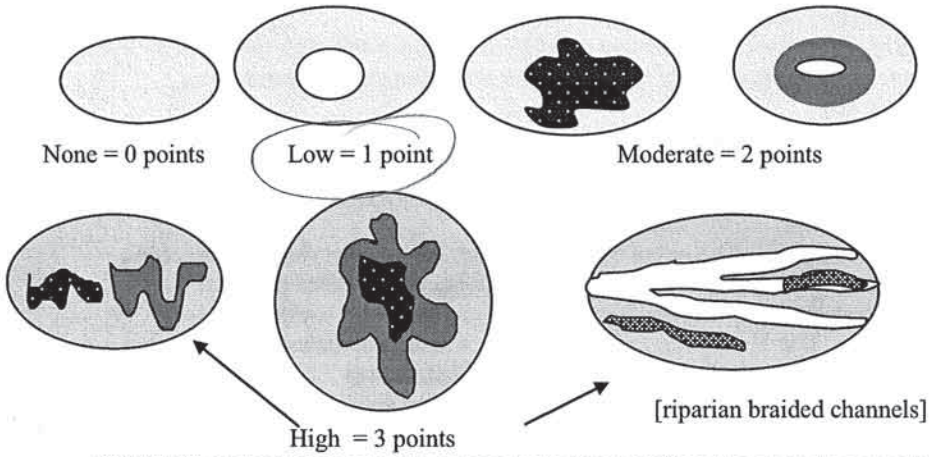
Total for page 4

Wetland name or number 2

H 1.4. Interspersion of habitats *(see p. 76)*

Figure ___

Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.



NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

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.

X Large, downed, woody debris within the wetland (>4in. 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 (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*

___ At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated.*(structures for egg-laying by amphibians)*

___ Invasive plants cover less than 25% of the wetland area in each stratum of plants RUDI >25%

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

2

H 1. TOTAL Score - potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

7

Comments

Wetland name or number _____

H 2. Does the wetland unit have the opportunity to provide habitat for many species?

H 2.1 Buffers *(see p. 80)* — Figure ___

Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."

— 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) **Points = 5**

— 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4**

— 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4**

— 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3**

— 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3**

If buffer does not meet any of the criteria above

— No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2**

— No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2**

— Heavy grazing in buffer. **Points = 1**

— Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland **Points = 0.**

X — Buffer does not meet any of the criteria above. **Points = 1**

1

Aerial photo showing buffers

H 2.2 Corridors and Connections *(see p. 81)*

H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor*).

YES = **4 points** (*go to H 2.3*) NO = go to H 2.2.2

H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? Powerline corridor to the east is regularly mowed/cleared of veg ⇒ break in corridor

YES = **2 points** (*go to H 2.3*) NO = H 2.2.3

H 2.2.3 Is the wetland:

within 5 mi (8km) of a brackish or salt water estuary OR
within 3 mi of a large field or pasture (>40 acres) OR
within 1 mi of a lake greater than 20 acres?

YES = **1 point** NO = **0 points**

Lk Wa + Sammy. >1 mi from project site

Total for page 1

Wetland name or number _____

H 2.3 Near or adjacent to other priority habitats listed by WDFW ***(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)***

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

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

____**Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).

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

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

____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*).

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 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)

4

Wetland name or number _____

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	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 14	7
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	15

Wetland name or number 2

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

Wetland Type *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	**Category**
SC 1.0 Estuarine wetlands ***(see p. 86)*** Does the wetland unit meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 (NO)___	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO go to SC 1.2	**Cat. I**
SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? YES = Category I NO = Category II — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual rating I/II**

Wetland name or number 2

SC 2.0 Natural Heritage Wetlands *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? *(this question is used to screen out most sites before you need to contact WNHP/DNR)* S/T/R information from Appendix D X 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 or as a site with state threatened or endangered plant species? YES = Category I NO ____not a Heritage Wetland	**Cat. I**
SC 3.0 Bogs *(see p. 87)* Does the wetland unit (**or any part of the unit**) meet both the criteria for soils and vegetation in bogs? *Use the key below to identify if the wetland is a bog.* ***If you answer yes you will still need to rate the wetland based on its functions.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils)? Yes - go to Q. 3 (No) - go to Q. 2 2. Does the unit have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? Yes - go to Q. 3 (No) - Is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? Yes – Is a bog for purpose of rating No - go to Q. 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. *1.* Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover)?* 2. YES = Category I No___ Is not a bog for purpose of rating	**Cat. I**

Wetland name or number 2

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

Wetland name or number 2

SC 6.0 Interdunal Wetlands *(see p. 93)* Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES - go to SC 6.1 (NO) 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 once acre or larger? YES = Category II NO – go to SC 6.2 SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
Category of wetland based on Special Characteristics *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p.1	N/A

land name or number 3

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): Factoria RTS: Wetland 3 Date of site visit: 2-5-10 3-5-10

Rated by Dawelski/Dalzell Trained by Ecology? Yes X No___ Date of training 2005/2007

SEC: 10 TWNSHP: 24N RNGE: 5E Is S/T/R in Appendix D? Yes___ No X

Map of wetland unit: Figure ____ Estimated size ~ 0.96

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III X IV___

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

Score for Water Quality Functions	6
Score for Hydrologic Functions	16
Score for Habitat Functions	23
TOTAL score for Functions	45

