CRITICAL AREAS DELINEATION REPORT

LITTLE SQUALICUM PARK ESTUARY RESTORATION PROJECT

JUNE 2014

prepared for
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EXECUTIVE SUMMARY

Northwest Ecological Services, LLC (NES) is a sub-consultant to Coastal Geologic Services , Inc., the prime consultant for the City of Bellingham (COB) Public Works Little Squalicum Park Estuary Restoration Project. NES was retained to complete a critical areas delineation for the proposed project. All information contained in this report is based on available information and site conditions at the time of the site visit. This report is intended for inclusion with future wetland, stream, and wildlife habitat permit applications to Whatcom County, the COB, Washington State Department of Ecology (WDOE), Washington State Department of Fish and Wildlife (WDFW), and the U.S. Army Corps of Engineers (Corps), as may be required.

Little Squalicum Park is an approximately 24-acre park located at 640 Marine Drive, in Bellingham, Washington. The parcels are located just outside of the City of Bellingham but are within the City's Urban Growth Area (UGA). Only a portion of the park was reviewed during this delineation. The review area is bound by Marine Drive to the north, the Bellingham Bay to the south, the park property line to the east, and the trail near the west property line to the west.

This delineation replaces information from 1991/1992 delineations and a 2009 reconnaissance assessment. Additionally, environmental remediation/ clean up occurred in 2010-2011 that has resulted in re-grading and other land changes that have altered site conditions.

During the 2014 delineation, NES identified seven wetlands (Wetlands A, B, C, D, E, F, and G) within the review area. Wetlands A, E, and F are WDOE Category III, depressional wetlands. Wetland B, C, D, and G are WDOE Category IV slope wetlands. The majority of wetlands are either forested or scrub-shrub.

One stream is present within the review area: Little Squalicum Creek. The stream is seasonal and non-fish bearing. Bellingham Bay, a marine shoreline, is located at the southern boundary of the review area.

Priority habitats and species and Whatcom County habitat conservation areas (HCAs) mapped within the site or immediate vicinity are limited to habitats associated with the marine shoreline and Bellingham Bay.

All site wetlands (Wetlands A, B, C, D, E, F, and G), Little Squalicum Creek, and Bellingham Bay are expected to be regulated by one or more of the following agencies: Whatcom County, WDOE, the Corps, and potentially WDFW. Little Squalicum Park is currently located in unincorporated Whatcom County, but is within the Bellingham UGA. Unless the property is annexed into the City of Bellingham, Whatcom County would be the lead local jurisdictional agency.

The Whatcom County Critical Areas Ordinance (CAO) requires buffers on regulated features. Wetlands B and D are WDOE Category IV wetlands less than 1/10 acre in size, therefore, Wetlands B and D do not appear to be regulated by Whatcom County. Wetland buffers are based on land use, and it appears that a moderate intensity land use applies to this site. Based on the Whatcom County CAO, Wetlands A, E, and F are expected to have 60 foot buffers, and Wetlands C and G are expected to have 40 foot buffers.

As a non-fish bearing stream, Whatcom County is expected to require a 50 foot buffer around Little Squalicum Creek. (Note: if the proposed Little Squalicum Estuary Restoration project results in fish access to Little Squalicum Creek, the stream buffer width will likely be changed to 100 feet.)

The marine shoreline of Bellingham Bay and adjacent shorelands are under the jurisdiction of the Whatcom County Shoreline Management Program (SMP). The Whatcom County SMP shoreline designation for these areas is Urban. Under the SMP, a 150 foot shoreline buffers applies to Bellingham Bay.

NES QUALIFICATIONS

Northwest Ecological Services, LLC (NES) is a specialized, service-oriented environmental consulting firm based in Bellingham, Washington. We provide a range of biological services to both the public and private sectors. Our services include wetland assessments; biological assessments; wetland restoration and mitigation plans; natural resource analysis; environmental regulatory compliance; landscape and ecological design; and environmental impact assessments of plants, animals, fish and sensitive habitats. NES professionals have performed wetland and biological assessments on over 27,500 acres [1991-2012] in Whatcom, Skagit, Island, Snohomish and King Counties.

NES staff qualifications summary:

- Vikki Jackson is an ecologist with NES and has provided environmental consulting services within the north Puget Sound area since 1992. Ms. Jackson obtained a Masters in Science from Western Washington University with emphasis on ecological processes and wetlands. She is certified through the Society of Wetland Scientists (SWS) as a Professional Wetland Scientist (PWS), #000514.
- Michele Bodtke is an ecologist with NES and has been providing environmental services within the north Puget Sound area since 2002. Ms. Bodtke also has an extensive understanding of land use laws. Ms. Bodtke has Bachelors of Science degree in Geology from Michigan State University, and a certificate in wetland science and management from the University of Washington.
- Analiese Burns is an ecologist with NES has provided environmental services within the north Puget Sound area since 2000. Ms. Burns obtained a Bachelors of Science in Biology from the University of Washington. She is certified through SWS as a PWS, #1618 and is a Leadership in Energy and Environmental Design® (LEED) Accredited Professional.
- Molly Porter is an ecologist with NES and has provided environmental services within the north Puget Sound area since 2004. Ms. Porter obtained a Bachelors of Science in Environmental Science from Huxley College of the Environment at Western Washington University. She is certified through SWS as a PWS, #2064.
- Katrina Poppe is an ecologist with NES and has begun providing environmental services within the north Puget Sound area in 2014. Ms. Poppe obtained a Bachelors of Science in Biology from the University of Victoria. She is a Masters of Science candidate in Environmental Science through Huxley College of the Environment at Western Washington University.

DISCLAIMER

Wetland and stream delineations and determinations are based upon protocols defined in manuals and publications produced by federal, state and local agencies. The wetland methodology used in this report is consistent with methods described in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (Corps, 2010) and the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987), as required by WAC 173-22-035. The findings were based on observations of conditions at the time of the site visit(s). This report is provided for the use of the named recipient only and is not intended for use by others parties for any other purpose. This report does not guarantee agency concurrence or permit approval.

TABLE OF CONTENTS

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1.0 INTRODUCTION

1.1 Scope of Work

Northwest Ecological Services, LLC (NES) is a sub-consultant to Coastal Geologic Services Inc., the prime consultant for the City of Bellingham (COB) Public Works Little Squalicum Park Estuary Restoration Project. NES was retained to complete a critical areas delineation for the proposed project. The delineation included identification of wetlands, streams, protected fish and wildlife habitats, and shorelines as observed within the review area. It did not include identification of the following: frequently flooded areas, geologically hazardous areas, and critical aquifer recharge areas.

All information contained in this report is based on available information and site conditions at the time of the site visit. This report is intended for inclusion with future wetland, stream, and wildlife habitat permit applications to Whatcom County, the COB, Washington State Department of Ecology (WDOE), Washington State Department of Fish and Wildlife (WDFW), and the U.S. Army Corps of Engineers (Corps), as may be required.

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1.2 Project Location

Little Squalicum Park is an approximately 24-acre park located at 640 Marine Drive, in Bellingham, Washington. The Port of Bellingham's Little Squalicum Beach lies adjacent to the

Park along the Bellingham Bay marine shoreline. The Park encompasses Parcel Numbers 380223 473219, 380223 420211, 380223 392252, 380223 356223, 380223 378227, 380223 344168, and 380223 347164 (Section 23, Township 38N, Range 02E, W.M.) (Figure 1, Appendix B). The parcels are located just outside of the City of Bellingham but are within the City's Urban Growth Area (UGA). An aerial photograph of the Park is included in Figures 2 and 3 (Appendix B).

Only a portion of the park was reviewed during this delineation. The review area encompasses the southern third of the Park and extends south slightly outside the Park boundaries to the marine shoreline. The review area is bound by Marine Drive to the north, the Bellingham Bay to the south, the park property line to the east, and the trail near the west property line to the west (Figure 2, Appendix B).

1.3 Background

Wetlands within the Park were delineated in 1991 (Sheldon and Associates) and 1992 (Springfield Associates). In 2009, NES performed a reconnaissance level wetland assessment of the site confirming the approximate location and extent of the wetlands identified in 1991/1992 assessments. The 2009 reconnaissance was performed in order to provide updated information to be used in creation of the Little Squalicum Park Master Plan. In the 2009 reconnaissance review, a total of 16 wetlands were identified. This 2014 delineation replaces information from the 2009 reconnaissance within the review area.

Since the 2009 NES reconnaissance, environmental remediation/ clean-up of the Park has resulted in re-grading and other land changes that have altered site conditions. Clean-up work occurred between 2010 and 2011 at two separate sites within the Park. In 2005, soil in and near Little Squalicum Creek was found to contain toxic chemicals from past activities at the nearby Oeser wood treating company (COB, 2014c). The U.S. Environmental Protection Agency (EPA) oversaw removal of this contaminated material as part of the Oeser Superfund Clean-up Project. The clean-up included rerouting Little Squalicum Creek into its historical creek channel immediately north of the review area. Associated grading extended into the review area. Additionally, the City conducted a clean-up effort for a 1930s-era municipal solid-waste landfill in the northwest corner of the Park, outside of the review area (COB, 2014c). The City's Public Works Department, under a legal agreement with the WDOE, removed most of the waste and contaminated soil from this location (the Eldridge Municipal Landfill cleanup site) and disposed of it in an approved upland facility (COB, 2014c).

2.0 DELINEATION METHODS

The delineation consisted of an office review of existing documentation, site visit(s), and associated assessments. NES conducted the site investigation and assessments in accordance with methodology specific to each resource area (wetlands, streams, fish and wildlife habitats, and shorelines, as described below.

2.1 Document Review

NES reviewed available maps, drawings, and applicable reports pertaining to the project site. Specifically, NES reviewed existing documents related to soils, hydrology, vegetation, wetlands, fish and wildlife habitats, and shorelines. The following is a list of resources reviewed for this project:

- Aerial Photographs- Google Maps and WDFW SalmonScape (Figure 2)
- U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) *Soil Survey of Whatcom County Area, Washington*, NRCS Web Soil Survey (USDA, NRCS, 2014) (Figure 4)
- U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) Wetlands Mapper (USFWS, 2014)
- WDOE Washington State Coastal Atlas Mapping (WDOE, 2014)
- City of Bellingham City IQ Map (COB, 2014a) (Figure 3)
- County Wide Critical Areas Ordinance (CAO) Maps –Salmonid Fish Habitat Conservation Areas (HCAs) (Whatcom County, 2005) (Figure 6)
- County Wide Critical Areas Ordinance (CAO) Maps – Wildlife HCAs (Whatcom County, 2005) (Figure 6)
- WDFW SalmonScape (WDFW, 2014a) (Figure 2)
- WDFW Priority Habitats and Species (PHS) Data on the Web Interactive Map (WDFW, 2014b)
- WDFW Species of Concern Listing (WDFW, 2014c)
- Whatcom County Shoreline Management Program (SMP) Code and Map (Whatcom County, 2008)
- City of Bellingham Shoreline Management Program (SMP) Code and Map (COB, 2014b)

2.2 Field Methods

2.2.1 Wetlands

The wetland delineation was conducted in accordance with the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (Corps, 2010) and the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987). This methodology is consistent with the WDOE's requirements established in 2011 (WAC 173-22-035) and the Whatcom County Critical Areas Ordinance (CAO) (Whatcom County Code [WCC] 16.16.610). In accordance with this methodology, to make a positive wetland determination, NES had to document evidence of at least one positive wetland indicator for each of three parameters (vegetation, soils, and hydrology). An area was not considered a regulatory wetland if the area lacked indicators for any one of these three parameters under

normal environmental conditions. Upland/wetland boundaries were delineated by locating the transition where soils, vegetation, or hydrology no longer indicated that wetland parameters were met. Methods for each of these parameters are as follows:

- **Vegetation:** The plant community at each sample site is considered to be hydrophytic (wetland) vegetation if the vegetation exhibits indicators of hydrophytic vegetation as defined in the delineation methodology (Corps, 2010). Most often the "Dominance Test" is used as the indicator. The sample plot meets the dominance test for hydrophytic vegetation if more than 50 percent of the dominant species from all strata have obligate wetland, facultative wetland, and/or facultative indicator status. Indicator status is taken from the Regional National Wetland Plant List (Corps, 2012a). Dominant species are the most abundant species that individually or collectively account for more than 50 percent of the total coverage of vegetation in the stratum (absolute percent cover), plus any other species that, by itself, accounts for at least 20 percent of the total. The wetland indicator status for each dominant species is then used to determine whether the plant community is dominated by hydrophytic vegetation. Occasionally, the "Prevalence Index" is used as the indicator of hydrophytic vegetation. The Prevalence Index is a weighted-average of all plant species in the sample plot.
- **Soils:** Soil test pits are hand dug to approximately 20 inches and soils are examined for hydric soil indicators. Formal soil test pits are labeled with a sample plot number and located on the delineation map. Soil color, including concentrations, depletions, or gleying, if present, are colored using a Munsell color chart (Gretag-Macbeth, 2000). *Field Indicators of Hydric Soils in the United States* (USDA, NRCS, 2010) is used to determine hydric soil presence or absence.
- **Hydrology:** Wetland hydrology is assessed by an inspection at representative sample plots. Depth to shallow groundwater and/or saturation in each sample plot is recorded, as are observations of other indicators of hydrology including but not limited to water marks, drift lines, sediment deposits, and drainage patterns. These data provide information on timing and duration of ponding and/or saturation in the study area.
- **Growing Season:** Vegetation and hydrology indicators are dependent upon conditions during the "growing season". The growing season, as defined by the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region*, is when non-evergreen plants show biological activity (plant growth) and/or the soil temperature at 12 inches below the surface is a minimum of 41 degrees Fahrenheit (F) (Corps, 2010).

2.2.2 Streams

If streams were identified within the review area, NES flagged the ordinary high water mark (OHWM) consistent with state law as defined in RCW 90.58.030. NES used field indicators to determine the OHWM of any existing stream based on the methodology contained in *Determining the Ordinary High Water Mark on Streams in Washington State* (Olson and Stockdale, 2010), Ecology Publication #08-06-001. During the site visits, the investigating ecologists also

completed a stream characterization of basic stream attributes including depth, vegetation, substrate, and habitat features.

2.2.3 Fish and Wildlife

NES documented observations of any state Priority species or federal Threatened, Endangered, or Candidate species protected under the Endangered Species Act (ESA) during the site visit. NES also reviewed the site for locally protected habitat conservation areas (HCAs), general wildlife habitat conditions, and habitat connectivity. If streams were present, NES documented any obvious fish passage barriers, characterized general stream attributes (as described above), and documented any observations of fish during the site visits.

2.2.4 Shorelines

NES reviewed the Whatcom County and City of Bellingham SMP text and maps to determine the potential presence of a regulated shoreline within the review area. During the site visit, NES field verified the presence of any shoreline and determined the extent of SMP jurisdiction based on SMP mapping, OHWM, floodways, wetlands, and floodplains.

3.0 FINDINGS

Analiese Burns and Molly Porter, NES ecologists, conducted a site visit on March 18th of 2014. The following description is based on observations from the site visit and information gathered during the document review. Photographs taken at the time of the site visit are included in Appendix C.

3.1 Landscape Setting and Project Area Overview

3.1.1 Document Review

The following provides a summary of the findings contained within documents reviewed:

- **Aerial Photograph- WDFW SalmonScape and COB City IQ (Figures 2 and 3)**

  The review area is bound by Marine Drive to the north, Bellingham Bay to the south and property lines on adjacent sides. Aerial photographs show the fringes of the review area as forested. The WDFW aerial photograph appears to have been taking during re-grading of the site during the 2010-2011 environmental clean-up and the middle portion of the review area is shown as open dirt. Dense single family development is present east of the site. The Bellingham Technical College is present northeast of the Park. Commercial development and dense single family development are present west of the Park.

- **USDA, NRCS *Soil Survey of Skagit County Area, Washington* (Figure 4)**

  The NRCS soil survey (USDA, NRCS, 2013) maps one soil unit within the review area: Urban land- Whatcom- Labounty Complex, on zero to eight percent slopes (#172).

This soil series is typically contains 40 percent urban land, 30 percent Whatcom soils, 20 percent Labounty soil, and 10 percent other inclusions. Whatcom-Labounty soils are mapped on hummocky glaciomarine drift plains. Whatcom soils are a very deep, moderately well drained soil. Labounty soils, typically mapped in depressions, are a very deep, poorly drained soil (USDA, NRCS, 2014).

Labounty soils are listed as hydric by the USDA. Whatcom soils are listed as non-hydric by the USDA. Soil unit 172 is mapped as 22 percent hydric, with Labounty being the major portion of the hydric soils. Labounty silt loam is in hydrologic group D, Whatcom silt loam is in hydrologic group C, and Urban land does not have a hydrologic group. Hydrologic groups are a measure of soil permeability with "A" being highest permeability and "D" being lowest permeability.

Non-bedrock escarpments are also mapped on the western and eastern edges of the review area. These appear to be associated with steep slopes or cliffs adjacent to the site.

3.1.2 Field Observations

Little Squalicum Park is an approximately 24-acre passive recreation park surrounded by residential, industrial, and institutional land uses. The Park is bound by the Burlington Northern Santa Fe (BNSF) railroad right-of-way (ROW) and the adjacent Port of Bellingham's Little Squalicum Beach along the Bellingham Bay marine shoreline to the south. The BNSF railroad crosses the southern perimeter of the park via an elevated trestle. The Park is bound by residences and Bellingham Technical College to the east, residences and Timpson Way to the west, and West Illinois Street to the north. Eldridge Avenue/Marine Drive crosses through the central portion of the property via a bridge. The Park land is owned by both Whatcom County and the City of Bellingham; however, the agencies have a joint agreement granting management authority to the City of Bellingham Parks and Recreation Department.

The review area encompasses the southern third of the Park and extends south slightly outside the Park to the marine shoreline. The review area is primarily undeveloped with the exception of pedestrian trails. Little Squalicum Creek is present near the western property line. The review area is in a ravine with steep side slopes and a relatively flat bottom. The topography is partially the result of past sand and gravel excavation (Integral Consulting Inc., 2008). The western, eastern, and northern portions of the review area slope steeply towards the ravine bottom. A large open meadow is present in the middle that takes up most of the review area. This area is vegetated with grass and appears to be regularly maintained. The fringes are primarily vegetated with a young stand of deciduous trees. The review area generally drains south to the marine shoreline located at Little Squalicum Beach south of the Park's southern perimeter.

3.2 Wetlands

The review area contains seven wetlands: Wetlands A, B, C, D, E, F, and G (Figure 5, Appendix B).

3.2.1 Document Review

The following provides a summary of the findings contained within documents reviewed:

- **USFWS NWI Wetlands Mapper**

  The Wetlands Mapper does not identify any wetlands on the subject site.

3.2.2 Field Observations

NES identified seven wetlands within the subject site, and documented wetland conditions at three sample plots (Sample Plots 02, 05, and 08). Figure 5 (Appendix B) shows the extent and location of wetlands and sample plots within the review area. Data sheets from the delineation are located in Appendix D of this report. Wetlands delineated by NES are summarized in Table 2 and a description of each wetland is provided below.

Table 1. Wetland Classification Summary

Wetland	Hydrogeomorphic Class	Cowardin Classification	On-site Size (square feet)
Wetland A	Depressional	PFO	18,068
Wetland B	Slope	PFO	428
Wetland C	Slope	PSS	4,386
Wetland D	Slope	PSS	88
Wetland E	Depressional	PSS	609
Wetland F	Depressional	PFO/PEM	5,767
Wetland G	Slope	PSS/PEM	3,343

(PFO: Palustrine Forested; PSS: Palustrine Scrub-shrub; PEM: Palustrine Emergent)

Wetland A

Wetland A is a palustrine forested (PFO) depressional, outflow wetland. Dominant species observed included: red alder (*Alnus rubra*), red-osier dogwood (*Cornus sericea*), willow (*Salix sp.*), bittersweet nightshade (*Solanum dulcamara*), and water parsley (*Oenanthe sarmentosa*). The wetland contains a number of pieces of smaller woody debris and smaller snags.

A soil sample was documented in Wetland A at Sample Plot 08. Top-soil was a black (10YR 2/1) mucky loam with gravel, and sub-soil was a very dark grayish brown (10YR 3/2) coarse sandy loam with gravel. Soil observed at Sample Plot 08 met NRCS hydric soil indicator F1 (loamy mucky mineral) (USDA, NRCS, 2010).

Wetland A is a depressional wetland. Wetland A appears to receive hydrologic support from direct precipitation, surface run-off, and possibly a seep or seasonally high or perched water table. The wetland contains areas that are both seasonally saturated and seasonally ponded. During the site visit, ponding was observed at an average depth of two to four inches. However, there is also a deeper pocket within the wetland that contained greater than two feet of standing water. This area may be permanently ponded. Wetland A outlets to Bellingham Bay via Wetlands C and G through sub-surface flow in the gravel under the adjacent trail. It appears that the majority of the water flows to Wetland G. No culvert was observed, but it is possible one could be buried.

Wetlands B and D

Wetlands B and D are similar and will be discussed together. Both are smaller, slope wetlands on the side slopes adjacent to Little Squalicum Creek. Wetland B is a PFO wetland. This wetland is vegetated with red alder, willow, Himalayan blackberry (*Rubus armeniacus*), sedge (*Carex sp*.), American brooklime (*Veronica americana*), and approximately 50 percent of the wetland was un-vegetated bare soil. Wetland D is a palustrine scrub-shrub (PSS) wetland. Part of Wetland D appears to have been planted after 2010-2011 clean-up work occurred. Dominant vegetation in Wetland D included willow (planted) and Himalayan blackberry. Himalayan blackberry is listed on the current Whatcom County Noxious Weed List (Whatcom County, 2014).

Wetlands B and D are both slope wetlands, with a low to moderate gradient slope. Wetland B appears to receive hydrologic support from direct precipitation, surface run-off, and possibly a ground water seep. Wetland D appears to receive water primarily from a culvert that discharges into the wetland at the west edge. At the time of the site visit, soil in both wetlands was saturated to the surface and little ponding was observed in either. Although both wetlands abut Little Squalicum Creek, neither appears to receive hydrologic support from the stream. Rather, they are perched above and drain to the stream.

Wetland C

Wetland C is located under the BNSF railroad trestle immediately down slope from Wetland A. This wetland is separated from Wetland A by an informal (dirt) trail. Wetland A and C are likely connected by sub-surface flow, and overland flow may be possible during occasional storm events.

Wetland C is a PSS, slope wetland. Species observed in Wetland C included: willow, skunk cabbage (*Lysichiton americanum*), reed canarygrass (*Phalaris arundinacea*) and Himalayan blackberry. Reed canarygrass and Himalayan blackberry are listed on the current Whatcom County Noxious Weed List (Whatcom County, 2014).

Wetland C appears to receive hydrologic support from direct precipitation, surface run-off, possibly a ground water seep, and sub-surface from Wetland A. At the time of the site visit, soil in the wetland was saturated to the surface and shallow ponding (zero to three inches) was

observed. Wetland C flows directly into Bellingham Bay via multiple small channels that discharge onto the cobble beach.

Wetland E

Wetland E is a PSS, depressional outflow wetland adjacent to Little Squalicum Creek. Species observed in Wetland E included: Himalayan blackberry, black gooseberry (*Ribes divericatum*), ivy (*Hedera sp*.), piggy-back plant (*Tolmiea menziesii*), skunk cabbage, and tall horsetail (*Equisetum telmateia*).

A soil sample was documented in Wetland E at Sample Plot 02. Top-soil was a very dark gray (10YR 3/1) silt loam. Sub-soil was a mixed dark gray (10YR 4/1) and grayish brown (10YR 5/2) silt loam with brown (7.5YR 4/4) concentrations. Soil observed at Sample Plot 02 met NRCS hydric soil indicator A11 (depleted below dark surface) (USDA, NRCS, 2010).

Wetland E is a located in a shallow depression on a bench perched above the west bank of Little Squalicum Creek. The wetland and stream are both located at toe of slope, and are separated from each other by a small berm. The wetland appears to receive hydrologic support from direct precipitation, surface run-off, and possibly a ground water seep. Similar to Wetlands B and D, Wetland E does not appear to receive hydrologic support from the stream. At the time of the site visit, soil in Wetland E was saturated within 10 inches of the soil surface. The wetland does not contain indicators of seasonal ponding. Wetland E appears to outlet to the creek.

Wetland F

Wetland F is a PFO/PEM closed depressional wetland. Species observed in the PFO portion of Wetland F included: red alder, an ornamental shrub, Himalayan blackberry, and traces of snowberry (*Symphoricarpos albus*). Much of the herbaceous layer was bare dirt or moss. The wetland is primarily PFO, and PEM covers around 10 percent of the total area along the western perimeter of the wetland. Species observed in the PEM portion included bentgrass (*Agrostis sp*.), white clover (*Trifolium repens*), and soft rush (*Juncus effusus*).

A soil sample was documented in Wetland F at Sample Plot 06. Top-soil was a very dark gray (10YR 3/1) silt loam, and sub-soil was a dark gray (10YR 4/1) compact sandy loam with gravel and dark yellowish brown (10YR 3/4) concentrations. Soil observed at Sample Plot 06 met NRCS hydric soil indicator A11 (depleted below dark surface) (USDA, NRCS, 2010).

Wetland F is a depressional wetland. The wetland appears to receive hydrologic support from direct precipitation, surface run-off, and possibly a seasonally high groundwater table. At the time of the site visit, soil in the wetland was saturated to the surface and numerous smaller, shallow (zero to two inches) inundated pockets were observed.

No outlet was observed in Wetland F. The wetland likely contains water until it infiltrates or evaporates. However, the depression that contains Wetland F is not very distinct, and water

may occasionally expand into the surrounding upland area, or possibly Wetland A during larger storm events.

Wetland G

Wetland G is a PSS/PEM slope wetland immediately down slope of Wetland A. Species observed in the wetland included: willow, tall horsetail, Old man's beard (*Clematis vitalba)*, bittersweet nightshade, watercress (*Nasturtium officinale*), and water parsley.

The west half of Wetland G is located in a shallow swale with a moderate gradient slope. The east half is located near the toe-of-slope of the ravine, and slopes evenly to the beach. The wetland appears to receive hydrologic support from direct precipitation, surface run-off, seeps at the base of the slope, and Wetland A. At the time of the site visit, the west half was ponded with up to one foot of water, and the east half was saturated to the surface. Wetland G appears to function as the primarily outlet for Wetland A, and flows directly to Bellingham Bay.

3.2.3 Wetland Categorization and Functional Assessment

NES categorized the wetlands using the WDOE Wetland Rating System for Western Washington, revised 2006 (Rating System) (Hruby, 2004) and the associated wetland rating form (October 2008). This methodology identifies and quantifies the potential of various functions operating within a wetland. The determination is based on the physical characteristics of water quality, hydrologic, and habitat functions in the wetland and buffers. Using this system, wetlands are given a score based on the functions provided by the wetland, and are classified as Category I through Category IV.

Wetland function (potential and opportunity) was determined using the WDOE Rating System, per recent guidance from WDOE (Hruby, 2006) and best professional judgment. The NES ecologists converted the Rating System scores to a qualitative rating of "High", "Medium", and "Low" based on WDOE guidance. The qualitative rating provides more accuracy when comparing wetlands and evaluating their current status. The ecologists did not include a qualitative rating for the opportunity for water quality and hydrologic functions because the opportunity is either present or not. Instead, the table reflects the presence of opportunity as "Yes" and absence as "No" based on answers provided in the rating sheets. The qualitative ratings for specific habitat functions are based on NES ecologists' best professional judgment. A summary of WDOE rating and scores for wetlands delineated by NES is shown in Table 2.

Table 2. Wetland Functional Assessment

Functional Value or Score	Qualitative Rating of Function					
	Wetland A	Wetlands B and D	Wetland C	Wetland E	Wetland F	Wetland G
Total WDOE Score	**41**	**16**	**25**	**35**	**35**	**21**
WDOE Category	**III**	**IV**	**IV**	**III**	**III**	**IV**
Overall Water Quality Potential	M	L	L	M	M	L
Overall Water Quality Opportunity? (Y/N)	Y	Y	Y	Y	Y	Y
Overall Hydrologic Potential	M	L	L	L	M	L
Overall Hydrologic Opportunity? (Y/N)	N	N	N	N	N	N
Total Habitat Score	16	11	14	13	13	14
Overall Wildlife Habitat Potential	L	L	L	L	L	L
Overall Wildlife Habitat Opportunity	M	M	M	M	M	M
Specific Habitat Functions:						
Vegetation Structure	L	L	L	L	M	M
Habitat Features	M	L	L	L	L	L
Buffer Quality	L/M	L/M	L/M	L/M	L/M	L/M
Priority Habitats	M	M	M	M	M	M
Habitat Connectivity	M	M	M	M	M	M

(H: High, M: Medium, L: Low, Y: yes, N: no)

Wetland A

Wetland A is a depressional, WDOE Category III wetland. The wetland has moderate *potential* to perform water quality functions. More that half of the wetland area either contains dense herbaceous or woody vegetation that is able to provide pollutant capture and filtration. The remainder of the wetland appears to be seasonally and/or permanently ponded. The ponded depressions allow for further water quality enhancement through settling of particulates. The wetland is located in an area where it receives polluted run-off from surrounding urban development and therefore has the *opportunity* to provide water quality functions.

Wetland A has a moderate *potential* to perform hydrologic functions. The wetland is located in a depression with an intermittently flowing outlet. Some areas of this wetland are deep (> two feet) and provide a significant amount of storage in this localized area. However, the wetland size is limited, therefore actual storage provided is limited. The wetland contains rigid vegetation that can slow surface flows during storm events and enhance hydrologic function. The wetland does not have the *opportunity* to provide significant erosion and flood protection because it drains directly into Bellingham Bay.

Wetland A has low *potential* and moderate *opportunity* to provide wildlife habitat functions. The wetland has low vegetation structure and species diversity. The wetland is dominated by a young forest stand with few height classes. The wetland contains some habitat features such as woody debris, snags, and amphibian breeding habitat. Wetland A is in the proximity of a stream, marine shoreline, and numerous other wetlands, but the connections are broken by frequently used formal and informal trails. The buffer is in low to moderate condition. Portions of the buffer are mowed grass within the Park. Other portions of buffer are vegetated with trees or shrubs, but vegetation is sparse or diversity is low.

Wetlands B and D

Wetlands B and D provide functions at similar levels and were rated together. Both are WDOE Category IV slope wetlands. The wetlands have low *potential* to perform water quality functions. The wetlands contain some woody vegetation but lack significant cover of herbaceous vegetation that would be able to provide pollutant capture and filtration. Both wetlands are on a slope that is primarily seasonally saturated and lack depressions that could contain water and settle particulates. The wetlands are located in an area where they receive polluted run-off from surrounding development and currently have the *opportunity* to provide water quality functions.

Wetlands B and D have a low *potential* to perform hydrologic functions. Both wetlands are on a slope and therefore provide little water detention and storage. They are also very small and would provide little water storage under any depth of ponding. The wetlands do contain some rigid vegetation that can slow surface flows during storm events but it is limited. The wetlands do not have the *opportunity* to provide significant erosion and flood protection because they drain into Little Squalicum Creek within close proximity of where the stream crosses under a pedestrian trail and discharges into Bellingham Bay.

Wetlands B and D have low *potential* and moderate *opportunity* to provide wildlife habitat functions. The wetlands have low vegetation structure (they each only have one vegetation class), have low species diversity, and no hydroperiod diversity or habitat interspersion. In addition, the wetlands lack habitat features such as woody debris. Both wetlands have a low moderate quality buffer. One edge is vegetated with trees and shrubs, but the vegetated strip is narrow and constrained by a pedestrian trail. The other edge is the stream, a narrow, newly planted riparian buffer, then maintained lawn. The wetlands have some potential to provide habitat due to the connectivity to the stream. Both wetlands are in the vicinity of other wetlands and the Bay, but connections between them are disturbed as previously mentioned.

Wetland C

Wetland C is a WDOE Category IV slope wetland. This wetland has a low *potential* to perform water quality functions. The wetland contains dense herbaceous or woody vegetation that is able to provide pollutant capture and filtration, but the wetland is on a slope and moderate movement of water through the wetland limits the treatment time. Portions of the wetland are

seasonally ponded, but the potential for particulate setting is again limited because the slope allows movement of water through the wetland at a moderate rate. Wetland C is located in an area where it may receive potentially polluted run-off from an adjacent development, and therefore has the *opportunity* to provide water quality functions.

Wetland C has a low *potential* to perform hydrologic function mainly because the wetland is on a slope that sheds water and therefore it provides little storage. The wetland contains rigid vegetation that is able to slow surface flows during storm events. However, the wetland does not have the *opportunity* to provide erosion and flood protection through de-synchronization of flood waters because it drains directly into Bellingham Bay.

Wetland C has low *potential* and moderate *opportunity* to provide wildlife habitat functions. The wetland has low vegetation structure (it is vegetated with shrubs but this equals only one vegetation class), moderate species diversity, hydroperiod diversity, and habitat interspersion. Wetland C lacks habitat features such as woody debris. The wetland has a moderate quality buffer. One edge is the Bay, while the other edges are narrow dirt trails and other wetlands. The wetland has some habitat opportunity due to the proximity to other wetlands and the stream but connections are disturbed.

Wetland E

Wetland E is a small, depressional, WDOE Category III wetland. The wetland has moderate *potential* to perform water quality functions. The wetland contains dense herbaceous or woody vegetation that is able to provide pollutant capture and filtration. The wetland is in a shallow depression that would allow for some settling of particulates, however it appears the wetland is entirely saturated and lacks seasonal ponding. The wetland is located in an area where it receives polluted run-off from surrounding development and therefore has the *opportunity* to provide water quality functions.

Wetland E has a low *potential* to perform hydrologic functions. The wetland is located in a depression with an intermittently flowing outlet therefore has the potential to provide water storage. However, this wetland is very small, little seasonal ponding appears to be present, and the actual amount of storage provided appears to be limited. The wetland does not have the *opportunity* to provide significant erosion and flood protection because of its size, and because it drains into Little Squalicum Creek shortly before the stream crosses a pedestrian trail and discharges into the Bay.

Wetland E has low *potential* and moderate *opportunity* to provide wildlife habitat functions. The wetland has low vegetation structure and species diversity, and is primarily vegetated with an invasive species. The wetland lacks habitat features such as woody debris. Wetland E is in the proximity of the stream, but the connection between Wetland E and the marine shoreline and other wetlands is disturbed. The buffer is in low to moderate condition. Portions of the buffer are mowed grass, but the majority of the buffer is vegetated with trees or shrubs.

Wetland F

Wetland F is a closed depressional, WDOE Category III wetland. The wetland has moderate *potential* to perform water quality functions. Most of this wetland is dominated by a young deciduous forest containing woody vegetation that is able to provide some pollutant capture and filtration. Groundcover is limited in the PFO portion of the wetland, limiting water quality treatment. Portions of Wetland F appear seasonally ponded, and allow for settling of particulates. Furthermore, the wetland lacks an outlet maximizing treatment time and infiltration. The wetland is located in an area where it receives potentially polluted run-off from surrounding development and therefore has the *opportunity* to provide water quality functions.

Wetland F has a moderate *potential* to perform hydrologic functions. The wetland is located in a depression and lacks an outlet with an intermittently flowing outlet. The contributing basin is small. However, the wetland is very shallow (less than six inches deep) and size is limited, and overall storage provided is limited. The wetland does not have the *opportunity* to provide significant erosion and flood protection because it drains into other wetlands and Bellingham Bay within approximately 300 feet.

Wetland F has low *potential* and moderate *opportunity* to provide wildlife habitat functions. The wetland has moderate to low vegetation structure and species diversity. The wetland lacks habitat features such as woody debris. Wetland F is in the proximity of a stream, marine shoreline, and numerous other wetlands, but the connections are disturbed. The buffer of Wetland F is in low to moderate condition. Portions of the buffer are mowed grass, and other areas are vegetated with sparse trees or shrubs.