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply X

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

Summary of basic information about the wetland unit

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

Wetland name or number 3

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

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

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

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

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

Wetland name or number 3

Classification of Wetland Units in Western Washington

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

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

NO – go to 2 **YES** – the wetland class is **Tidal Fringe**

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

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

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

NO – go to 3 **YES** – The wetland class is **Flats**

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

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

___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;

___At least 30% of the open water area is deeper than 6.6 ft (2 m)?

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

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

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 type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*

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

Wetland name or number 3

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

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

____ The overbank flooding occurs at least once every two years.

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

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

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

NO – go to 7 **YES** – The wetland class is **Depressional**

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

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM clases. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

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

Wetland name or number 3

S	Slope Wetlands WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to improve water quality	Points (only 1 score per box)
S	**S 1. Does the wetland unit have the potential to improve water quality?**	*(see p.64)*
S	S 1.1 Characteristics of average slope of unit: Slope is1% or less *(a 1% slope has a 1 foot vertical drop in elevation for every 100 ft horizontal distance)* points = 3 Slope is 1% - 2% points = 2 Slope is 2% - 5% points = 1 Slope is greater than 5% points = 0 Slope averages @ ~10%	Ø
S	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES = 3 points NO = 0 points	Ø
S	S 1.3 Characteristics of the vegetation in the wetland that trap sediments and pollutants: *Choose the points appropriate for the description that best fits the vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.* Dense, uncut, herbaceous vegetation > 90% of the wetland area points = 6 Dense, uncut, herbaceous vegetation > 1/2 of area points = 3 Dense, woody, vegetation > ½ of area points = 2 Dense, uncut, herbaceous vegetation > 1/4 of area points = 1 Does not meet any of the criteria above for vegetation points = 0 Aerial photo or map with vegetation polygons	Figure ___ 3
S	**Total for S 1** *Add the points in the boxes above*	3
S	**S 2. Does the wetland unit 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 150ft — Untreated stormwater discharges to wetland — Tilled fields, logging, or orchards within 150 feet of wetland X Residential, urban areas, or golf courses are within 150 ft upslope of wetland — Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	*(see p.67)* multiplier 2
S	**TOTAL - Water Quality Functions** Multiply the score from S1 by S2 ***Add score to table on p. 1***	6

Comments

Wetland name or number 3

	Slope Wetlands HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream erosion	Points (only 1 score per box)
	S 3. Does the wetland unit have the potential to reduce flooding and stream erosion?	*(see p.68)*
S	S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms. *Choose the points appropriate for the description that best fit conditions in the wetland. (stems of plants should be thick enough (usually > 1/8in), or dense enough, to remain erect during surface flows)* Dense, uncut, **rigid** vegetation covers > 90% of the area of the wetland. points = 6 Dense, uncut, **rigid** vegetation > 1/2 area of wetland points = 3 Dense, uncut, **rigid** vegetation > 1/4 area points = 1 More than 1/4 of area is grazed, mowed, tilled or vegetation is not rigid points = 0	6
S	S 3.2 Characteristics of slope wetland that holds back small amounts of flood flows: The slope wetland has small surface depressions that can retain water over at least 10% of its area. YES points = 2 NO points = 0	2
S	*Add the points in the boxes above*	8
S	**S 4. Does the wetland have the opportunity to reduce flooding and erosion?** *(see p. 70)* Is the wetland in a landscape position where the reduction in water velocity it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows? *Note which of the following conditions apply.* X Wetland has surface runoff that drains to a river or stream that has flooding problems — Other_____ *(Answer NO if the major source of water is controlled by a reservoir (e.g. wetland is a seep that is on the downstream side of a dam)* **YES** multiplier is **2** **NO** multiplier is **1**	multiplier 2
S	**TOTAL - Hydrologic Functions** Multiply the score from S 3 by S 4 ***Add score to table on p. 1***	16

Comments

Wetland name or number 3

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the <u>potential</u> to provide habitat for many species?	
H 1.1 <u>Vegetation structure</u> ***(see p. 72)***	**Figure ___**
Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.	
___ Aquatic bed	
X Emergent plants	
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 structures that qualify. If you have:	4
4 structures or more — points = 4 (circled)	
3 structures — points = 2	
2 structures — points = 1	
1 structure — points = 0	
Map of Cowardin vegetation classes	
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 ¼ acre to count. (see text for descriptions of hydroperiods)	
\ Permanently flooded or inundated — 4 or more types present — points = 3	
X Seasonally flooded or inundated — 3 types present — points = 2 (circled)	
___ Occasionally flooded or inundated — 2 types present — point = 1	2
X Saturated only — 1 type present — points = 0	
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 points**	
___ ***Freshwater tidal wetland* = 2 points** — Map of hydroperiods	
H 1.3. <u>Richness of Plant Species</u> ***(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 (circled)	1
< 5 species — points = 0	
List species below if you want to: ATFF RUSP ALRU RUPU (>25) LYSAM RHOI TYLA SALU SCMI JUEF ORVI EQTE (PHAR	