Wetland G

Wetland G is a WDOE Category IV, slope wetland. The wetland has low *potential* to perform water quality functions primarily due to the degree of slope and limited treatment time. The wetland contains dense herbaceous or woody vegetation that is able to provide pollutant capture and filtration. A portion of the wetland appears to be seasonally ponded and this area allows for some settling of particulates. The wetland is located in an area where it receives potentially polluted run-off from surrounding development and therefore has the *opportunity* to provide water quality functions.

Wetland G has a low *potential* to perform hydrologic functions, again mainly due to the slope and limited retention time. The wetland does not have the *opportunity* to provide significant erosion and flood protection because it drains directly into Bellingham Bay.

Wetland G has low *potential* and moderate *opportunity* to provide wildlife habitat functions. The wetland has moderate vegetation structure and species diversity, but contains invasive or weedy species. The wetland lacks habitat features. Wetland G is in the proximity of the stream and numerous other wetlands, but the connections are disturbed The buffer is in low to

moderate condition. One side of the buffer is the Bay, another is other wetlands, and the buffer to the east is narrow before a single family home is present.

3.3 Upland Areas

3.3.1 Document Review

The following provides a summary of the findings contained within documents reviewed:

- **USFWS NWI Wetlands Mapper**

  The Wetlands Mapper does not identify any wetlands on the subject site.

3.3.2 Field Observations

The majority of the review area, with the exception of the aforementioned wetlands, is either upland meadow or upland forest. A large upland meadow community dominates the middle of the review area. This area appears to be regularly mowed and is surrounded by Park's loop trail. Species observed included: bentgrass, bluegrass (*Poa sp*.), white clover, dandelion (*Taraxacum officinale*), and geranium (*Geranium sp*.). An upland forest community is present on the edges of the review area. The forest is mainly an open, deciduous dominated canopy and moderate to sparse understory. Species observed in the upland forest included: red alder, black cottonwood (*Populus balsamifera*), red-osier dogwood, big leaf maple (*Acer circinatum*), an ornamental shrub, snowberry, trailing blackberry (*Rubus ursinus*), tall horsetail, holly (*Ilex sp*.), and Himalayan blackberry. Holly and Himalayan blackberry are listed on the current Whatcom County Noxious Weed List (Whatcom County, 2014).

NES documented upland soil at Sample Plots 01, 03, 04, 05, and 07 (Figure 5, Appendix B). In Sample Plot 01, soil was a black (10YR 2/1) silt loam. In Sample Plot 03, top-soil was a very dark grayish brown (10YR 3/2) sand. Sub-soil appeared disturbed and was a mixed black (7.5YR 2.5/1) and very dark brown (10YR 2/2) silt loam. Soil in Sample Plots 04 and 05 was similar. Both of these sample plots were in the area that was graded and capped as part of the 2010-2011 site clean-up. In both sample plots, from the surface to ten inches soil was a very dark grayish brown (10YR 3/2) loam that appeared to be imported top-soil mix. An impenetrable, consolidated gravel layer was observed at 10 inches and may be an engineered cap. In Sample Plot 07, top-soil was a very dark brown (10YR 2/2) loam with gravel, and sub-soil was a brown (10YR 4/3) loamy sand with gravel. Soil in the upland areas (Sample Plots 03, 04, 05, and 07) did not meet the NRCS indicators for hydric soils (USDA, NRCS, 2010).

Soil in all upland sample plots was dry to the bottom of the 20 inch pit during the site visit, with the exception of Sample Plots 01 and 05. At the time of the sit visit, Sample Plot 01 was saturated to surface, and free water was observed in the borehole at depth of nine inches. In Sample Plot 05, soil was saturated to the surface and free water was observed at a depth of six inches. Both of these areas appear to be forming small wetlands. However, neither were determined to be wetland at this time due to recent grading work on the site, and soils were not hydric.

3.4 Streams

One seasonal stream is located within the review area: Little Squalicum Creek (Figure 5, Appendix B).

3.4.1 Document Review

The following provides a summary of the findings contained within documents reviewed:

- **WDFW SalmonScape (Figure 2)**

  The WDFW SalmonScape mapping system indicates Little Squalicum Creek as traversing the review area from north to south. WDFW maps the stream as originating from two tributaries. The first tributary begins at the Oeser Company facility approximately 0.2 mile north of the Park. The second tributary begins at the eastern Park boundary adjacent to the Bellingham Technical College parking lot. The two tributaries converge immediately east of the western-most existing trail. The stream continues southwest in a single channel, along the toe-of-slope of the eastern Park perimeter before heading west. In the southern half of the Park (within the review area), the stream is mapped as existing along the western Park perimeter before discharging to Bellingham Bay.

- **Whatcom County CAO Maps (Figure 6)**

  Whatcom County CAO maps Little Squalicum Creek in a similar location as WDFW.

- **City of Bellingham City IQ Map (Figure 3)**

  The COB City IQ map also indicates Little Squalicum Creek as in a similar location as Whatcom County and WDFW.

3.4.2 Field Observations

Little Squalicum Park is entirely contained within the Little Squalicum Watershed, in Water Resource Inventory Area 1 (WRIA 1).

As shown in resource maps, Little Squalicum Creek is present in the review area and flows from north to south, discharging to Bellingham Bay at the Little Squalicum Beach. Much of the stream was re-contoured during EPA work. In 2010-2011 the portion of the stream north of the review area was moved to its current position at the toe-of-slope near the east property boundary. The stream's location within the review area was unchanged, and remains along the toe-of-slope near the west property boundary.

The side bank is 1:1 near the Eldridge Avenue bridge, but within the majority of the reach the side bank has 4:1 slopes. At the time of the site visit, the channel within the review area was roughly five feet wide and less than six inches deep on average. The substrate was cobble. Overhanging vegetation exists along the western extent of the stream. The side slopes along

much of the eastern edge contain young, small, native trees and shrubs planted after the 2010-2011 work.

The stream is isolated from a natural headwaters and currently receives hydrologic input from storm drains (conveying treated and untreated stormwater), springs, and to a lesser extent a high groundwater table (NES, 2009). A number of culverts discharge into the stream along the western edge. Refer to the 2009 NES document for a detailed summary of inflowing culverts.

At the south end of the Park, the stream crosses under the existing trail via a 36-inch culvert and discharges directly to the cobble beach and into Bellingham Bay.

3.5 Fish and Wildlife

Priority habitats and species and Whatcom County HCAs mapped within the site or immediate vicinity are limited to habitat's associated with the marine shoreline and Bellingham Bay.

3.5.1 Document Review

The following provides a summary of the findings contained within documents reviewed:

- **WDFW SalmonScape (Figure 2)**

  No fish presence is documented within Little Squalicum Creek by WDFW SalmonScape.

- **WDFW PHS Data on the Web Interactive Map**

  The only Priority habitat or species are mapped within the review area are surf smelt *(Hypomesus pretiosus)* and Pacific sand lance *(Ammodytes hexapterus*) breeding areas on Little Squalicum Beach at the southern extent of the review area.

  Additional habitats or species mapped within one mile of the site included: bald eagle (*Haliaeetus leucocephalus)* to the northwest; pacific herring *(Clupea pallasi)*, pandalid shrimp *(Pandalus sp*.), and Dungeness crab (*Cancer magister)* to the west; a number of salmonids to the southeast in Squalicum Creek; and salmonids; estuarine intertidal areas; purple martin (*Progne subis*); and shorebird concentrations areas.

  Bald eagle are listed as a federal Species of Concern, and a Sensitive species by Washington State. Purple martin are not federally listed but are listed as a Candidate species by Washington State. Pacific herring are listed as a federal Species of Concern and a Candidate species by Washington State. Surf smelt, Pacific sand lance, pandalid shrimp, and Dungeness crab are not federally listed but are listed as Priority species by Washington State.

- **Whatcom County Fish HCAs Map (Figure 5)**

  Little Squalicum Creek is documented as having "presumed potential/historical distribution" of salmonid fish species.

- **Whatcom County Wildlife HCAs Map (Figure 5)**

  Pacific sand lance and surf smelt spawning areas are documented at the Little Squalicum Beach shoreline at the southern extent of the Park boundary. Eelgrass beds are documented off-site approximately one mile northwest of the Park boundary along the marine shoreline, approximately 1.2 miles east of the Park boundary at the entrance to Squalicum Harbor, and 0.8 mile southwest of the Park boundary within Bellingham Bay. No other wildlife HCAs are documented within one mile of Little Squalicum Park.

3.5.2 Field Observations

No state or federal Threatened, Sensitive, or Endangered plant or animal species were observed on the subject property, nor have any been documented on available resource maps. NES did not observe any state Priority plant or wildlife species or associated habitats within the review area. The cobble/ gravel beach at the southern extent of the review area appears to have the proper substrate and overhanging vegetation for forage fish spawning, supporting the PHS and Whatcom County's mapped surf smelt and Pacific sand lance breeding areas.

The Park is a habitat remnant of undeveloped land within a highly urbanized environment. The Park is likely suitable habitat for more common species as a refuge and corridor connecting upland, wetland, and marine environments. Portions of the review area contain forested areas that connect to wetlands and streams and provide some suitable habitat for wildlife species that occupy mixed forest and wetland habitats including deer, songbirds, and small mammals that can tolerate urban environments. Habitat value is increased because due to the connection to the stream and marine shoreline. However, the park is actively maintained and is regularly used for passive recreation. Human and pet presence may detour some species from utilizing this site.

Anadromous fish species may be present along the shoreline as they migrate to and from Squalicum Creek, Silver Creek, and the Nooksack River. Numerous salmonid species documented within these systems.

Little Squalicum Creek is not documented by WDFW as containing state Priority or federal listed fish species (WDFW, 2003 and WDFW, 2009). NES did not observe any fish during their site visits. The culvert at the mouth of the stream appears to be a partial fish barrier during low tide conditions; however, the culvert is not documented by WDFW as a fish passage barrier on the SalmonScape interactive mapping program. The stream is highly altered, and has a highly variable, flashy hydrologic regime as a result of stormwater inputs. As a result, the stream currently has low fish habitat value for spawning and rearing and may never achieve these

functions unless hydrology and contaminant levels are brought back to more natural conditions (Monahan, pers. comm., 2009 and Vasak, pers. comm., 2009).

3.6 Shorelines

The marine shoreline of Bellingham Bay is listed as a Shoreline of the State and is under the jurisdiction of the Whatcom County Shoreline Management Program (SMP).

3.6.1 Document Review

The following provides a summary of the findings contained within documents reviewed:

- **Whatcom County SMP (2008)**

  The marine shoreline of Bellingham Bay at the southern boundary of the Park is a Shoreline of the State as defined in the Whatcom County SMP. This shoreline area has an "Urban" Shoreline Area Designation. The SMP jurisdiction includes the marine water and lands "extending landward for 200 feet in all directions as measured…from the OHWM" and all associated wetlands which encroach within 200 feet of the marine water.

3.6.2 Field Observations

The marine shoreline of Bellingham Bay abuts the southern end of Little Squalicum Park at the Port of Bellingham's Little Squalicum Beach, immediately south of the BNSF railroad trestle. Based on the presence of permanent vegetation, erosion marks, and drift lines, NES marked the OHWM at or near the toe-of-slope of the existing trail (Figure 5, Appendix B). The beach is characterized by large cobble transitioning to sand and smaller cobble on the upper beach. The beach contains a number of large driftwood logs. A 130-foot long pier extends from the western Park boundary into Bellingham Bay. The pier is no longer in use but is owned by the Lehigh (Tilbury) Cement Company.

4.0 REGULATIONS

Agencies with regulatory authority over the delineated wetlands, streams, and HCAs are summarized in Table 3. A regulatory summary for each agency is provided below.

Table 3. Regulatory Summary

Feature	WDOE Category/ Shoreline Designation	Corps Hydrologic Classification	Size (sq. ft.)	Regulatory Authority				Whatcom County Regulated Buffer (ft)
				Whatcom County	Corps	WDOE	WDFW	
Wetland A	Cat. III	Adjacent to a TNW	18,068	X	X	X		60
Wetland B	Cat. IV	Abutting a RPW	428		X	X	X	n/a
Wetland C	Cat. IV	Abutting a TNW	4,386	X	X	X		40
Wetland D	Cat. IV	Abutting a RPW	88		X	X	X	n/a
Wetland E	Cat. III	Adjacent to a RPW	609	X	X	X		60
Wetland F	Cat. III	?	5,767	X	X?	X		60
Wetland G	Cat. IV	Abutting a TNW	3,343	X	X	X		40
Little Squalicum Creek	Ns	RPW	n/a	X	X	X	X	50
Bellingham Bay	S	TNW	n/a	X	X	X		150

S= Shoreline
Ns = Non-fish bearing, seasonal stream
RPW = Relatively Permanent Water
TNW = Traditional Navigable Water

4.1 Whatcom County

Whatcom County Critical Areas Ordinance

The project site contains the following wetlands, streams, and/or HCAs under the jurisdiction of the Whatcom County CAO:

- Wetlands A, C, E, F and G
- Little Squalicum Creek
- Bellingham Bay

Whatcom County regulates all wetlands, regardless of size, with the exception of Category IV wetlands, less than 1/10 of an acre that do not provide suitably significant or unique characteristics as defined by the CAO (WCC 16.16.610). Wetlands B and D are WDOE Category IV wetlands less than 1/10 acre in size and meet the criteria in WCC 16.16.610(E), therefore, **Wetlands B and D do not appear to be regulated by Whatcom County.** Wetlands A, C, E, F and G are Category III wetlands or are Category IV wetlands greater than 1/10 acre in size, and/or do not meet other criteria in WCC 16.16.610(E), therefore, **Whatcom County appears to regulate Wetlands A, C, E, F and G.**

Whatcom County requires a buffer around regulated critical areas to protect functions. The buffer must remain naturally vegetated except where it can be enhanced to improve the functions. Buffers are measured from the wetland edge.

Standard wetland buffer widths are determined according to proposed or existing land use intensity, the overall wetland category and the habitat rating. A moderate intensity land use has been applied to this project. Moderate intensity applies to moderate-intensity open space (parks) per the definition in the CAO. **Buffers, according to WCC 16.16.630(D), for individual wetlands are either 40 or 60 feet as shown in Table 3 above**.

Whatcom County requires a 50-foot buffer on non-fish bearing streams. **Currently, Little Squalicum Creek appears to be a Type 5 "Ns", non-fish bearing stream, therefore, will likely be required to have a 50-foot buffer. Bellingham Bay is regulated as a HCA, and has an associated 150-foot-wide buffer.** Buffers from streams and marine shorelines are measured from the OHWM. (Note: if the proposed Little Squalicum Estuary Restoration project results in fish access to Little Squalicum Creek, the stream buffer width will likely be changed to 100 feet.)

Whatcom County requires that buildings and other structures are **setback a minimum of 10 feet from the edge of critical area buffers**, or from the critical areas where no buffer is required. Uses allowed within the 10-foot setback include: landscaping; uncovered decks; building overhangs; impervious surfaces such as driveways, roads, parking lots, and patios, provided that they conform to applicable water quality standards and that construction equipment does not enter or damage the buffer or critical area. Clearing and grading, and wells are also allowed within the setback.

The Whatcom County CAO states that no activity may be conducted within a regulated wetland or buffer without Critical Areas review and approval. Activities impacting regulated wetlands generally must provide mitigation sufficient to maintain or enhance the wetland functions.

Whatcom County SMP

The review area is located within the jurisdiction of the Whatcom County SMP because the parcel is adjacent to the marine shoreline. Development activities within 200 feet of the marine OHWM would require permit authorization under the SMP. The Whatcom County SMP shoreline designation for this parcel is "Urban".

4.2 City of Bellingham

City of Bellingham Critical Areas Ordinance

Little Squalicum Park is currently located in unincorporated Whatcom County, but is within the Bellingham UGA. Unless the property is annexed into the City of Bellingham, Whatcom

County would be the lead local jurisdictional agency. In case of annexation a summary of City of Bellingham regulatory information and buffer widths are included below (Table 4).

The City of Bellingham regulates all wetlands except for those specified in Section 16.55.270 B of the CAO. Exempted wetlands include Category III and IV wetlands between 1,000 and 4,000 square feet that are not hydrologically connected to Type 1 through Type 5 streams, have low habitat scores, do not contain essential habitat for state priority species, and are not part of a mosaic of wetlands (City of Bellingham CAO 16.55.270). **Based on the City of Bellingham CAO (BMP 16.55.270(B), Wetland G appears to be exempt from COB CAO jurisdiction, but all other wetlands, Little Squalicum Creek, and Bellingham Bay appear to be regulated.**

Table 4. Summary of City of Bellingham Regulated Buffers

	WDOE Category/ Stream Type	Buffer Width (feet)
Wetland A	III	60
Wetland B	IV	40
Wetland C	IV	40
Wetland D	IV	40
Wetland E	III	60
Wetland F	III	60
Wetland G	IV	n/a
Little Squalicum Creek	Ns (Type 5)	50-100
Bellingham Bay	Urban Conservancy	150-200

The City of Bellingham CAO requires a 50 to 100-foot buffer on Type 5 (non-fish bearing, seasonal streams). **Little Squalicum Creek appears to be a Type 5 stream, therefore, will likely be required to have a 50 to 100-foot buffer.** (Note: if the proposed Little Squalicum Estuary Restoration project results in fish access to Little Squalicum Creek, the stream buffer width will likely be changed to 75 to 150 feet.)

City of Bellingham SMP

Bellingham Bay is regulated as a Shoreline, and if annexed into the City would be designated as "Urban Conservancy." **This reach would have a 150 to 200 foot shoreline buffer.** Buffers from streams and marine shorelines are measured from the OHWM. Final buffer widths are determined by City staff on a project specific basis.

4.3 U.S. Army Corps of Engineers

The Corps regulates the discharge of dredged or fill material into wetlands, streams, and other drainages that connect to Waters of the United States under Section 404 of the CWA. The Corps

regulates structures and/or work in or affecting the course, condition, or capacity of navigable Waters of the United States under Section 10 of the Rivers and Harbors Act of 1899. The Corps requires notification for **all** disturbances to wetlands, streams, and potentially to other drainages (ditches). It is incumbent upon the landowner to disclose disturbances.

The Corps will automatically assert jurisdiction over some surface waters and will need to complete a "significant nexus" determination for others, depending on the degree of connection to other waters, the hydrologic classification of these associated waters, and their significance in the larger drainage basin. Wetland hydrologic classification and connectivity is described in this report as the "Corps hydrologic classification" (Table 3) using definitions provided in current Corps guidance documents.

The Corps hydrologic classification is based on whether a surface water meets the definition of or is connected to a waterbody that meets the definition of a Traditional Navigable Water (TNW) or a Relatively Permanent Water (RPW). A TNW is a navigable water protected under Section 10 of the Rivers and Harbors Act of 1899 or other waters currently or historically used or susceptible to use in interstate or foreign commerce. An RPW is a surface stream or river that exhibits continuous flow of more than three months out of the year.

Only the Corps has the authority to make jurisdictional determinations; however, the following is a description of the anticipated determinations. Little Squalicum Creek appears to have continuous flow for more than three months out of the year; therefore, it qualifies as an RPW. Little Squalicum Creek connects to Bellingham Bay (a TNW). **Therefore, the Corps is expected to have jurisdiction over Little Squalicum Creek**. Wetlands B and D each abut Little Squalicum Creek. Therefore, **Wetlands B and D qualify as wetlands abutting an RPW and the Corps is expected to automatically exert jurisdiction.** Wetland E is adjacent to Little Squalicum Creek, therefore, **Wetland E qualifies as a wetland adjacent to an RPW and the Corps is expected to automatically exert jurisdiction**. Wetlands C and G are abutting Bellingham Bay, therefore, **Wetlands C and G qualify as wetlands abutting a TNW and the Corps is expected to automatically exert jurisdiction**. Wetland A is adjacent to Wetland C and Bellingham Bay, therefore, **Wetland A appears to qualify as a wetland adjacent to a TNW and the Corps is expected to automatically exert jurisdiction**. Wetland F is not directly connected to other surface water features. Wetland F may occasionally drain into Wetland A, which drains to Wetlands C and G, and Bellingham Bay. Wetland F likely has a subsurface connection to Wetland A due to its close proximity. It is likely that the Corps would exert jurisdiction over Wetland F through a significant nexus determination.

Activities in Waters of the United States that require Corps authorization may qualify for authorization under one of the general Nationwide Permits (NWPs) if the activities meet the criteria. In the more commonly used NWPs, discharge (fill) is limited to under 1/2 acre of wetland, 300 linear feet of stream, and 1/3 acre of tidal waters. Discharge exceeding the NWP thresholds requires an Individual Permit from the Corps. Mitigation is required for most activities. The Corps also has discretion to disallow disturbance to high quality wetlands. As

part of their permit review, the Corps must verify the project complies with Section 7 of the Endangered Species Act, the Magnuson-Stevens Fishery Conservation and Management Act, and Section 106 of the National Historic Preservation Act, (including archeological sites).

4.4 Washington State Department of Ecology

Activities altering wetlands and streams may require permit authorization from WDOE per Section 401 of the federal Clean Water Act (CWA) as directed by the U.S. Environmental Protection Agency. WDOE has authority over discharge into **all** wetlands (including isolated wetlands) and streams and can impose buffers and compensatory mitigation for impacts (RCW 90.48). **The WDOE appears to have jurisdiction over all wetlands, Little Squalicum Creek, and Bellingham Bay.** The WDOE reviews all CWA Section 404 permit applications received by the Corps for Water Quality Certification. WDOE requires an "individual" review of all wetland disturbances greater than one-half acre.

4.5 Washington State Department of Fish and Wildlife

The WDFW requires issuance of a Hydraulic Project Approval (HPA) prior to any activities that may directly or indirectly affect streams or associated wetlands. **The WDFW is expected to have jurisdiction over Little Squalicum Creek, and potentially Wetlands B and D due to direct connectivity with the streams.**

4.6 Mitigation Sequencing

Local, state, and federal agencies require projects impacting wetlands, streams, or wildlife HCAs follow mitigation sequencing. Mitigation sequencing is a process where applicants show they have avoided all impacts to regulated areas and their buffers to the furthest extent possible. In some cases, if alteration to the regulated area is deemed unavoidable, impacts may be allowed if all adverse impacts resulting from a development proposal are mitigated using best available science so as to result in no net loss of critical area functions and values. When alteration or impact to a regulated area is proposed, the applicant must demonstrate that all reasonable efforts have been taken to mitigate impacts in the following, prioritized, order: 1) Avoid, 2) Minimize, 3) Rectify, 4) Reduce, 5) Compensate.

When mitigation sequencing is followed, Whatcom County may allow the applicant to reduce or average the standard wetland and/or stream buffer width. According to the Whatcom County CAO, the buffer of a Category III or IV wetland may not be reduced to less than 50% of the standard buffer, or 25 feet, whichever is greater. Alternatively, buffers may sometimes be averaged, on a case by case basis, when all criteria stated in the Whatcom County CAO 16.16.650 are met, including the minimum buffer widths mentioned above.

APPENDIX A: REFERENCES

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APPENDIX B: FIGURES

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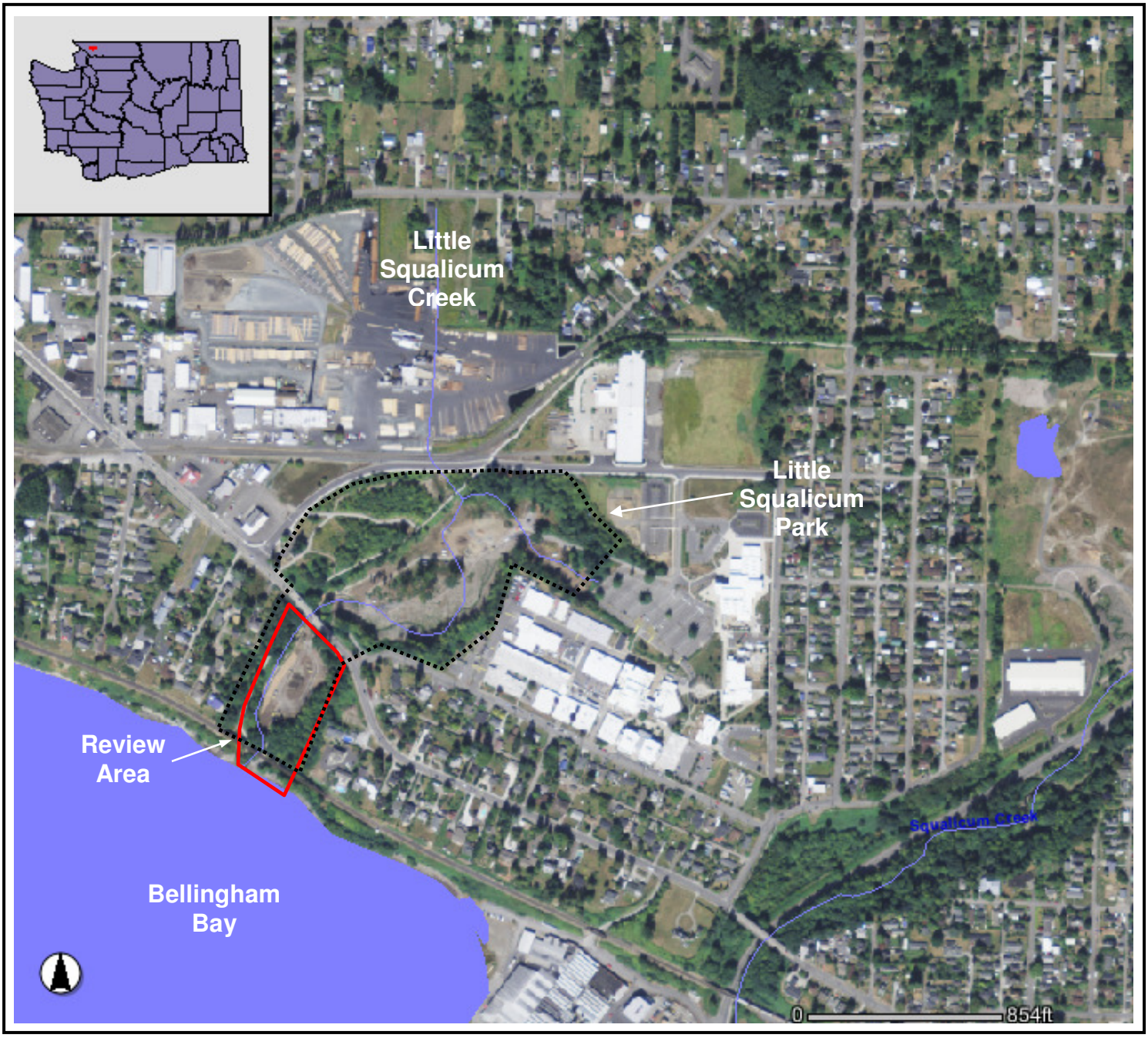
ECOLOGICAL NORTHWEST	**Vicinity Map** **(MapQuest)** **Little Squalicum Park** **Critical Areas Delineation Report**	**Figure 1** **June 2014**



ECOLOGICAL NORTHWEST	**Aerial Photograph** **(WDFW SalmonScape)** **Little Squalicum Park** **Critical Areas Delineation Report**	**Figure 2** **June 2014**

LITTLE SQUALICUM PARK BOUNDARY

REVIEW AREA

LITTLE SQUALICUM CREEK

STORMWATER UTILITY

N

ECOLOGICAL NORTHWEST

City of Bellingham City IQ Map

Little Squalicum Park
Critical Areas Delineation Report

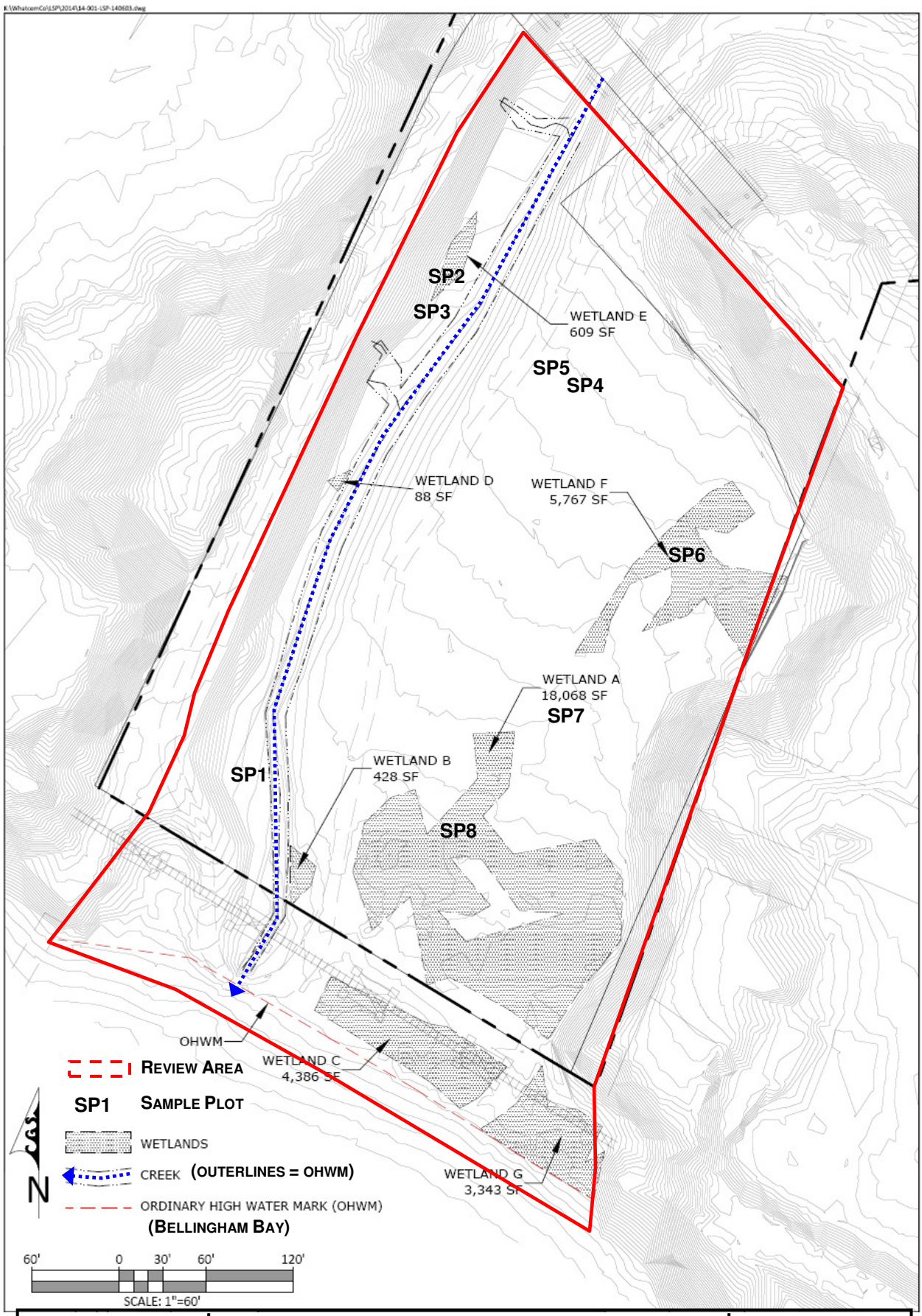
Figure 3

June 2014

Soil Series: Urban Land- Whatcom-Labounty Complex on 0 to 8% Slopes (Unit 182)
ESO = Escarpment, non-bedrock (steep slope or cliff)

N

ECOLOGICAL NORTHWEST	**Soil Map** **(USDA NRCS)** **Little Squalicum Park** **Critical Areas Delineation Report**	**Figure 4** **June 2014**



ECOLOGICAL NORTHWEST

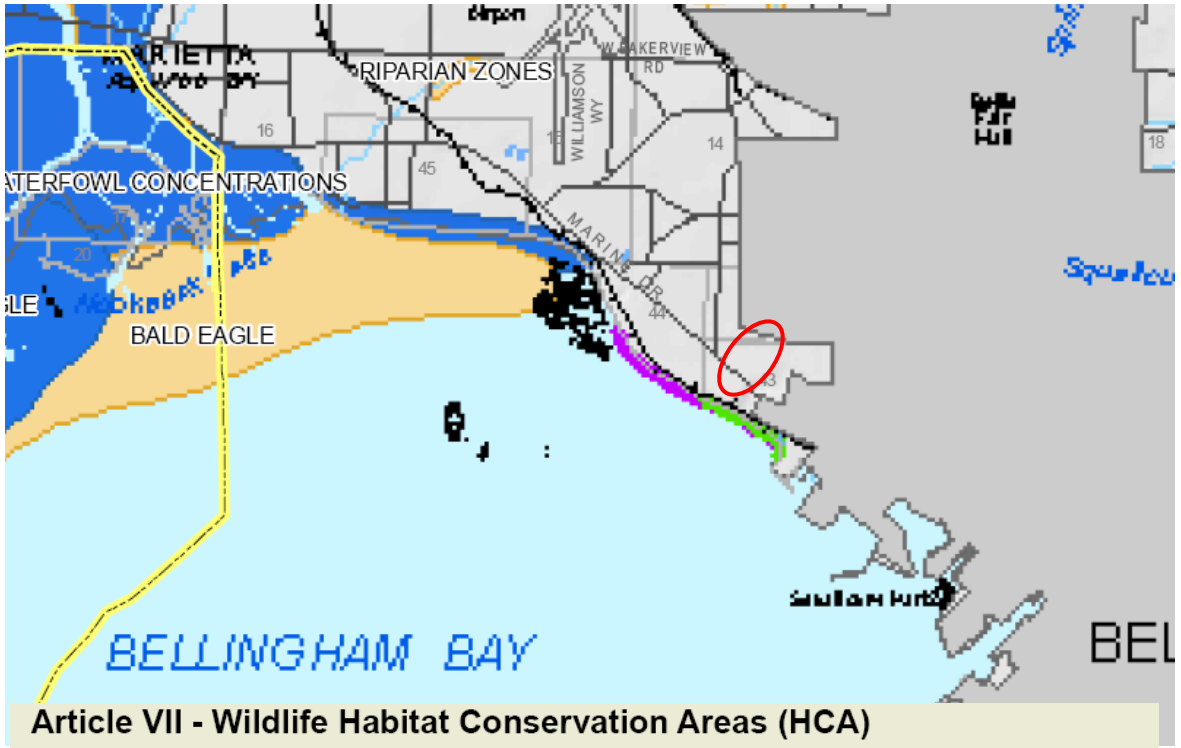
Wetland Map

(Survey by Coastal Geologic Services)

Little Squalicum Park
Critical Areas Delineation Report

Figure 5

June 2014



Article VII - Fish Habitat Conservation Areas

SHORELINE MASTER PROGRAM STREAMS
HCA 1a - Streams - (150 ft Buffer Not Shown)

Streams (WADNR 2004)
HCA 1c - No Salmonid Fish Presence - (50 ft Buffer Not Shown)

Fish Distribution (WRIA 1 WMP 2004)
HCA 1b - Other fish bearing streams (100 ft Buffer Not Shown)
Current known distribution
Current presumed distribution
Presumed Potential/Historic distribution

City Jurisdiction
Watershed Management Areas
Section Lines
Lummi Nation Boundaries
Mt. Baker/Snoqualmie National Forest

Article VII - Wildlife Habitat Conservation Areas (HCA)

HABITATS AND SPECIES
HCA 2 - State and Federal listed Species Have a Primary Association
HCA 3 - Habitats and Areas Associated with a State Priority Species
HCA 10 - Habitats and Species of Local Importance (includes marine beaches (see note))
HCA 4 - Commercial and recreational shellfish areas (includes Shellfish Protection Districts (Drayton Harbor))
HCA 5 - Eelgrass Beds
HCA 5 - Kelp Beds
HCA 6 - Herring Spawning
HCA 6 - Sandlance Spawning
HCA 6 - Smelt Spawning
HCA 7 + 8 - Lakes and Ponds less than 20 acres
HCA 9 - Natural Area Preserves and natural resource conservation areas

OTHER MAP SYMBOLS
City Jurisdiction
Section Lines
Mt. Baker/Snoqualmie National Forest
Lummi Nation Boundaries

HCA 1 is found on the seperate Fish Habitat Conservation Areas Map

Little Squalicum Park

N

ECOLOGICAL NORTHWEST

Fish and Wildlife HCA Maps
(Whatcom County CAO)

Little Squalicum Park
Critical Areas Delineation Report

Figure 6

June 2014

APPENDIX C: PHOTOGRAPHS

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Little Squalicum Creek, mid-site looking north

Little Squalicum Creek, mid-site looking south

Little Squalicum Creek, from the north end of the review area looking south

Outlet of Little Squalicum Creek at the marine shoreline

OHWM of the marine shoreline

Detail of Wetland A

Detail of Wetland B

Detail of Wetland C

Detail of Wetland F

Detail of Wetland F

Detail of Wetland G

Overview of the review area from the northern extent, looking south

Overview of the review area from the trail at the southern extent, looking north

APPENDIX D: DATA SHEETS

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WETLAND DETERMINATION DATA FORM – Western Mountain, Valley Coast Region

Project Site: Little Squalicum Park	City/County: COB	Sample Date: 03/18/14
Applicant/Owner: City of Bellingham	State: WA	Sample Point: 01
Investigator: Burns, Porter	Section/Township/Range: 23/38N/02E	
Landform (hillslope, terrace, etc):	Local Relief (concave, convex, none) :	Subregion: LRR A
Soil Map Unit Name: Urban land- Whatcom Labounty Complex (172)		NWI Classification:
Are climatic/hydrologic conditions on the site typical of this time of year? Yes ☒ No ☐ (if no, explain in Remarks)		
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed?	Are "Normal Circumstances" present? Yes ☒ 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 ☐ Hydric Soil Present? Yes ☐ No ☒ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** **Yes ☐ No ☒**
Remarks: Positive indicators for all three parameters were not observed at this location. Positive indicators for soil and hydrology were observed. This area appears to have been re-graded during recent (`3 years ago) site work. A small wetland appears to be forming in this location.	