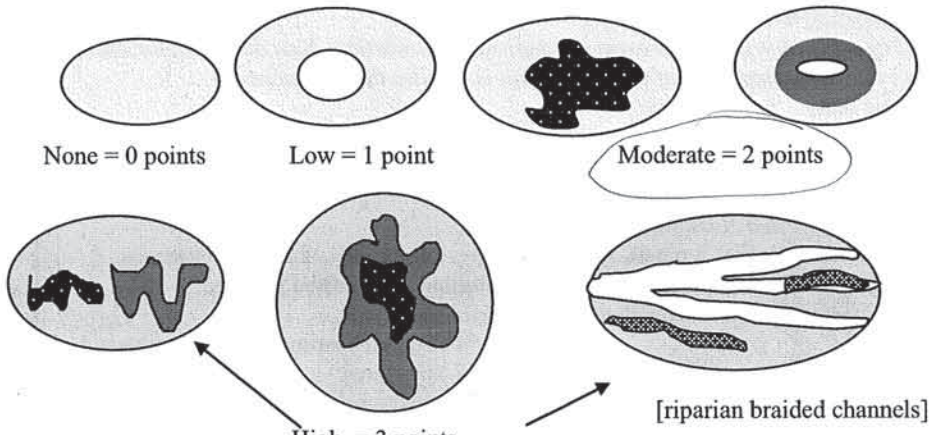
Total for page 7

Wetland name or number 3

H 1.4. Interspersion of habitats *(see p. 76)*

Figure ___

Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.



2

NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

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 (>4in. diameter and 6 ft long).

X Standing snags (diameter at the bottom > 4 inches) in the wetland

X Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)

___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*

X At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. *(structures for egg-laying by amphibians)*

___ Invasive plants cover less than 25% of the wetland area in each stratum of plants

ND: PHAR 25%

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

4

H 1. TOTAL Score - potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

13

Comments

Wetland name or number 3

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

Total for page 1

Wetland name or number 3

H 2.3 Near or adjacent to other priority habitats listed by WDFW ***(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)*** Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.* ___**Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre). ___**Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*). ___**Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock. ___**Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest. ___**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*). 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*). Y **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. ___ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).* ___**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human. ___**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft. ___**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. 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)*	4

Wetland name or number 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 ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	5
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	10
TOTAL for H 1 from page 14	13
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	23

Wetland name or number 3

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

Wetland Type *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	**Category**
SC 1.0 Estuarine wetlands ***(see p. 86)*** Does the wetland unit meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO go to SC 1.2	**Cat. I**
SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? YES = Category I NO = Category II — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual rating I/II**

Wetland name or number 3

SC 2.0 Natural Heritage Wetlands *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? *(this question is used to screen out most sites before you need to contact WNHP/DNR)* S/T/R information from Appendix D X or accessed from WNHP/DNR web site ___ YES____ – contact WNHP/DNR (see p. 79) and go to SC 2.2 NO ___ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species? YES = Category I NO ____not a Heritage Wetland	**Cat. I**
SC 3.0 Bogs *(see p. 87)* Does the wetland unit (**or any part of the unit**) meet both the criteria for soils and vegetation in bogs? *Use the key below to identify if the wetland is a bog.* ***If you answer yes you will still need to rate the wetland based on its functions.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils)? Yes - go to Q. 3 No - go to Q. 2 2. Does the unit have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? Yes - go to Q. 3 No - Is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? Yes – Is a bog for purpose of rating No - go to Q. 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. *1.* Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover)?* 2. YES = Category I No___ Is not a bog for purpose of rating	**Cat. I**

Wetland name or number 3

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

Wetland name or number 3

SC 6.0 Interdunal Wetlands *(see p. 93)* Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES - go to SC 6.1 (NO) 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 once acre or larger? YES = Category II NO – go to SC 6.2 SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
Category of wetland based on Special Characteristics *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p.1	

Wetland name or number 4

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): Factoria RTS: Wetland 4 Date of site visit: 2-5-10 3-5-10

Rated by Danielski Trained by Ecology? Yes X No ___ Date of training 2005

SEC: 10 TWNSHP: 24N RNGE: 5E Is S/T/R in Appendix D? Yes ___ No X

Map of wetland unit: Figure ____ Estimated size ~0.06ac

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III X IV___

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

Score for Water Quality Functions	14
Score for Hydrologic Functions	8
Score for Habitat Functions	10
TOTAL score for Functions	32

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply X

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

Summary of basic information about the wetland unit

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

Wetland name or number 4

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

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

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

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

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

Wetland name or number 4

Classification of Wetland Units in Western Washington

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

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

NO – go to 2 **YES** – the wetland class is **Tidal Fringe**

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

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

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

NO – go to 3 **YES** – The wetland class is **Flats**

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

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

___ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;

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

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

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

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 type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*

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

Wetland name or number 4

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

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

____ The overbank flooding occurs at least once every two years.

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

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

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

NO – go to 7 **YES** – The wetland class is **Depressional**

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

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM clases. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

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

Wetland name or number 4

S	Slope Wetlands WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to improve water quality	Points (only 1 score per box)
S	**S 1. Does the wetland unit have the potential to improve water quality?**	*(see p.64)*
S	S 1.1 Characteristics of average slope of unit: Slope is1% or less *(a 1% slope has a 1 foot vertical drop in elevation for every 100 ft horizontal distance)* points = 3 Slope is 1% - 2% points = 2 Slope is 2% - 5% points = 1 Slope is greater than 5% points = 0	1
S	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES = 3 points NO = 0 points	∅
S	S 1.3 Characteristics of the vegetation in the wetland that trap sediments and pollutants: *Choose the points appropriate for the description that best fits the vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.* Dense, uncut, herbaceous vegetation > 90% of the wetland area points = 6 Dense, uncut, herbaceous vegetation > 1/2 of area points = 3 Dense, woody, vegetation > ½ of area points = 2 Dense, uncut, herbaceous vegetation > 1/4 of area points = 1 Does not meet any of the criteria above for vegetation points = 0 Aerial photo or map with vegetation polygons	Figure ___ 6
S	**Total for S 1** *Add the points in the boxes above*	7
S	**S 2. Does the wetland unit 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 150ft — Untreated stormwater discharges to wetland — Tilled fields, logging, or orchards within 150 feet of wetland X Residential, urban areas, or golf courses are within 150 ft upslope of wetland — Other ___ **YES** multiplier is **2** **NO** multiplier is **1**	*(see p.67)* multiplier 2
S	**TOTAL - Water Quality Functions** Multiply the score from S1 by S2 ***Add score to table on p. 1***	14

Comments

Wetland name or number 4

	Slope Wetlands HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream erosion	Points (only 1 score per box)
	S 3. Does the wetland unit have the potential to reduce flooding and stream erosion?	*(see p.68)*
S	S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms. *Choose the points appropriate for the description that best fit conditions in the wetland. (stems of plants should be thick enough (usually > 1/8in), or dense enough, to remain erect during surface flows)* Dense, uncut, **rigid** vegetation covers > 90% of the area of the wetland. (points = 6) Dense, uncut, **rigid** vegetation > 1/2 area of wetland points = 3 Dense, uncut, **rigid** vegetation > 1/4 area points = 1 More than 1/4 of area is grazed, mowed, tilled or vegetation is not rigid points = 0	6
S	S 3.2 Characteristics of slope wetland that holds back small amounts of flood flows: The slope wetland has small surface depressions that can retain water over at least 10% of its area. YES (points = 2) NO points = 0	2
S	*Add the points in the boxes above*	8
S	**S 4. Does the wetland have the opportunity to reduce flooding and erosion?** Is the wetland in a landscape position where the reduction in water velocity it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows? *Note which of the following conditions apply.* — Wetland has surface runoff that drains to a river or stream that has flooding problems No- water infiltrates, no surface H_2O connection — Other to tributaries *(Answer NO if the major source of water is controlled by a reservoir (e.g. wetland is a seep that is on the downstream side of a dam)* **YES** multiplier is **2** **NO** multiplier is **1**	*(see p. 70)* multiplier 1
S	**TOTAL - Hydrologic Functions** Multiply the score from S 3 by S 4 ***Add score to table on p. 1***	8

Comments

Wetland name or number 4

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the potential to provide habitat for many species?	
H 1.1 Vegetation structure ***(see p. 72)***	**Figure ___**
Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.	
___Aquatic bed	
___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 structures that qualify. If you have:	
4 structures or more points = 4	
Map of Cowardin vegetation classes — 3 structures points = 2	
2 structures points = 1	
1 structure points = 0	
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 ¼ acre to count. (see text for descriptions of hydroperiods)	
___Permanently flooded or inundated — 4 or more types present — points = 3	
_X_Seasonally flooded or inundated — 3 types present — points = 2	
___Occasionally flooded or inundated — 2 types present — point = 1	
_X_Saturated only — 1 type present — points = 0	
___ Permanently flowing stream or river in, or adjacent to, the wetland	
___ Seasonally flowing stream in, or adjacent to, the wetland	
___***Lake-fringe wetland* = 2 points**	
___***Freshwater tidal wetland* = 2 points** Map of hydroperiods	
H 1.3. Richness of Plant Species ***(see p. 75)***	
Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)*	
You do not have to name the species.	
Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle	
If you counted: > 19 species points = 2	
List species below if you want to: — 5 - 19 species points = 1	
< 5 species points = 0	
ATFF	
HEOHK	
RUSP	
RUDI	
Viburnum	
Acc 1	

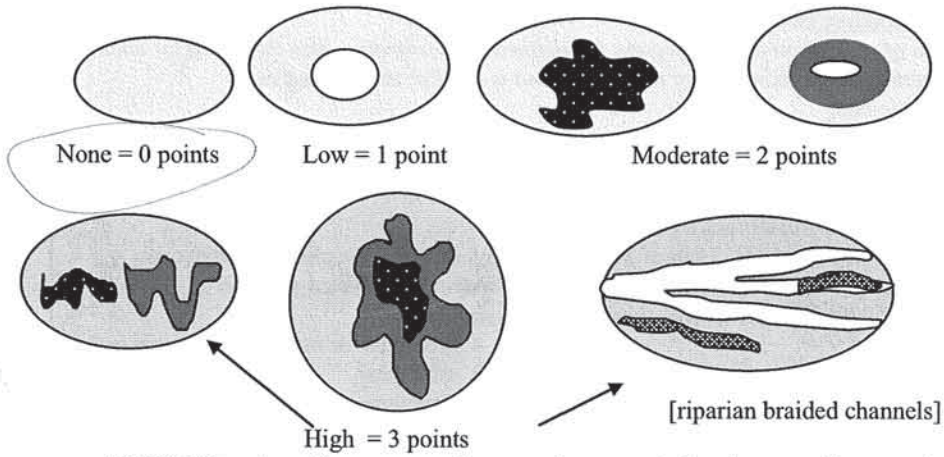
Total for page 2

Wetland name or number 4

H 1.4. Interspersion of habitats *(see p. 76)*

Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

Figure ___



0

NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

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 (>4in. 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 (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*
- ___ At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated.*(structures for egg-laying by amphibians)*
- ___ 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.