VEGETATION

Tree Stratum (Plot size: 9 meters)	Absolute % Cover	Indicator Status	Dominant Species?
Thuja plicata	5	FAC	☒
Populus balsamifera	5	FAC	☒
		-	☐
		-	☐
Total Cover:	10		
Sapling/Shrub Stratum (Plot size: 3 meters)			
Populus balsamifera	30	FAC	☒
Salix sp.	30	FAC+	☒
Cornus sericea	20	FACW	☒
Spiraea douglasii	5	FACW	☐
		-	☐
Total Cover:	85		
Herb Stratum (Plot size: 1 meter)			
Equisetum telmateia	20	FACW	☒
		-	☐
		-	☐
		-	☐
		-	☐
		-	☐
Total Cover:	20		
Woody Vine Stratum (Plot size:)			
n/a		-	☐
		-	☐
		-	☐
Total Cover: % Bare Ground in Herb Stratum:			

Dominance Test worksheet
Number of Dominant Species that are OBL, FACW, or FAC: 6 (A)

Total number of dominant species across all strata: 6 (AB)

Percent of dominant species that or OBL, FACW, FAC: 100 (A/AB)

Prevalence Index worksheet

OBL species:	x 1=
FACW species:	x 2=
FAC species:	x 3=
FACU species:	x 4=
UPL species:	x 5=
Total: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- ☒ Dominance Test is > 50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Remarks: The majority of dominant species observed at this location were hydrophytic. All trees/shrubs installed in past 3 (?) years.

Hydrophytic Vegetation Present?
Yes ☒ No ☐

SOIL

Sample Point: 01

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

Depth	Soil Color		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 2/1	100			-	-	Silt loam	With high organic content
					-	-		
					-	-		
					-	-		
					-	-		
					-	-		
					-	-		
					-	-		

[1]Type: C=concentration D=depletion RM=reduced matrix [2]Location: PL=pore lining RC=root channel M=matrix

Hydric Soil Indicators: (applicable to all LRRs unless otherwise noted)

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red parent material (TF2)
- ☐ Very shallow dark surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):
Type:
Depth (inches):

Hydric Soil Present? Yes ☐ No ☒

Remarks: Soil observed at this location did not meet NRCS hydric soil indicators. Top-soil is depleted. Sub-soil not found. Site re-graded in past 3 years. Soil conditions were changed.

HYDROLOGY

Wetland hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

- ☐ 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 Stresses Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-stained (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)
- ☐ Front-heave Hummocks (D7)
- ☐ FAC-neutral (D5)

Field Observations:

Surface Water Present?	Yes ☐	No ☐	Depth (inches): n/a
Water Table Present?	Yes ☐	No ☐	Depth (inches): -9
Saturation Present?	Yes ☐	No ☐	Depth (inches): 0 (include capillary fringe)

Wetland Hydrology Present?
Yes ☒ No ☐

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

Remarks: Positive indicators of wetland hydrology were observed at this location.

WETLAND DETERMINATION DATA FORM – Western Mountain, Valley Coast Region

Project Site: Little Squalicum Park	City/County: COB	Sample Date: 03/18/14
Applicant/Owner: City of Bellingham	State: WA	Sample Point: 02
Investigator: Burns, Porter	Section/Township/Range: 23/38N/02E	
Landform (hillslope, terrace, etc):	Local Relief (concave, convex, none) :	Subregion: LRR A
Soil Map Unit Name: Urban land- Whatcom Labounty Complex (172)		NWI Classification:
Are climatic/hydrologic conditions on the site typical of this time of year? Yes ☒ No ☐ (if no, explain in Remarks)		
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed?	Are "Normal Circumstances" present? Yes ☒ 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 ☒ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** **Yes ☒ No ☐**

Remarks: **WETLAND E.** Positive indicators for soil and hydrology were observed at this location. Vegetation was primarily *Rubus armeniacus*. Wetland determination made based on soil and hydrology indicators.

VEGETATION

Tree Stratum (Plot size: 9 meters)	Absolute % Cover	Indicator Status	Dominant Species?
n/a		-	☐
		-	☐
		-	☐
		-	☐
Total Cover:			
Sapling/Shrub Stratum (Plot size: 3 meters)			
Rubus armeniacus	90	FACU	☒
Ribes divaricatum	15	FAC	☐
		-	☐
		-	☐
		-	☐
Total Cover:	105		
Herb Stratum (Plot size: 1 meter)			
Lysichiton americanum	5	OBL	☒
Hedera sp.	5	UPL	☒
Tolmiea menziesii	Trace	FAC	☐
		-	☐
		-	☐
		-	☐
Total Cover:	10		
Woody Vine Stratum (Plot size:)			
n/a		-	☐
		-	☐
		-	☐
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 (AB)
Percent of dominant species that or OBL, FACW, FAC:	(A/AB)

Prevalence Index worksheet

OBL species:	x 1=
FACW species:	x 2=
FAC species:	x 3=
FACU species:	x 4=
UPL species:	x 5=
Total: (A)	(B)
Prevalence Index = B/A =	

Hydrophytic Vegetation Indicators:
- ☐ Dominance Test is > 50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Remarks: The majority of dominant species observed at this location were not hydrophytic.

Hydrophytic Vegetation Present?
Yes ☐ No ☒

SOIL

Sample Point: 02

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

Depth	Soil Color		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/1	100			-	-	silt loam	with charocal
7-20	10YR 4/1	70	7.5YR 4/4	10	C	M	silt loam	
	10YR 5/2	20			-	-		
					-	-		
					-	-		
					-	-		
					-	-		
					-	-		

[1]Type: C=concentration D=depletion RM=reduced matrix [2]Location: PL=pore lining RC=root channel M=matrix

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

Indicators for Problematic Hydric Soils[3]:
- ☐ 2 cm Muck (A10)
- ☐ Red parent material (TF2)
- ☐ Very shallow dark surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):
Type:
Depth (inches):

Hydric Soil Present? Yes ☒ No ☐

Remarks: Soil observed at this location met NRCS hydric soil indicators.

HYDROLOGY

Wetland hydrology Indicators:
Primary Indicators (any one indicator is sufficient)
- ☐ 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 Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)
- ☐ Water-stained (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)
- ☐ Front-heave Hummocks (D7)
- ☐ FAC-neutral (D5)

Field Observations:
Surface Water Present? Yes ☐ No ☒ Depth (inches):
Water Table Present? Yes ☒ No ☐ Depth (inches): -9
Saturation Present? Yes ☒ No ☐ Depth (inches): -3 (include capillary fringe)

Wetland Hydrology Present?
Yes ☒ No ☐

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

Remarks: Positive indicators of wetland hydrology were observed at this location.

WETLAND DETERMINATION DATA FORM – Western Mountain, Valley Coast Region

Project Site: Little Squalicum Park	City/County: COB	Sample Date: 03/18/14
Applicant/Owner: City of Bellingham	State: WA	Sample Point: 03
Investigator: Burns, Porter	Section/Township/Range: 23/38N/02E	
Landform (hillslope, terrace, etc):	Local Relief (concave, convex, none) :	Subregion: LRR A
Soil Map Unit Name: Urban land- Whatcom Labounty Complex (172)		NWI Classification:
Are climatic/hydrologic conditions on the site typical of this time of year? Yes ☒ No ☐ (if no, explain in Remarks)		
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed?	Are "Normal Circumstances" present? Yes ☒ 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 ☐ Hydric Soil Present? Yes ☐ No ☒ Wetland Hydrology Present? Yes ☐ No ☒	**Is the Sampled Area within a Wetland?** **Yes ☐ No ☒**
Remarks: Positive indicators for all three parameters were not observed at this location. Location between Wetlands D and E.	

VEGETATION

Tree Stratum (Plot size: 9 meters)	Absolute % Cover	Indicator Status	Dominant Species?
Alnus rubra	40	FAC	☒
Populus balsamifera	20	FAC	☒
		-	☐
		-	☐
Total Cover:	60		
Sapling/Shrub Stratum (Plot size: 3 meters)			
Cornus sericea	30	FACW	☒
Rubus armeniacus	30	FACU	☒
Populus balsamifera	5	FAC	☐
Ornamental shrub sp?	10	-	☐
Symphoricarpos albus	10	FACU	☐
Total Cover:	85		
Herb Stratum (Plot size: 1 meter)			
Equisetum telmateia	20	FAC	☒
		-	☐
		-	☐
		-	☐
		-	☐
		-	☐
Total Cover:	20		
Woody Vine Stratum (Plot size:)			
		-	☐
		-	☐
		-	☐
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 (AB)
Percent of dominant species that or OBL, FACW, FAC:	80 (A/AB)
Prevalence Index worksheet	
OBL species:	x 1=
FACW species:	x 2=
FAC species:	x 3=
FACU species:	x 4=
UPL species:	x 5=
Total: (A)	(B)
Prevalence Index = B/A =	

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is > 50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Remarks: The majority of dominant species observed at this location were hydrophytic.

Hydrophytic Vegetation Present?
Yes ☒ No ☐

SOIL

Sample Point: 03

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

Depth	Soil Color		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5					-	-	mulch	
5-10	10YR 3/2	100			-	-	sand	
10-20	7.5YR 2.5/1				-	-	silt loam	Profile disturbed, two soils mixed, diffitult to determine relative percentages
	10YR 2/2				-	-		
					-	-		
					-	-		

[1]Type: C=concentration D=depletion RM=reduced matrix [2]Location: PL=pore lining RC=root channel M=matrix

Hydric Soil Indicators: (applicable to all LRRs unless otherwise noted)

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red parent material (TF2)
- ☐ Very shallow dark surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):
Type:
Depth (inches):

Hydric Soil Present? Yes ☐ No ☒

Remarks: Soil observed at this location did not met NRCS hydric soil indicators.

HYDROLOGY

Wetland hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

- ☐ 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 Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-stained (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)
- ☐ Front-heave Hummocks (D7)
- ☐ FAC-neutral (D5)

Field Observations:

Surface Water Present?	Yes ☐ No ☒	Depth (inches):	
Water Table Present?	Yes ☐ No ☒	Depth (inches):	
Saturation Present?	Yes ☐ No ☒	Depth (inches):	(include capillary fringe)

Wetland Hydrology Present?
Yes ☐ No ☒

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

Remarks: Positive indicators of wetland hydrology were not observed at this location. Soil moist to dry.

WETLAND DETERMINATION DATA FORM – Western Mountain, Valley Coast Region

Project Site: Little Squalicum Park	City/County: COB	Sample Date: 03/18/14
Applicant/Owner: City of Bellingham	State: WA	Sample Point: 04
Investigator: Burns, Porter	Section/Township/Range: 23/38N/02E	
Landform (hillslope, terrace, etc):	Local Relief (concave, convex, none) :	Subregion: LRR A
Soil Map Unit Name: Urban land- Whatcom Labounty Complex (172)		NWI Classification:
Are climatic/hydrologic conditions on the site typical of this time of year? Yes ☒ No ☐ (if no, explain in Remarks)		
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed?	Are "Normal Circumstances" present? Yes ☒ 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 ☒ Hydric Soil Present? Yes ☐ No ☒ Wetland Hydrology Present? Yes ☐ No ☒	**Is the Sampled Area within a Wetland?** **Yes ☐ No ☒**
Remarks: Positive indicators for all three parameters were not observed at this location.	

VEGETATION

Tree Stratum (Plot size: 9 meters)	Absolute % Cover	Indicator Status	Dominant Species?
n/a		-	☐
		-	☐
		-	☐
		-	☐
Total Cover:			
Sapling/Shrub Stratum (Plot size: 3 meters)			
n/a		-	☐
		-	☐
		-	☐
		-	☐
		-	☐
Total Cover:			
Herb Stratum (Plot size: 1 meter)			
Poa sp?	90	-	☒
Trifolium repens	15	FAC	☐
Agrostis sp.	10	FAC	☐
Holcus lanatus	5	FAC	☐
Taraxacum officinale	5	FACU	☐
Geranium sp.	5	UPL	☐
Total Cover:	130		
Woody Vine Stratum (Plot size:)			
n/a		-	☐
		-	☐
		-	☐
Total Cover:			
% Bare Ground in Herb Stratum:			

Dominance Test worksheet Number of Dominant Species that are OBL, FACW, or FAC:	(A)
Total number of dominant species across all strata:	(AB)
Percent of dominant species that or OBL, FACW, FAC:	(A/AB)
Prevalence Index worksheet	
OBL species: 0	x 1= 0
FACW species: 0	x 2= 0
FAC species: 30	x 3= 90
FACU species: 5	x 4= 20
UPL species: 5	x 5= 25
Total: 40 (A)	135 (B)
Prevalence Index = B/A = 3.375	

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present.

Remarks: The one dominant plant could not be identified to species. The non-dominant vegetation observed at this location was not hydrophytic.

Hydrophytic Vegetation Present?
Yes ☐ No ☒

SOIL

Sample Point: 04

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

Depth	Soil Color		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/2	100			-	-	Loam	Mixed with mulch, looks like imported top-soil mix
					-	-		
					-	-		
					-	-		
					-	-		
					-	-		
					-	-		
					-	-		

[1]Type: C=concentration D=depletion RM=reduced matrix [2]Location: PL=pore lining RC=root channel M=matrix

Hydric Soil Indicators: (applicable to all LRRs unless otherwise noted)

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red parent material (TF2)
- ☐ Very shallow dark surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):
Type: Cap from EPA site restoration work
Depth (inches): -10

Hydric Soil Present? Yes ☐ No ☒

Remarks: Soil observed at this location did not met NRCS hydric soil indicators.

HYDROLOGY

Wetland hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

- ☐ 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 Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-stained (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)
- ☐ Front-heave Hummocks (D7)
- ☐ FAC-neutral (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches):
Water Table Present? Yes ☐ No ☒ Depth (inches):
Saturation Present? Yes ☐ No ☒ Depth (inches): (include capillary fringe)

Wetland Hydrology Present?
Yes ☐ No ☒

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

Remarks: Positive indicators of wetland hydrology were not observed at this location. Soil dry to moist.

WETLAND DETERMINATION DATA FORM – Western Mountain, Valley Coast Region

Project Site: Little Squalicum Park	City/County: COB	Sample Date: 03/18/14
Applicant/Owner: City of Bellingham	State: WA	Sample Point: 05
Investigator: Burns, Porter	Section/Township/Range: 23/38N/02E	
Landform (hillslope, terrace, etc):	Local Relief (concave, convex, none) :	Subregion: LRR A
Soil Map Unit Name: Urban land- Whatcom Labounty Complex (172)		NWI Classification:

Are climatic/hydrologic conditions on the site typical of this time of year? Yes ☒ No ☐ (if no, explain in Remarks)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 ☐ Hydric Soil Present? Yes ☐ No ☒ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** **Yes ☐ No ☒**

Remarks: Positive indicators for all three parameters were not observed at this location. Positive indicators for vegetation and hydrology were observed. This area was re-graded during recent (`3 years ago) site work. A small wetland appears to be potentially in the process of forming in this location.

VEGETATION

Tree Stratum (Plot size: 9 meters)	Absolute % Cover	Indicator Status	Dominant Species?
n/a		-	☐
		-	☐
		-	☐
		-	☐
Total Cover:			
Sapling/Shrub Stratum (Plot size: 3 meters)			
n/a		-	☐
		-	☐
		-	☐
		-	☐
		-	☐
Total Cover:			
Herb Stratum (Plot size: 1 meter)			
Poa sp?	60	-	☒
Agrostis sp.	30	FAC	☒
Trifolium repens	30	FAC	☒
		-	☐
		-	☐
		-	☐
Total Cover:	120		
Woody Vine Stratum (Plot size:)			
n/a		-	☐
		-	☐
		-	☐
Total Cover:			

% Bare Ground in Herb Stratum: 10

Dominance Test worksheet Number of Dominant Species that are OBL, FACW, or FAC:	2 (A)
Total number of dominant species across all strata:	3 (AB)
Percent of dominant species that or OBL, FACW, FAC:	67 (A/AB)

Prevalence Index worksheet

OBL species:	x 1=
FACW species:	x 2=
FAC species:	x 3=
FACU species:	x 4=
UPL species:	x 5=
Total: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is > 50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Remarks: The majority of dominant species observed at this location were hydrophytic.