2

H 1. TOTAL Score - potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

4

Comments

Wetland name or number 4

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

Total for page 3

Wetland name or number 4

H 2.3 Near or adjacent to other priority habitats listed by WDFW ***(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)***

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

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

____**Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).

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

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

____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*).

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

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

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

____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).*

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

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

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

____**Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.

If wetland has **3 or more** priority habitats = **4 points**
If wetland has **2** priority habitats = **3 points**
If wetland has **1** priority habitat = **1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

Wetland name or number 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 ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	6
TOTAL for H 1 from page 14	4
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	10

Wetland name or number 4

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

Wetland Type *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	**Category**
SC 1.0 Estuarine wetlands ***(see p. 86)*** Does the wetland unit meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 (NO)—	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO go to SC 1.2	**Cat. I**
SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? YES = Category I NO = Category II — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual rating I/II**

Wetland name or number 4

SC 2.0 Natural Heritage Wetlands ***(see p. 87)*** — **Cat. I**

Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species.

SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? *(this question is used to screen out most sites before you need to contact WNHP/DNR)*

S/T/R information from Appendix D X or accessed from WNHP/DNR web site ___

YES____ – contact WNHP/DNR (see p. 79) and go to SC 2.2 (NO) ___

SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species?

YES = Category I NO ____not a Heritage Wetland

SC 3.0 Bogs ***(see p. 87)***

Does the wetland unit (**or any part of the unit**) meet both the criteria for soils and vegetation in bogs? *Use the key below to identify if the wetland is a bog.* ***If you answer yes you will still need to rate the wetland based on its functions.***

1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils)? Yes - go to Q. 3 (No) - go to Q. 2
2. Does the unit have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond?

   Yes - go to Q. 3 (No) - Is not a bog for purpose of rating
3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)?

   Yes – Is a bog for purpose of rating No - go to Q. 4

   NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog.

1. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover)?*

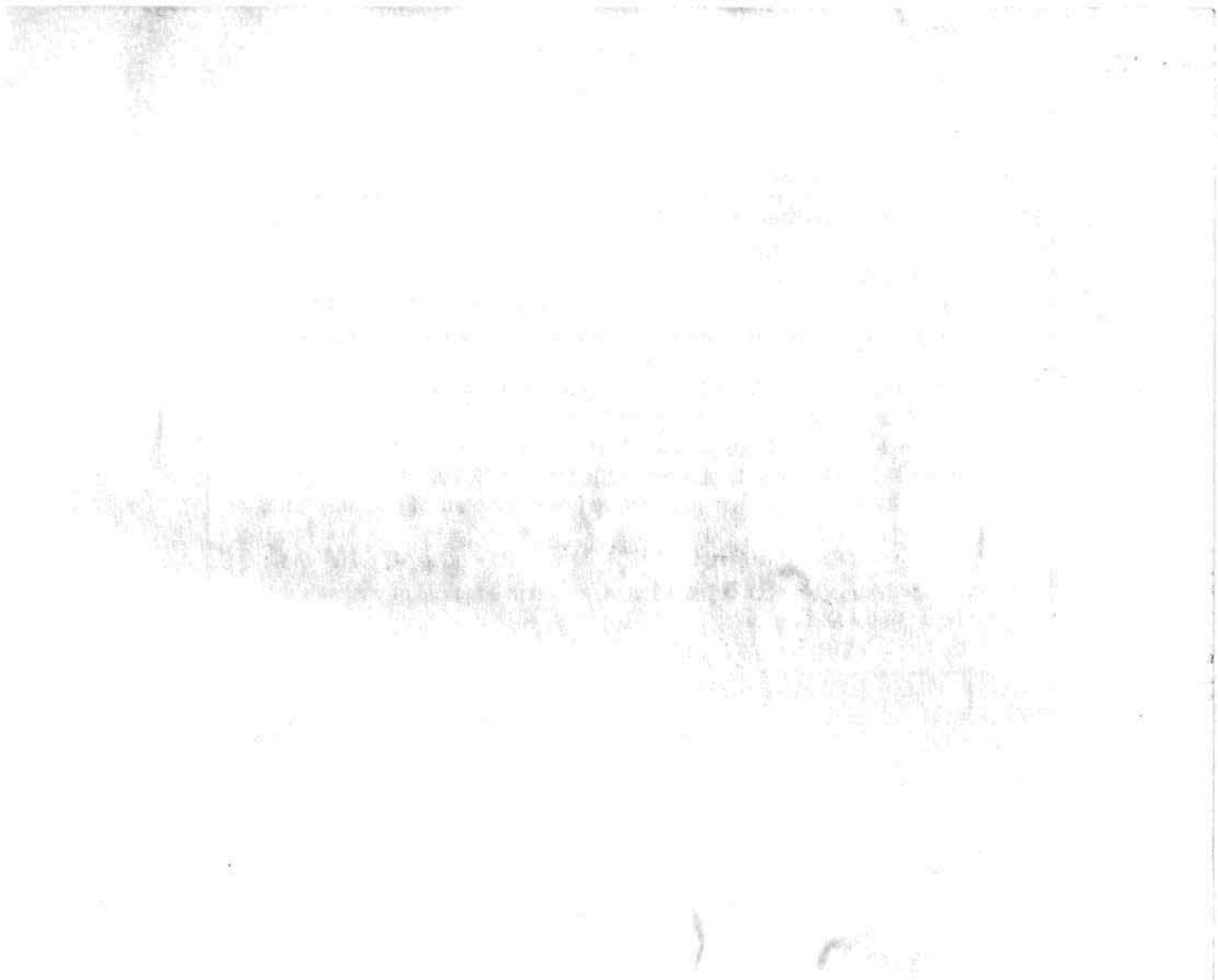
2. YES = Category I No___ Is not a bog for purpose of rating — **Cat. I**

Wetland name or number 4

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

Wetland name or number 4

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



Wetland name or number Wetland A

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 2/5/10

Name of wetland (if known): Factoria RTS: Wetland A Date of site visit: 3/5/10

Rated by Danielski Trained by Ecology? Yes X No___ Date of training 2005

SEC: 10 TWNSHP: 24N RNGE: 5E Is S/T/R in Appendix D? Yes___ No X

Map of wetland unit: Figure ____ Estimated size ~390 sq ft

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III___ IV X

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

Score for Water Quality Functions	6
Score for Hydrologic Functions	5
Score for Habitat Functions	6
TOTAL score for Functions	17

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply X

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

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		Depressional	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	

Wetland name or number Wetland A

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

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

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

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

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

Wetland name or number Wetland A

Classification of Wetland Units in Western Washington

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

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
NO – go to 2 **YES** – the wetland class is **Tidal Fringe**

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

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

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
NO – go to 3 **YES** – The wetland class is **Flats**

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

3. Does the entire wetland unit **meet both** of the following criteria?
___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
___At least 30% of the open water area is deeper than 6.6 ft (2 m)?
NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?
____The wetland is on a slope (*slope can be very gradual*),
____The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
____The water leaves the wetland **without being impounded**?
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*
NO - go to 5 **YES** – The wetland class is **Slope**

Wetland name or number A

		Points (only 1 score per box)
D	**Depressional and Flats Wetlands** HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation	
	D 3. Does the wetland unit have the potential to reduce flooding and erosion?	*(see p.46)*
D	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	2
D	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 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 Unit 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
D	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 = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 The area of the basin is more than 100 times the area of the unit points = 0 Entire unit is in the FLATS class points = 5	3
D	**Total for D 3** *Add the points in the boxes above*	5
D	**D 4. Does the wetland unit 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_____ **YES** multiplier is **2** **NO** multiplier is **1**	*(see p. 49)* multiplier 1
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	5

Check waters list

Wetland name or number A

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the potential to provide habitat for many species?	
H 1.1 Vegetation structure ***(see p. 72)***	**Figure** ___
Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.	
___Aquatic bed	
___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	Ø
Add the number of vegetation structures that qualify. If you have:	
4 structures or more — points = 4	
3 structures — points = 2	
2 structures — points = 1	
1 structure — points = 0	
Map of Cowardin vegetation classes	
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 ¼ 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 types present — points = 2	
_X_Occasionally flooded or inundated — 2 types present — point = 1	1
_X_Saturated only — 1 type present — points = 0	
___ Permanently flowing stream or river in, or adjacent to, the wetland	
___ Seasonally flowing stream in, or adjacent to, the wetland	
___ ***Lake-fringe wetland* = 2 points**	
___***Freshwater tidal wetland* = 2 points**	
Map of hydroperiods	
H 1.3. Richness of Plant Species ***(see p. 75)***	
Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)*	
You do not have to name the species.	
Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle	
If you counted: > 19 species — points = 2	
List species below if you want to: 5 - 19 species — points = 1	
(< 5 species — points = 0)	Ø
RUDI	
HEDHE	

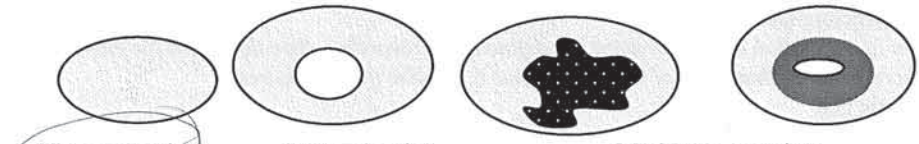
Total for page 1

Wetland name or number A

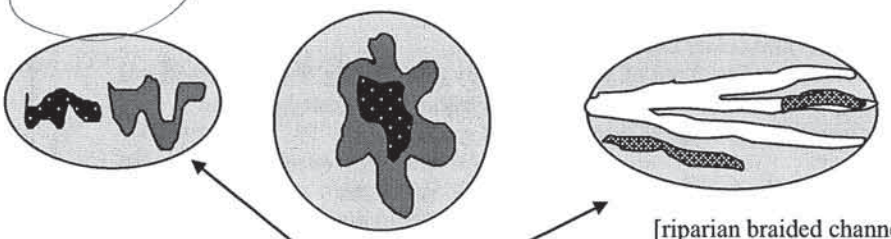
H 1.4. Interspersion of habitats *(see p. 76)*

Figure ___

Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.