Hydrophytic Vegetation Present?
Yes ☒ No ☐

SOIL

Sample Point: 05

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

Depth	Soil Color		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/2	100			-	-	loam	mixed with mulch, looks like imported top-soil mix
					-	-		
					-	-		
					-	-		
					-	-		
					-	-		
					-	-		
					-	-		

[1]Type: C=concentration D=depletion RM=reduced matrix [2]Location: PL=pore lining RC=root channel M=matrix

Hydric Soil Indicators: (applicable to all LRRs unless otherwise noted)

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red parent material (TF2)
- ☐ Very shallow dark surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):
Type: Cap from EPA site restoration work
Depth (inches): -10

Hydric Soil Present? Yes ☐ No ☒

Remarks: Soil observed at this location did not meet NRCS hydric soil indicators.

HYDROLOGY

Wetland hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

- ☐ 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 Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-stained (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)
- ☐ Front-heave Hummocks (D7)
- ☐ FAC-neutral (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches):
Water Table Present? Yes ☒ No ☐ Depth (inches): -6
Saturation Present? Yes ☒ No ☐ Depth (inches): 0 (include capillary fringe)

Wetland Hydrology Present?
Yes ☒ No ☐

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

Remarks: Positive indicators of wetland hydrology were observed at this location.

WETLAND DETERMINATION DATA FORM – Western Mountain, Valley Coast Region

Project Site: Little Squalicum Park	City/County: COB	Sample Date: 03/18/14
Applicant/Owner: City of Bellingham	State: WA	Sample Point: 06
Investigator: Burns, Porter	Section/Township/Range: 23/38N/02E	
Landform (hillslope, terrace, etc):	Local Relief (concave, convex, none) :	Subregion: LRR A
Soil Map Unit Name: Urban land- Whatcom Labounty Complex (172)		NWI Classification:

Are climatic/hydrologic conditions on the site typical of this time of year? Yes ☒ No ☐ (if no, explain in Remarks)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** **Yes ☒ No ☐**

Remarks: **WETLAND F.** Positive indicators for all three parameters were observed at this location.

VEGETATION

Tree Stratum (Plot size: 9 meters)	Absolute % Cover	Indicator Status	Dominant Species?
Alnus rubra	100	FAC	☒
		-	☐
		-	☐
		-	☐
Total Cover:			
Sapling/Shrub Stratum (Plot size: 3 meters)			
Ornamental shrub sp?	10	-	☒
		-	☐
		-	☐
		-	☐
		-	☐
Total Cover:	10		
Herb Stratum (Plot size: 1 meter)			
n/a		-	☐
		-	☐
		-	☐
		-	☐
		-	☐
		-	☐
Total Cover:			
Woody Vine Stratum (Plot size:)			
n/a		-	☐
		-	☐
		-	☐
Total Cover:			

% Bare Ground in Herb Stratum: 100

Dominance Test worksheet Number of Dominant Species that are OBL, FACW, or FAC:	1 (A)
Total number of dominant species across all strata:	2 (AB)
Percent of dominant species that or OBL, FACW, FAC:	50 (A/AB)

Prevalence Index worksheet

OBL species:	x 1=
FACW species:	x 2=
FAC species:	x 3=
FACU species:	x 4=
UPL species:	x 5=
Total: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present.

Remarks: The dominant species observed at this location was hydrophytic. The species of ornamental shrub is unknown. Little other vegetation is present due to seasonal inundation.

Hydrophytic Vegetation Present?
Yes ☒ No ☐

SOIL

Sample Point: 06

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

Depth	Soil Color		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/1	100			-	-	Silt loam	
5-20	10YR 4/1	80	10YR 3/4	20	C	M	sandy loam	compact, with gravel
					-	-		
					-	-		
					-	-		
					-	-		
					-	-		
					-	-		

[1]Type: C=concentration D=depletion RM=reduced matrix [2]Location: PL=pore lining RC=root channel M=matrix

Hydric Soil Indicators: (applicable to all LRRs unless otherwise noted)

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red parent material (TF2)
- ☐ Very shallow dark surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):
Type: sub-soil, sandy loam
Depth (inches): -5

Hydric Soil Present? Yes ☒ No ☐

Remarks: Soil observed at this location met NRCS hydric soil indicators.

HYDROLOGY

Wetland hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

- ☒ 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 Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-stained (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)
- ☐ Front-heave Hummocks (D7)
- ☐ FAC-neutral (D5)

Field Observations:

Surface Water Present? Yes ☒ No ☐ Depth (inches): +0.25
Water Table Present? Yes ☒ No ☐ Depth (inches): +0.25
Saturation Present? Yes ☒ No ☐ Depth (inches): 0 (include capillary fringe)

Wetland Hydrology Present?
Yes ☒ No ☐

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

Remarks: Positive indicators of wetland hydrology were observed at this location.

WETLAND DETERMINATION DATA FORM – Western Mountain, Valley Coast Region

Project Site: Little Squalicum Park	City/County: COB	Sample Date: 03/18/14
Applicant/Owner: City of Bellingham	State: WA	Sample Point: 07
Investigator: Burns, Porter	Section/Township/Range: 23/38N/02E	
Landform (hillslope, terrace, etc):	Local Relief (concave, convex, none) :	Subregion: LRR A
Soil Map Unit Name: Urban land- Whatcom Labounty Complex (172)		NWI Classification:

Are climatic/hydrologic conditions on the site typical of this time of year? Yes ☒ No ☐ (if no, explain in Remarks)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 ☒ Hydric Soil Present? Yes ☐ No ☒ Wetland Hydrology Present? Yes ☐ No ☒	**Is the Sampled Area within a Wetland?** **Yes ☐ No ☒**

Remarks: Positive indicators for all three parameters were not observed at this location. Location between Wetland F and A.

VEGETATION

Tree Stratum (Plot size: 9 meters)	Absolute % Cover	Indicator Status	Dominant Species?
Alnus rubra	100	FAC	☒
		-	☐
		-	☐
		-	☐
Total Cover:	100		
Sapling/Shrub Stratum (Plot size: 3 meters)			
Acer macrophyllum	80	FACU	☒
		-	☐
		-	☐
		-	☐
		-	☐
Total Cover:	80		
Herb Stratum (Plot size: 1 meter)			
n/a		-	☐
		-	☐
		-	☐
		-	☐
		-	☐
Total Cover:			
Woody Vine Stratum (Plot size:)			
n/a		-	☐
		-	☐
		-	☐
Total Cover:			
% Bare Ground in Herb Stratum: 100			

Dominance Test worksheet Number of Dominant Species that are OBL, FACW, or FAC:		1 (A)
Total number of dominant species across all strata:		2 (AB)
Percent of dominant species that or OBL, FACW, FAC:		50 (A/AB)
Prevalence Index worksheet		
OBL species: 0	x 1= 0	
FACW species: 0	x 2= 0	
FAC species: 100	x 3= 300	
FACU species: 80	x 4= 320	
UPL species: 0	x 5= 0	
Total: 180 (A)	620 (B)	
Prevalence Index = B/A = 3.44		

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present.

Remarks: The majority of dominant species observed at this location were not hydrophytic.

Hydrophytic Vegetation Present?
Yes ☐ No ☒

SOIL

Sample Point: 07

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

Depth	Soil Color		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/2	100			-	-	Loam	With gravel
4-20	10YR 4/3	100			-	-	Loamy sand	With gravel
					-	-		
					-	-		
					-	-		
					-	-		
					-	-		
					-	-		

[1]Type: C=concentration D=depletion RM=reduced matrix [2]Location: PL=pore lining RC=root channel M=matrix

Hydric Soil Indicators: (applicable to all LRRs unless otherwise noted)

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red parent material (TF2)
- ☐ Very shallow dark surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):
Type:
Depth (inches):

Hydric Soil Present? Yes ☐ No ☒

Remarks: Soil observed at this location did not meet NRCS hydric soil indicators.

HYDROLOGY

Wetland hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

- ☐ 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 Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-stained (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)
- ☐ Front-heave Hummocks (D7)
- ☐ FAC-neutral (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches):
Water Table Present? Yes ☐ No ☒ Depth (inches):
Saturation Present? Yes ☐ No ☒ Depth (inches): (include capillary fringe)

Wetland Hydrology Present?
Yes ☐ No ☒

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

Remarks: Positive indicators of wetland hydrology were not observed at this location.

WETLAND DETERMINATION DATA FORM – Western Mountain, Valley Coast Region

Project Site: Little Squalicum Park	City/County: COB	Sample Date: 03/18/14
Applicant/Owner: City of Bellingham	State: WA	Sample Point: 08
Investigator: Burns, Porter	Section/Township/Range: 23/38N/02E	
Landform (hillslope, terrace, etc):	Local Relief (concave, convex, none) :	Subregion: LRR A
Soil Map Unit Name: Urban land- Whatcom Labounty Complex (172)		NWI Classification:

Are climatic/hydrologic conditions on the site typical of this time of year? Yes ☒ No ☐ (if no, explain in Remarks)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** **Yes ☒ No ☐**

Remarks: **WETLAND A.** Positive indicators for all three parameters were observed at this location.

VEGETATION

Tree Stratum (Plot size: 9 meters)	Absolute % Cover	Indicator Status	Dominant Species?
Alnus rubra	60	FAC	☒
		-	☐
		-	☐
		-	☐
Total Cover:	60		
Sapling/Shrub Stratum (Plot size: 3 meters)			
Cornus sericia	50	FACW	☒
		-	☐
		-	☐
		-	☐
		-	☐
Total Cover:	50		
Herb Stratum (Plot size: 1 meter)			
moss	20	-	☐
		-	☐
		-	☐
		-	☐
		-	☐
		-	☐
Total Cover:			
Woody Vine Stratum (Plot size:)			
n/a		-	☐
		-	☐
		-	☐
Total Cover:			
% Bare Ground in Herb Stratum: 80			

Dominance Test worksheet Number of Dominant Species that are OBL, FACW, or FAC:	2 (A)
Total number of dominant species across all strata:	2 (AB)
Percent of dominant species that or OBL, FACW, FAC:	100 (A/AB)
Prevalence Index worksheet	
OBL species:	x 1=
FACW species:	x 2=
FAC species:	x 3=
FACU species:	x 4=
UPL species:	x 5=
Total: (A)	(B)
Prevalence Index = B/A =	

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is > 50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1]

[1]Indicators of hydric soil and wetland hydrology must be present.

Remarks: The majority of dominant species observed at this location were hydrophytic.

Hydrophytic Vegetation Present?
Yes ☒ No ☐

SOIL

Sample Point: 08

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

Depth	Soil Color		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 2/1	100			-	-	mucky loam	with gravel
7-20	10YR 3/2	100			-	-	sandy loam	coarse, with gravel
					-	-		
					-	-		
					-	-		
					-	-		

[1]Type: C=concentration D=depletion RM=reduced matrix [2]Location: PL=pore lining RC=root channel M=matrix

Hydric Soil Indicators: (applicable to all LRRs unless otherwise noted)

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red parent material (TF2)
- ☐ Very shallow dark surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):
Type:
Depth (inches):

Hydric Soil Present? Yes ☒ No ☐

Remarks: Soil observed at this location met NRCS hydric soil indicators.

HYDROLOGY

Wetland hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

- ☐ 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 Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-stained (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)
- ☐ Front-heave Hummocks (D7)
- ☐ FAC-neutral (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches):
Water Table Present? Yes ☒ No ☐ Depth (inches): -8
Saturation Present? Yes ☒ No ☐ Depth (inches): 0 (include capillary fringe)

Wetland Hydrology Present?
Yes ☒ No ☐

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

Remarks: Positive indicators of wetland hydrology were observed at this location.

APPENDIX E: WDOE RATING FORMS

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WETLAND RATING FORM - WESTERN WASHINGTON

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

Project: Little Squalicum Park Date of site visit: 3/18/2014
Name of wetland (if known): Wetland A
Rated by: Burns, Porter Trained by Ecology? Yes ☑ No ☐
Date of training: 2005

Sec: 23 Township: 38N Range: 02E Is S/T/R in Appendix D: Yes ☐ No ☑

Map of wetland unit: Figures A and B

Estimated Size: 18,068 sf

SUMMARY OF RATING

Category based on FUNCTIONS of wetland

☐ I ☐ II ☑ III ☐ IV

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

Score for Water Quality Functions	18
Score for Hydrologic Functions	7
Score for Habitat Functions	16
TOTAL score for Functions	**41**

Category based on SPECIAL CHARACTERISTICS of wetland

☐ I ☐ II ☑ Does not apply

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	☐
Old Growth Forest	☐	Flats	☐
Coastal Lagoon	☐	Freshwater Tidal	☐
Interdunal	☐		☐
None of the above	☑	check if unit has multiple HGM classes	☐

Wetland A

Does the wetland unite 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 of 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 speices (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	☐	☑
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered species?* For the purpose of this rating system, "documented" means the wetland is on the appropirate 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 WDFW for the state?*	☐	☑
SP4. *Does the wetland unit have a local significant in addition to its function?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having species significant.	☐	☑

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 instruction on classifying wetlands.

Wetland Rating Form- Western Washington
Version 2 to be used with Ecology PUB 04-06-025 August 2004

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 wetland usually controlled by tides (i.e. except during floods)?
   NO = go to question 2 ☐ YES = the wetland class is **Tidal Fringe**

   If yes, is the salinity of the wetland 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.

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water into it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO = go to question 3. ☐ **YES** = the wetland class if **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 (8ha) in size;
   At least 30% of the open water area is deeper than 6.6 ft (2m)?
   NO = go to question 4. ☐ **YES** = the wetland class if **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 types 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 question 5. ☐ **YES** = the wetland class is **Slope**

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 rive is not flooding.*
NO = go to question 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 question 7. ☑ **YES** = the wetland class is **Depressional**

7. Is the wetland unit located in a very flat are wit 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 higher groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
NO = go to question 8. ☐ **YES** = the wetland class is **Depressional**

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

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.

SC 1.0 Estuarine Wetlands ***(see p. 86)***
Does the wetland meet the following criteria for Estuarine wetlands?
☐ The dominant water regime is tidal,
☐ Vegetated, and
☐ With a salinity of greater than 0.5 ppt.
☐ YES = go to question SC 1.1
☑ NO = not estuarine wetland

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 question SC 1.2

SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions?
☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and 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.

☐ YES = Category I ☐ NO = Category II

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)

Verified through: ☑ S/T/R information in Appendix D, or
☐ Accessed from WNHP/DNR website

☐ YES = Contact WNHP/DNR (see p. 79) and go to question SC 2.2
☑ NO = not Natural Heritage Wetland

SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species?

☐ YES = Category 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 the answer yes you will still need rate the wetland based on its functions.

1. Does the wetland 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 filed key to identify organic soils).

YES = go to question 3 NO = go to question 2

2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable harpan such as clay or volcanic wash, or that are floating on a lake or pond?

YES = go to question 3 ☑ NO = is NOT a bog for rating purposes

3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, is present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of total shrub and herbaceous cover consists of species in Table 3)? *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.*

☐ YES = is a bog for purposes of rating NO = go to question 4

4. Is the unit forested (>30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemenn'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 total shrub/herbaceous cover)?

☐ YES = Category I ☐ NO = is NOT a bog for the purposes of rating

SC 4.0 Forested Wetland *(see p. 90)*

Does the wetland unit have at least 1 acre of forest that meets one of these criteria for the Department of Fish and Wildlife's forest as priority habitats? If the answer is YES the wetland still needs to be rated based on its functions.

☐ **Old-growth forests**: (west of the 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/ha) that are at least 200 years of age OR have a dbh of 32 inches (81cm) or more.
Note: The criterion for dbh is based on measurement for upland forests. Two-hundred year old trees in wetland will have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forest do not necessarily have to have trees of this diameter.

☐ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 to 200 years old OR have an average dbh exceeding 21 inches (53cm); crown cover may be less than 100%; decay, decadence, number of snags, and quality of large downed material is generally less than that found in old-growth.

☐ YES = Category I ☑ NO = NOT a forested wetland with special characteristics

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 question SC 5.1 ☑ NO = NOT a wetland in a coastal lagoon

SC 5.1 Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species. (se list of invasive species on p. 74).
☐ At least 3/4 of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.
☐ The wetland is larger that 1/10 acre (4350 square feet).

☐ YES = Category I ☐ NO = Category II

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 of WBUO)?

YES = go to question SC6.1 ☑ NO = NOT an interdunal wetland for rating

If the answer is YES the wetland still need to be rated based on its functions.

In practical terms that mean the following geographic areas:

- ☐ The 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 a mosaic of wetlands that is one acre or larger?

☐ YES = Category II NO = go to question SC 6.2

SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that are between 0.1 and 1 acre?