None = 0 points Low = 1 point Moderate = 2 points



High = 3 points

[riparian braided channels]

NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

Ø

H 1.5. Special Habitat Features: *(see p. 77)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

- ✓ Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).
- ___ Standing snags (diameter at the bottom > 4 inches) in the wetland
- ___ Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)
- ___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*
- ___ At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated.*(structures for egg-laying by amphibians)*
- ___ Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

1

H 1. TOTAL Score - potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

2

Comments

Wetland name or number A

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

Total for page 1

Wetland name or number A

H 2.3 Near or adjacent to other priority habitats listed by WDFW ***(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)***

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

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

____**Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).

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

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

____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*).

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

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

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

____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).*

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

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

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

____**Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.

If wetland has **3 or more** priority habitats = **4 points**
If wetland has **2** priority habitats = **3 points**
If wetland has **1** priority habitat = **1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

Sunset Ct ≈ 3501 away

Ø

Wetland name or number A

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

Wetland name or number A

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

Wetland Type *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	**Category**
SC 1.0 Estuarine wetlands ***(see p. 86)*** Does the wetland unit meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO 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 332-30-151? YES = Category I NO go to SC 1.2	**Cat. I**
SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? YES = Category I NO = Category II — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual rating I/II**

Wetland name or number A

SC 2.0 Natural Heritage Wetlands *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? *(this question is used to screen out most sites before you need to contact WNHP/DNR)* S/T/R information from Appendix D X 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 or as a site with state threatened or endangered plant species? YES = Category I NO ____not a Heritage Wetland	**Cat. I**
SC 3.0 Bogs *(see p. 87)* Does the wetland unit (**or any part of the unit**) meet both the criteria for soils and vegetation in bogs? *Use the key below to identify if the wetland is a bog.* ***If you answer yes you will still need to rate the wetland based on its functions.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils)? Yes - go to Q. 3 No - go to Q. 2 2. Does the unit have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? Yes - go to Q. 3 No - Is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? Yes – Is a bog for purpose of rating No - go to Q. 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. *1.* Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover)?* 2. YES = Category I No___ Is not a bog for purpose of rating	**Cat. I**

Wetland name or number A

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

Wetland name or number A

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

name or number Wetland C

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): Factoria RTS: Wetland C Date of site visit: 3-23-10 2-5-10

Rated by Danielski Trained by Ecology? Yes √ No ___ Date of training 2005

SEC: 10 TWNSHP: 24N RNGE: 5E Is S/T/R in Appendix D? Yes ___ No X

Map of wetland unit: Figure ____ **Estimated size** ~0.04 ac

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III___ IV X

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

Score for Water Quality Functions	10
Score for Hydrologic Functions	7
Score for Habitat Functions	9
TOTAL score for Functions	26

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply X

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

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		Depressional	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	

Wetland name or number C

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

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

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

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

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

Wetland name or number C

Classification of Wetland Units in Western Washington

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

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
NO – go to 2 **YES** – the wetland class is **Tidal Fringe**

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

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

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
NO – go to 3 **YES** – The wetland class is **Flats**

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

3. Does the entire wetland unit **meet both** of the following criteria?
___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
___At least 30% of the open water area is deeper than 6.6 ft (2 m)?
NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?
____The wetland is on a slope (*slope can be very gradual*),
____The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
____The water leaves the wetland **without being impounded**?
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*
NO - go to 5 **YES** – The wetland class is **Slope**

Wetland name or number C

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

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

____ The overbank flooding occurs at least once every two years.

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

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

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

NO – go to 7 **YES** – The wetland class is **Depressional**

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

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM clases. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

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

Wetland name or number C

D	Depressional and Flats Wetlands **WATER QUALITY FUNCTIONS** - Indicators that the wetland unit functions to improve water quality	**Points** (only 1 score per box)
D	**D 1. Does the wetland unit have the potential to improve water quality?**	*(see p.38)*
D	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) 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 points = 1 (*If ditch is not permanently flowing treat unit as "intermittently flowing"*) Provide photo or drawing	Figure ___ 3
D	S 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)	ϕ
D	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 ___ 5
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland unit 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 yrs.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland (points = 2) Area seasonally ponded is < ¼ total area of wetland points = 0 Map of Hydroperiods	Figure ___ 2
D	**Total for D 1** *Add the points in the boxes above*	10
D	**D 2. Does the wetland unit 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.* Gravel pad upslope of wetland is not in active use & does not contribute pollutants — 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 — Other_____ **YES** multiplier is **2** **NO** multiplier is **1**	*(see p. 44)* multiplier 1
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	10

Wetland name or number C

D	**Depressional and Flats Wetlands** HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation	**Points** (only 1 score per box)
	D 3. Does the wetland unit have the potential to reduce flooding and erosion?	*(see p.46)*
D	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	4
D	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 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 Unit 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
D	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 = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 The area of the basin is more than 100 times the area of the unit points = 0 Entire unit is in the FLATS class points = 5	3
D	**Total for D 3** *Add the points in the boxes above*	7
D	**D 4. Does the wetland unit 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_____ **YES** multiplier is **2** **NO** multiplier is **1**	*(see p. 49)* multiplier 1
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	7

Contributing watershed limited to area uplope to South/SE

Water flow likely drains to West. Does not connect w/ any tributaries to Richards Cr.