☐ YES = Category III

Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1. If NO was answered for all types enter "Not Applicable" on p. 1.	n/a

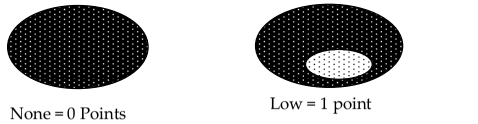
D Depressional and Flats Wetlands WATER QUALITY FUNCTIONS - indicators that wetland functions improve the water quality.	**Points (only 1 score per box)**
D1. Does the wetland unit have the potential to improve water quality?	(see p. 38)
D1.1 Characteristics of surface water flows out of the wetland: ☐ Unit is a depression with no surface water leaving it (no outlet) 3 pts ☑ Unit has intermittently flowing, OR highly constricted permanently flowing outlet 2 pts ☐ Unit has an un-constricted, or slightly constricted, surface outlet (*permanently flowing*) 1 pt ☐ Unit is a flat depression (Q.7), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch 1 pt *(If ditch is not permanently flowing, treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure A** 2
D1.2 The soil two inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES 4 pts NO 0 pts	0
D1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): ☐ Wetland has persistent, ungrazed, vegetation in >95% of the area 5 pts ☑ Wetland has persistent, ungrazed, vegetation in ≥ ½ of the area 3 pts ☐ Wetland has persistent, ungrazed, vegetation in ≥ 1/10 of the area 1 pt ☐ Wetland has persistent, ungrazed, vegetation in< 1/10 of the area 0 pts **Map of Cowardin vegetation classes**	**Figure B** 3
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 conditions 5 out of 10 years. ☑ Area seasonally ponded is > ½ total area of the wetland 4 pts ☐ Area seasonally ponded is > ¼ total area of the wetland 2 pts ☐ Area seasonally ponded is < ¼ total area of the wetland 0 pts **Map of Hydroperiods**	**Figure A** 4
Total for D1 Add the points in the boxes above	**9**
D2 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 quality in streams, lakes, or groundwater down gradient 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 quality as opportunity. ☐ Grazing in the wetland or within 150 feet ☐ Untreated stormwater discharges to the wetland ☐ Tilled fields or orchards within 150 feet of the wetland ☐ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ☑ Residential, urban areas, or golf courses are within 150 feet 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 = 2
Total- Water Quality Functions Multiply the score from D1 by D2 *Add the score to the table on page 1*	**18**

D Depressional and Flats Wetlands HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream degradation		**Points (only 1 score per box)**
D3. Does the wetland unit have the potential to reduce flooding and erosion?		(see p. 46)
D3.1 Characteristics of surface water flows out of the wetland unit:		
☐ Unit is a depression with no surface water leaving (no outlet)	4 pts	2
☑ Unit has an intermittently flowing, OR highly constricted permanently flowing outlet	2 pts	
☐ Unit is flat depression (Q.7), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outer is a man-made ditch	1 pt	
(If ditch is not permanently flowing, treat unit as "intermittently flowing")		
☐ Unit has an un-constricted, or slightly constricted, surface outlet (*permanently flowing*)	0 pts	
D3.2 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 deeper part (if dry).*		
☐ Marks of ponding are 3 ft or more above the surface or bottom of outlet	7 pts	0
☐ The wetland is a headwater wetland	5 pts	
☐ Marks of ponding between 2 ft to < 3 ft from the surface or bottom of outlet	5 pts	
☐ Marks are at least 0.5 ft to < 2 ft from the surface or bottom of outlet	3 pts	
☐ Unit is flat (yes to Q.2 or Q.7) but has small depressions on the surface that trap water	1 pt	
☑ Marks of ponding less than 0.5 ft	0 pts	
D3.3 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 the unit	5 pts	5
☐ The area of the basin is 10 to 100 times the area of the unit	3 pts	
☐ The area of the basin is more than 100 times the area of the unit	0 pts	
☐ Entire unit is in the FLATS class	5 pts	
Total for D3 Add the points in the boxes above		**7**
D4 Does the wetland unit have the opportunity to reduce flooding and erosion? Answer YES if the wetland is in a location in the watershed where it provides flood storage, or reduction in water velocity; it 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 a floodgate, tide gate, flap valve, reservoir, ect; OR you estimate that more than 90% of the water in the wetland is from groundwater in area where damaging groundwater flooding does 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
Total- Hydrologic Functions Multiply the score from D3 by D4 *Add score to table on page 1*		**7**

These question apply to wetlands of all HGM classes **HABITAT FUNCTIONS -**Indicators that unit functions to provide important habitat			**Points** (Only 1 score per box)
H1. Does the wetland unit have the potential to provide habitat for many species?			
H1.1 Vegetation structure *(see p. 72)* *Check the types of vegetation classes present (as defined in 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 ☐ Scrub/shrub- areas where shrubs have >30% cover ☑ Forested- areas where trees have >30% cover *If the unit has a forested class, check if:* ☐ Forested areas have three out of five strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon			**Figure B**
Add the number of vegetation types that qualify. If you have:			0
Map of Cowardin vegetation classes	4 or more structures 3 structures 2 structures 1 structure	4 pts 2 pts 1 pt 0 pts	
H1.2 Hydroperiods ***(see p. 73)*** *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count (see text for descriptions of hydroperiods).*			**Figure A**
☑ Permanently flooded or inundated	4 or more present	3 pts	2
☑ Seasonally flooded or inundated	3 present	2 pts	
☐ Occasionally flooded or inundated	2 present	1 pt	
☑ Saturated only	1 present	0 pts	
☐ Permanently flowing stream or river in, or adjacent to, the wetland			
☐ Seasonally flowing stream in, or adjacent to, the wetland			
Map of hydroperiods			
☐ Lake-fringe wetland		2 pts	
☐ Freshwater tidal wetland		2 pts	
H1.3 Richness of Plant Species ***(see p. 75)*** Count the number of plant species in the wetland that cover at least 10 square feet. *(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, or Canadian thistle			
Number of Species Counted:			1
☐ >19 species		2 pts	
☑ 5-19 species		1 pt	
☐ <5 species		0 pts	
List of species counted (not required):			
Total for this page			3

H1.4. Interspersion of Habitats ***(see p. 76)*** — **Figure B**

Decide from the diagrams below, whether interspersion between Cowardin vegetation classes (described in H1.1), or the classes and un-vegetated 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

1

H1.5 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 points column.

2

- ☑ Large, downed, woody debris within the wetland (>4 inches diameter and 6 pt long)
- ☑ Standing snags in the wetland (diameter at bottom >4 inches)
- ☐ Undercut banks are present for at least 6.6ft (2m) and/or overhanging vegetation which extends at least 3.3ft (1m) over a stream 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
- ☐ At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in area 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.

H1. Total Score – potential for providing habitat — **6**

Add the scores in all H1 columns above

Comments:

H2. Does the wetland unit have the opportunity to provide habitat for many species?

H2.1 Buffers ***(see p. 80)*** — **Figure A**

Choose the description that best represents the condition of the 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."

2

- ☐ 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. No structures are within undisturbed part of buffer. (Relatively undisturbed also means no-grazing, no landscaping, no daily human use.) **5 pts**
- ☐ 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >50% circumference. **4 pts**
- ☐ 50m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **4 pts**
- ☐ 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >25% circumference. **3 pts**
- ☐ 50m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >50% circumference. **3 pts**

If the buffer does not meet any of the above criteria

- ☐ No paved areas (except paved trails) or buildings within 25m (80ft) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. **2 pts**
- ☑ No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **2 pts**
- ☐ Heavy grazing in the buffer. **1 pt**
- ☐ 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). **0 pts**
- ☐ Buffer does not meet any of the criteria above. **1 pt**

Aerial photo showing buffers

H2.2 Corridors and Connections ***(see p. 81)***

1

H2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150ft 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, and paved roads are considered breaks in the corridor.

YES = 4 points (go to question H 2.3)__ NO = go to question H2.2.2

H2.2.2 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 question H2.3) NO = go to question H2.2.3.

H2.2.3 Is the wetland:

- ☑ within five miles (8km) of a brackish or salt water estuary OR
- ☐ within three miles of a large field or pasture (>40 acres) OR
- ☐ within one mile of a lake greater than 20 acres?

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

Total for page — 3

H2.3 Near or adjacent to other priority habitats listed by *WDFW* ***(see new and*** complete descriptions of WDFW priority habitat, 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.*	4
☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 0.4ha (1 acre). ☐ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife. (Full description 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) which are >81 cm (32 in) dbh or > 200 yrs of age. Mature Forest-Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100% ; decay, decadence, numbers of snags, and quality of large downed material is generally less than that found in old-growth; 800-200 yrs old west of Cascade crest. ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (full description 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 take the form of a dry prairie or wet prairie (full description 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 description of habitats and the definition of relatively undisturbed are in WDFW PHS report p. 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 (25ft) high and occurring below 5000ft. ☐ **Talus**: Homogeneous areas of rock rubble ranging in average size from 0.15 to 2.0 m (0.5 to 6.5ft), composed as 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 DBH of >51 cm (20 in) in Western Washington and are >2M (6.5ft) in height. Priority logs are >30 cm (12 in) in diameter at the largest end and > 6M (20ft) long. If the wetland has 3 or more priority habitats **4 pts** 2 priority habitats **3 pts** 1 priority habitat **1 pt** no priority habitats **0 pts** *Note: All vegetated wetlands are by definition a priority habitat but are not included in this list.* Nearby wetlands are addressed in question H2.4)	

H2.4 Wetland Landscape *(choose the* ***one*** *description of the landscape around the wetland* that best fits) (see p.84) ☐ There are at least three 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, field, or other development). **5 pts** ☐ The wetland is Lake-fringe on a lake with little disturbance and there are three other lake-fringe wetlands within ½ mile. **5 pts** ☑ There are at least three other wetlands with in ½ mile, BUT the connection between them is disturbed. **3 pts** ☐ The wetland is Lake-fringe on a lake WITH disturbance and there are three other lake-fringe wetlands within ½ mile. **3 pts** ☐ There is at least one other wetland within ½ mile. **2 pts** ☐ There are no other wetlands within ½ mile. **0 pts**	3
H2. Total Score - **opportunity to provide habitat** *Add the scores in all of the H2 columns above*	**10**
Total for H1	**6**
Add the points from the total H1 and H2 boxes **Total Score for Habitat Functions** *Add the score to table on page 1*	**16**

WETLAND RATING FORM - WESTERN WASHINGTON

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

Project: Little Squalicum Park Date of site visit: 3/18/2014
Name of wetland (if known): Wetland B and D
Rated by: Burns, Porter Trained by Ecology? Yes ☑ No ☐
Date of training: 2005

Sec: 23 Township: 38N Range: 02E Is S/T/R in Appendix D: Yes ☐ No ☑

Map of wetland unit: Figures A and B

Estimated Size: 428 sf and 88 sf

SUMMARY OF RATING

Category based on FUNCTIONS of wetland

☐ I ☐ II ☐ III ☑ IV

Category I = Score ≥70	Score for Water Quality Functions: 4
Category II = Score 51-69	Score for Hydrologic Functions: 1
Category III = Score 30-50	Score for Habitat Functions: 11
Category IV = Score <30	**TOTAL score for Functions: 16**

Category based on SPECIAL CHARACTERISTICS of wetland

☐ I ☐ II ☑ Does not apply

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	☑
Old Growth Forest	☐	Flats	☐
Coastal Lagoon	☐	Freshwater Tidal	☐
Interdunal	☐		☐
None of the above	☑	check if unit has multiple HGM classes	☐

Wetlands B and D

Does the wetland unite 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 of 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 speices (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	☐	☑
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered species?* For the purpose of this rating system, "documented" means the wetland is on the appropirate 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 WDFW for the state?*	☐	☑
SP4. *Does the wetland unit have a local significant in addition to its function?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having species significant.	☐	☑

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 instruction on classifying wetlands.

Wetland Rating Form- Western Washington
Version 2 to be used with Ecology PUB 04-06-025 August 2004

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 wetland usually controlled by tides (i.e. except during floods)?
   NO = go to question 2 ☐ YES = the wetland class is **Tidal Fringe**

   If yes, is the salinity of the wetland 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.

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water into it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO = go to question 3. ☐ **YES** = the wetland class if **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 (8ha) in size;
   At least 30% of the open water area is deeper than 6.6 ft (2m)?
   NO = go to question 4. ☐ **YES** = the wetland class if **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 types 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 question 5. ☑ **YES** = the wetland class is **Slope**

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 rive is not flooding.*
NO = go to question 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 question 7. ☐ **YES** = the wetland class is **Depressional**

7. Is the wetland unit located in a very flat are wit 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 higher groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
NO = go to question 8. ☐ **YES** = the wetland class is **Depressional**

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

Wetlands B and D

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.

SC 1.0 Estuarine Wetlands ***(see p. 86)***
Does the wetland meet the following criteria for Estuarine wetlands?
☐ The dominant water regime is tidal,
☐ Vegetated, and
☐ With a salinity of greater than 0.5 ppt.
☐ YES = go to question SC 1.1
☑ NO = not estuarine wetland

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 question SC 1.2

SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions?
☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and 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.

☐ YES = Category I ☐ NO = Category II

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)

Verified through: ☐ S/T/R information in Appendix D, or
☐ Accessed from WNHP/DNR website

☐ YES = Contact WNHP/DNR (see p. 79) and go to question SC 2.2
☑ NO = not Natural Heritage Wetland

SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species?

☐ YES = Category 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 the answer yes you will still need rate the wetland based on its functions.

1. Does the wetland 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 filed key to identify organic soils).

YES = go to question 3 NO = go to question 2

2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable harpan such as clay or volcanic wash, or that are floating on a lake or pond?

YES = go to question 3 ☑ NO = is NOT a bog for rating purposes

3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, is present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of total shrub and herbaceous cover consists of species in Table 3)? *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.*

☐ YES = is a bog for purposes of rating NO = go to question 4

4. Is the unit forested (>30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemenn'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 total shrub/herbaceous cover)?

☐ YES = Category I ☐ NO = is NOT a bog for the purposes of rating

Wetlands B and D

SC 4.0 Forested Wetland *(see p. 90)*

Does the wetland unit have at least 1 acre of forest that meets one of these criteria for the Department of Fish and Wildlife's forest as priority habitats? If the answer is YES the wetland still needs to be rated based on its functions.

☐ **Old-growth forests**: (west of the 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/ha) that are at least 200 years of age OR have a dbh of 32 inches (81cm) or more.
Note: The criterion for dbh is based on measurement for upland forests. Two-hundred year old trees in wetland will have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forest do not necessarily have to have trees of this diameter.

☐ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 to 200 years old OR have an average dbh exceeding 21 inches (53cm); crown cover may be less than 100%; decay, decadence, number of snags, and quality of large downed material is generally less than that found in old-growth.

☐ YES = Category I ☑ NO = NOT a forested wetland with special characteristics

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 question SC 5.1 ☑ NO = NOT a wetland in a coastal lagoon

SC 5.1 Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species. (se list of invasive species on p. 74).
☐ At least 3/4 of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.
☐ The wetland is larger that 1/10 acre (4350 square feet).

☐ YES = Category I ☐ NO = Category II

Wetland Rating Form - Western Washington
Version 2 to be used with Ecology PUB 04-06-025 August 2004

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 of WBUO)?

YES = go to question SC6.1 ☑ NO = NOT an interdunal wetland for rating

If the answer is YES the wetland still need to be rated based on its functions.

In practical terms that mean the following geographic areas:

- ☐ The 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 a mosaic of wetlands that is one acre or larger?

☐ YES = Category II NO = go to question SC 6.2

SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that are between 0.1 and 1 acre?

☐ YES = Category III

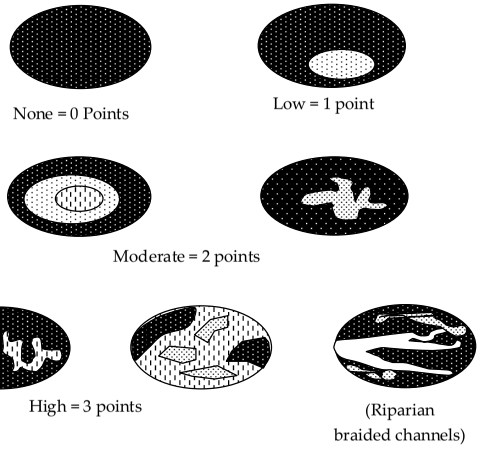
Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1. If NO was answered for all types enter "Not Applicable" on p. 1.	n/a

S Slope Wetlands WATER QUALITY FUNCTIONS - Indicators that wetland functions improve water quality.		**Points** (Only 1 score per box)
S1. Does the wetland unit have the potential to improve water quality?		*(see p. 64)*
S1.1 Characteristics of the average slope of unit:		
☐ Slope is 1% or less (*a 1% slope has a one foot drop in elevation for every 100ft in horizontal distance).*	3 pts	1
☐ Slope is 1% to 2%	2 pts	
☑ Slope is 2% to 5%	1 pt	
☐ Slope is greater than 5%	0 pts	
S1.2 The soil two inches below the surface (or duff layer) is clay or organic (use NRCS definitions).		
☐ YES	3 pts	0
☑ NO	0 pts	
S1.3 Characteristics of vegetation in the wetland that trap sediments and pollutants:		**Figure B**
Choose the points appropriate for the description that bests 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 six inches.		
☐ Dense, un-grazed, herbaceous vegetation in >90% of the area	6pts	1
☐ Dense, un-grazed, herbaceous > ½ of the area	3 pts	
☐ Dense, woody, vegetation in > ½ of the area	2 pts	
☑ Dense, un-grazed, herbaceous vegetation in> ¼ of the area	1 pt	
☐ Does not meet any of the criteria above for vegetation	0 pts	
Aerial photo or map with vegetation polygons		
Total for S1 Add the points in the boxes above		**2**
S2. 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 down-gradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.*		
☐ Grazing in the wetland or within 150 feet		Multiplier = 2
☐ Untreated stormwater discharges to the wetland		
☐ Tilled fields or orchards within 150 feet of the wetland		
☑ Residential, urban areas, or golf courses are within 150 feet upslope of wetland		
☐ Other:		
YES = multiplier is 2 NO = multiplier is 1		
Total- Water Quality Functions Multiply the score from S1 by S2 *Add the score to the table on page 1*		**4**

S Slope Wetlands HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream degradation	**Points** (Only 1 Score per box) ***(see p. 68)***
S3. Does the wetland unit have the <u>potential</u> to reduce flooding and stream erosion?	
S3.1 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 >1/8 inch), or dense enough, to remain erect during surface flows). ☐ Dense, uncut, **rigid**, vegetation covers >90% of the area of the wetland 6 pts ☐ Dense, uncut, **rigid** vegetation > ½ area 3 pts ☑ Dense, uncut, **rigid** vegetation > ¼ area 1 pts ☐ More than ¼ of the area is grazed, mowed, tilled, or vegetation is not rigid 0 pts	1
S3.2 Characteristic of slope wetlands that hold 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 2 pts NO 0 pts	0
Total for S3 Add the points in the boxes above	**1**
S4. Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion? Is the wetland in a landscape position where the reduction in water velocity it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows? *Note which of the following indicators of opportunity apply.* ☐ Wetland has surface runoff that drains to a river or stream that has flooding problems ☐ Other: *Answer NO if the major source of water is controlled by a reservoir (e.g. the wetland is a seep that is on the downstream side of a dam)* YES = multiplier is 2 NO = multiplier is 1	Multiplier = 1
Total- Hydrologic Functions Multiply the score from S3 by S4 *Add score to table on page 1*	**1**