Wetland name or number C

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the potential to provide habitat for many species?	
H 1.1 Vegetation structure ***(see p. 72)***	**Figure ___**
Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.	
___Aquatic bed	
___Emergent plants <10%	
___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 structures that qualify. If you have:	1
4 structures or more points = 4	
3 structures points = 2	
2 structures points = 1	
1 structure points = 0	
Map of Cowardin vegetation classes	
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 ¼ acre to count. (see text for descriptions of hydroperiods)	
___Permanently flooded or inundated — 4 or more types present — points = 3	
_X_ Seasonally flooded or inundated — 3 types present — points = 2	1
___Occasionally flooded or inundated — 2 types present — point = 1	
_X_ Saturated only — 1 type present — points = 0	
___ Permanently flowing stream or river in, or adjacent to, the wetland	
___ Seasonally flowing stream in, or adjacent to, the wetland	
___ ***Lake-fringe wetland* = 2 points**	
___***Freshwater tidal wetland* = 2 points** Map of hydroperiods	
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 points = 2	1
List species below if you want to: 5 - 19 species points = 1	
< 5 species points = 0	
JUEF EQTE RUDI Epilobium ALRU POBA Agrostis	

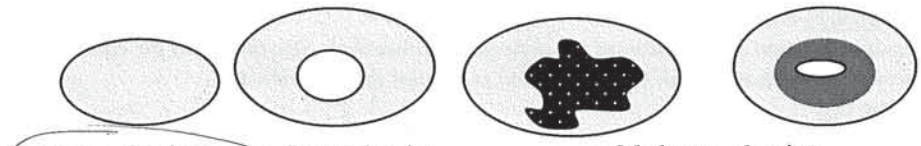
Total for page 3

Wetland name or number Wetland C

H 1.4. Interspersion of habitats *(see p. 76)*

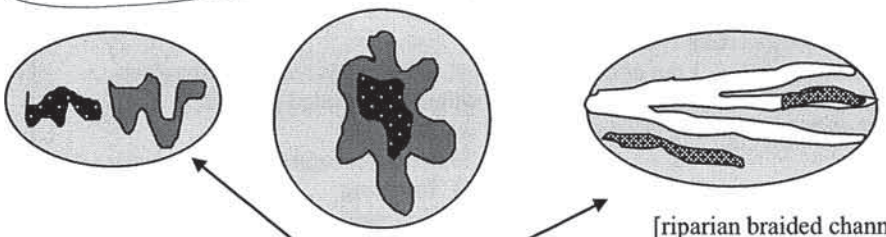
Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

Figure ___



None = 0 points Low = 1 point Moderate = 2 points

0



High = 3 points [riparian braided channels]

NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

H 1.5. Special Habitat Features: *(see p. 77)*

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

____Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).

____Standing snags (diameter at the bottom > 4 inches) in the wetland

____Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)

____Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*

____At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. *(structures for egg-laying by amphibians)*

____ Invasive plants cover less than 25% of the wetland area in each stratum of plants RUDI

NOTE: The 20% stated in early printings of the manual on page 78 is an error. 25%

0

H 1. TOTAL Score - potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

3

Comments

Wetland name or number C

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

Total for page 3

Wetland name or number C

H 2.3 Near or adjacent to other priority habitats listed by WDFW ***(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)*** Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.* ____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre). ____**Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*). ____**Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock. ____**Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest. ____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*). ____**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. ____**Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*). ____**Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. ____**Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).* ____**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human. ____**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft. ____**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ____**Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long. If wetland has **3 or more** priority habitats **= 4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat **= 1 point** No habitats = 0 points *Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)*	0

Wetland name or number C

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	6
TOTAL for H 1 from page 14	3
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	9

Wetland name or number C

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

Wetland Type *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	**Category**
SC 1.0 Estuarine wetlands ***(see p. 86)*** Does the wetland unit meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 (NO)___	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO go to SC 1.2	**Cat. I**
SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? YES = Category I NO = Category II — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual rating I/II**

Wetland name or number C

SC 2.0 Natural Heritage Wetlands *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? *(this question is used to screen out most sites before you need to contact WNHP/DNR)* S/T/R information from Appendix D X 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 or as a site with state threatened or endangered plant species? YES = Category I NO ____not a Heritage Wetland	**Cat. I**
SC 3.0 Bogs *(see p. 87)* Does the wetland unit (**or any part of the unit**) meet both the criteria for soils and vegetation in bogs? *Use the key below to identify if the wetland is a bog.* ***If you answer yes you will still need to rate the wetland based on its functions.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils)? Yes - go to Q. 3 (No) - go to Q. 2 2. Does the unit have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? Yes - go to Q. 3 (No) - Is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? Yes – Is a bog for purpose of rating No - go to Q. 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. *1.* Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover)?* 2. YES = Category I No___ Is not a bog for purpose of rating	**Cat. I**

Wetland name or number C

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

Wetland name or number C

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