Wetland Rating Form - Western Washington
Version 2 to be used with Ecology PUB 04-06-025
August 2008

These question apply to wetlands of all HGM classes **HABITAT FUNCTIONS -**Indicators that unit functions to provide important habitat	**Points** (Only 1 score per box)
H1. Does the wetland unit have the potential to provide habitat for many species?	
H1.1 Vegetation structure *(see p. 72)* *Check the types of vegetation classes present (as defined in 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 ☑ Scrub/shrub- areas where shrubs have >30% cover ☐ Forested- areas where trees have >30% cover *If the unit has a forested class, check if:* ☐ Forested areas have three out of five strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon *Add the number of vegetation types that qualify. If you have:* 4 or more structures 4 pts **Map of Cowardin vegetation classes** 3 structures 2 pts 2 structures 1 pt 1 structure 0 pts	**Figure B** 0
H1.2 Hydroperiods ***(see p. 73)*** *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count (see text for descriptions of hydroperiods).* ☐ Permanently flooded or inundated 4 or more present 3 pts ☐ Seasonally flooded or inundated 3 present 2 pts ☐ Occasionally flooded or inundated 2 present 1 pt ☑ Saturated only 1 present 0 pts ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☑ Seasonally flowing stream in, or adjacent to, the wetland **Map of hydroperiods** ☐ Lake-fringe wetland 2 pts ☐ Freshwater tidal wetland 2 pts	**Figure A** 1
H1.3 Richness of Plant Species ***(see p. 75)*** Count the number of plant species in the wetland that cover at least 10 square feet. *(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, or Canadian thistle Number of Species Counted: ☐ >19 species 2 pts ☐ 5-19 species 1 pt ☑ <5 species 0 pts List of species counted (not required):	 0
Total for this page	1

H1.4. Interspersion of Habitats ***(see p. 76)*** Decide from the diagrams below, whether interspersion between Cowardin vegetation classes (described in H1.1), or the classes and un-vegetated 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**	**Figure A** 0
H1.5 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 points column.* ☐ Large, downed, woody debris within the wetland (>4 inches diameter and 6 pt long) ☐ Standing snags in the wetland (diameter at bottom >4 inches) ☐ Undercut banks are present for at least 6.6ft (2m) and/or overhanging vegetation which extends at least 3.3ft (1m) over a stream 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 ☐ At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in area 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
H1. Total Score – potential for providing habitat *Add the scores in all H1 columns above*	**2**

Comments:

H2. Does the wetland unit have the opportunity to provide habitat for many species?	
H2.1 Buffers ***(see p. 80)***	**Figure A**
Choose the description that best represents the condition of the buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."	
☐ 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. No structures are within undisturbed part of buffer. (Relatively undisturbed also means no-grazing, no landscaping, no daily human use.) **5 pts**	2
☐ 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >50% circumference. **4 pts**	
☐ 50m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **4 pts**	
☐ 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >25% circumference. **3 pts**	
☐ 50m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >50% circumference. **3 pts**	
If the buffer does not meet any of the above criteria	
☑ No paved areas (except paved trails) or buildings within 25m (80ft) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. **2 pts**	
☐ No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **2 pts**	
☐ Heavy grazing in the buffer. **1 pt**	
☐ 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). **0 pts**	
☐ Buffer does not meet any of the criteria above. **1 pt**	
Aerial photo showing buffers	
H2.2 Corridors and Connections ***(see p. 81)***	
H2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150ft 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, and paved roads are considered breaks in the corridor.	1
YES = 4 points (go to question H 2.3)__ NO = go to question H2.2.2	
H2.2.2 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 question H2.3) NO = go to question H2.2.3.	
H2.2.3 Is the wetland:	
☑ within five miles (8km) of a brackish or salt water estuary OR	
☐ within three miles of a large field or pasture (>40 acres) OR	
☐ within one mile of a lake greater than 20 acres?	
YES = **1 point** NO = **0 points**	
Total for page	3

H2.3 Near or adjacent to other priority habitats listed by *WDFW* ***(see new and*** complete descriptions of WDFW priority habitat, 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.*	3
☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 0.4ha (1 acre).	
☐ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife. (Full description 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) which are >81 cm (32 in) dbh or > 200 yrs of age. Mature Forest-Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100% ; decay, decadence, numbers of snags, and quality of large downed material is generally less than that found in old-growth; 800-200 yrs old west of Cascade crest.	
☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (full description 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 take the form of a dry prairie or wet prairie (full description 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 description of habitats and the definition of relatively undisturbed are in WDFW PHS report p. 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 (25ft) high and occurring below 5000ft.	
☐ **Talus**: Homogeneous areas of rock rubble ranging in average size from 0.15 to 2.0 m (0.5 to 6.5ft), composed as 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 DBH of >51 cm (20 in) in Western Washington and are >2M (6.5ft) in height. Priority logs are >30 cm (12 in) in diameter at the largest end and > 6M (20ft) long.	
If the wetland has 3 or more priority habitats **4 pts**	
2 priority habitats **3 pts**	
1 priority habitat **1 pt**	
no priority habitats **0 pts**	
Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H2.4)	

H2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland* that best fits) (see p.84) ☐ There are at least three 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, field, or other development). **5 pts** ☐ The wetland is Lake-fringe on a lake with little disturbance and there are three other lake-fringe wetlands within ½ mile. **5 pts** ☑ There are at least three other wetlands with in ½ mile, BUT the connection between them is disturbed. **3 pts** ☐ The wetland is Lake-fringe on a lake WITH disturbance and there are three other lake-fringe wetlands within ½ mile. **3 pts** ☐ There is at least one other wetland within ½ mile. **2 pts** ☐ There are no other wetlands within ½ mile. **0 pts**	3
H2. Total Score - opportunity to provide habitat *Add the scores in all of the H2 columns above*	**9**
Total for H1	**2**
Add the points from the total H1 and H2 boxes **Total Score for Habitat Functions** *Add the score to table on page 1*	**11**

Wetland name or number:

D Depressional and Flats Wetlands WATER QUALITY FUNCTIONS - indicators that wetland functions improve the water quality.	**Points (only 1 score per box)**
D1. Does the wetland unit have the potential to improve water quality?	(see p. 38)
D1.1 Characteristics of surface water flows out of the wetland: ☐ Unit is a depression with no surface water leaving it (no outlet) 3 pts ☐ Unit has intermittently flowing, OR highly constricted permanently flowing outlet 2 pts ☐ Unit has an un-constricted, or slightly constricted, surface outlet (*permanently flowing*) 1 pt ☐ Unit is a flat depression (Q.7), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch 1 pt *(If ditch is not permanently flowing, treat unit as "intermittently flowing")* **Provide photo or drawing**	Figure n/a 0
D1.2 The soil two inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES 4 pts NO 0 pts	0
D1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): ☐ Wetland has persistent, ungrazed, vegetation in >95% of the area 5 pts ☐ Wetland has persistent, ungrazed, vegetation in ≥ ½ of the area 3 pts ☐ Wetland has persistent, ungrazed, vegetation in ≥ 1/10 of the area 1 pt ☐ Wetland has persistent, ungrazed, vegetation in< 1/10 of the area 0 pts **Map of Cowardin vegetation classes**	**Figure n/a** 0
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 conditions 5 out of 10 years. ☐ Area seasonally ponded is > ½ total area of the wetland 4 pts ☐ Area seasonally ponded is > ¼ total area of the wetland 2 pts ☐ Area seasonally ponded is < ¼ total area of the wetland 0 pts **Map of Hydroperiods**	**Figure n/a** 0
Total for D1 Add the points in the boxes above	**0**
D2 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 quality in streams, lakes, or groundwater down gradient 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 quality as opportunity. ☐ Grazing in the wetland or within 150 feet ☐ Untreated stormwater discharges to the wetland ☐ Tilled fields or orchards within 150 feet of the wetland ☐ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ☐ Residential, urban areas, or golf courses are within 150 feet 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
Total- Water Quality Functions Multiply the score from D1 by D2 *Add the score to the table on page 1*	**0**

WETLAND RATING FORM - WESTERN WASHINGTON

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

Project: Little Squalicum Park Date of site visit: 3/18/2014
Name of wetland (if known): Wetland C
Rated by: Burns, Porter Trained by Ecology? Yes ☑ No ☐
Date of training: 2005

Sec: 23 Township: 38N Range: 02E Is S/T/R in Appendix D: Yes ☐ No ☑

Map of wetland unit: Figures A and B

Estimated Size: 4,386 sf

SUMMARY OF RATING

Category based on FUNCTIONS of wetland

☐ I ☐ II ☐ III ☑ IV

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

Score for Water Quality Functions	6
Score for Hydrologic Functions	5
Score for Habitat Functions	14
TOTAL score for Functions	**25**

Category based on SPECIAL CHARACTERISTICS of wetland

☐ I ☐ II ☑ Does not apply

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	☑
Old Growth Forest	☐	Flats	☐
Coastal Lagoon	☐	Freshwater Tidal	☐
Interdunal	☐		☐
None of the above	☑	check if unit has multiple HGM classes	☐

Does the wetland unite 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 of 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 speices (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	☐	☑
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered species?* For the purpose of this rating system, "documented" means the wetland is on the appropirate 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 WDFW for the state?*	☐	☑
SP4. *Does the wetland unit have a local significant in addition to its function?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having species significant.	☐	☑

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 instruction on classifying wetlands.

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 wetland usually controlled by tides (i.e. except during floods)?
   NO = go to question 2 ☐ YES = the wetland class is **Tidal Fringe**

   If yes, is the salinity of the wetland 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.

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water into it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO = go to question 3. ☐ **YES** = the wetland class if **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 (8ha) in size;
   At least 30% of the open water area is deeper than 6.6 ft (2m)?
   NO = go to question 4. ☐ **YES** = the wetland class if **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 types 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 question 5. ☑ **YES** = the wetland class is **Slope**

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 rive is not flooding.*
NO = go to question 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 question 7. ☐ **YES** = the wetland class is **Depressional**

7. Is the wetland unit located in a very flat are wit 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 higher groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
NO = go to question 8. ☐ **YES** = the wetland class is **Depressional**

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

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.

SC 1.0 Estuarine Wetlands ***(see p. 86)***
Does the wetland meet the following criteria for Estuarine wetlands?
☐ The dominant water regime is tidal,
☐ Vegetated, and
☐ With a salinity of greater than 0.5 ppt.
☐ YES = go to question SC 1.1
☑ NO = not estuarine wetland

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 question SC 1.2

SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions?
☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and 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.

☐ YES = Category I ☐ NO = Category II

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)

Verified through: ☐ S/T/R information in Appendix D, or
☐ Accessed from WNHP/DNR website

☐ YES = Contact WNHP/DNR (see p. 79) and go to question SC 2.2
☑ NO = not Natural Heritage Wetland

SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species?

☐ YES = Category 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 the answer yes you will still need rate the wetland based on its functions.

1. Does the wetland 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 filed key to identify organic soils).

YES = go to question 3 NO = go to question 2

2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable harpan such as clay or volcanic wash, or that are floating on a lake or pond?

YES = go to question 3 ☑ NO = is NOT a bog for rating purposes

3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, is present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of total shrub and herbaceous cover consists of species in Table 3)? *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.*

☐ YES = is a bog for purposes of rating NO = go to question 4

4. Is the unit forested (>30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemenn'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 total shrub/herbaceous cover)?

☐ YES = Category I ☐ NO = is NOT a bog for the purposes of rating

SC 4.0 Forested Wetland *(see p. 90)*

Does the wetland unit have at least 1 acre of forest that meets one of these criteria for the Department of Fish and Wildlife's forest as priority habitats? If the answer is YES the wetland still needs to be rated based on its functions.

☐ **Old-growth forests**: (west of the 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/ha) that are at least 200 years of age OR have a dbh of 32 inches (81cm) or more.
Note: The criterion for dbh is based on measurement for upland forests. Two-hundred year old trees in wetland will have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forest do not necessarily have to have trees of this diameter.

☐ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 to 200 years old OR have an average dbh exceeding 21 inches (53cm); crown cover may be less than 100%; decay, decadence, number of snags, and quality of large downed material is generally less than that found in old-growth.

☐ YES = Category I ☑ NO = NOT a forested wetland with special characteristics

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 question SC 5.1 ☑ NO = NOT a wetland in a coastal lagoon

SC 5.1 Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species. (se list of invasive species on p. 74).
☐ At least 3/4 of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.
☐ The wetland is larger that 1/10 acre (4350 square feet).

☐ YES = Category I ☐ NO = Category II

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 of WBUO)?

YES = go to question SC6.1 ☑ NO = NOT an interdunal wetland for rating

If the answer is YES the wetland still need to be rated based on its functions.

In practical terms that mean the following geographic areas:

- ☐ The 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 a mosaic of wetlands that is one acre or larger?

☐ YES = Category II NO = go to question SC 6.2

SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that are between 0.1 and 1 acre?

☐ YES = Category III

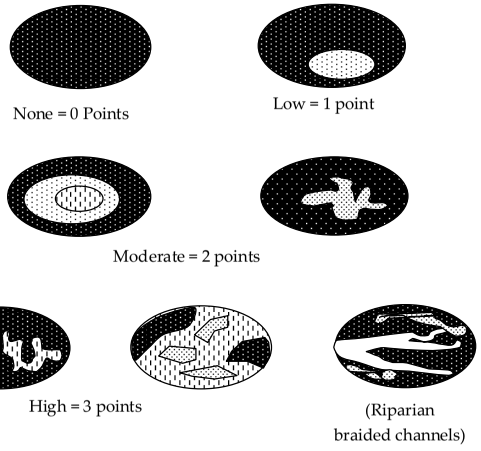
Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1. If NO was answered for all types enter "Not Applicable" on p. 1.	n/a

S Slope Wetlands WATER QUALITY FUNCTIONS - Indicators that wetland functions improve water quality.		**Points** (Only 1 score per box)
S1. Does the wetland unit have the potential to improve water quality?		*(see p. 64)*
S1.1 Characteristics of the average slope of unit:		
☐ Slope is 1% or less (*a 1% slope has a one foot drop in elevation for every 100ft in horizontal distance).*	3 pts	1
☐ Slope is 1% to 2%	2 pts	
☑ Slope is 2% to 5%	1 pt	
☐ Slope is greater than 5%	0 pts	
S1.2 The soil two inches below the surface (or duff layer) is clay or organic (use NRCS definitions).		
☐ YES	3 pts	0
☑ NO	0 pts	
S1.3 Characteristics of vegetation in the wetland that trap sediments and pollutants:		**Figure B**
Choose the points appropriate for the description that bests 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 six inches.		
☐ Dense, un-grazed, herbaceous vegetation in >90% of the area	6pts	2
☐ Dense, un-grazed, herbaceous > ½ of the area	3 pts	
☑ Dense, woody, vegetation in > ½ of the area	2 pts	
☐ Dense, un-grazed, herbaceous vegetation in> ¼ of the area	1 pt	
☐ Does not meet any of the criteria above for vegetation	0 pts	
Aerial photo or map with vegetation polygons		
Total for S1 Add the points in the boxes above		**3**
S2. 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 down-gradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ☐ Grazing in the wetland or within 150 feet ☐ Untreated stormwater discharges to the wetland ☐ Tilled fields or orchards within 150 feet of the wetland ☑ Residential, urban areas, or golf courses are within 150 feet upslope of wetland ☐ Other: YES = multiplier is 2 NO = multiplier is 1		Multiplier = 2
Total- Water Quality Functions Multiply the score from S1 by S2 *Add the score to the table on page 1*		**6**

S Slope Wetlands HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream degradation	**Points** (Only 1 Score per box)
S3. Does the wetland unit have the potential to reduce flooding and stream erosion?	***(see p. 68)***
S3.1 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 >1/8 inch), or dense enough, to remain erect during surface flows). ☐ Dense, uncut, **rigid**, vegetation covers >90% of the area of the wetland 6 pts ☑ Dense, uncut, **rigid** vegetation > ½ area 3 pts ☐ Dense, uncut, **rigid** vegetation > ¼ area 1 pts ☐ More than ¼ of the area is grazed, mowed, tilled, or vegetation is not rigid 0 pts	3
S3.2 Characteristic of slope wetlands that hold 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 2 pts NO 0 pts	2
Total for S3 Add the points in the boxes above	**5**
S4. Does the wetland unit 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 indicators of opportunity apply.* ☐ Wetland has surface runoff that drains to a river or stream that has flooding problems ☐ Other: *Answer NO if the major source of water is controlled by a reservoir (e.g. the wetland is a seep that is on the downstream side of a dam)* YES = multiplier is 2 NO = multiplier is 1	Multiplier = 1
Total- Hydrologic Functions Multiply the score from S3 by S4 *Add score to table on page 1*	**5**

Wetland Rating Form - Western Washington
Version 2 to be used with Ecology PUB 04-06-025
August 2008

These question apply to wetlands of all HGM classes **HABITAT FUNCTIONS -**Indicators that unit functions to provide important habitat **H1. Does the wetland unit have the potential to provide habitat for many species?**	**Points** (Only 1 score per box)
H1.1 Vegetation structure *(see p. 72)* *Check the types of vegetation classes present (as defined in 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 ☑ Scrub/shrub- areas where shrubs have >30% cover ☐ Forested- areas where trees have >30% cover *If the unit has a forested class, check if:* ☐ Forested areas have three out of five strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon *Add the number of vegetation types that qualify. If you have:* 4 or more structures 4 pts **Map of Cowardin vegetation classes** 3 structures 2 pts 2 structures 1 pt 1 structure 0 pts	**Figure B** 0
H1.2 Hydroperiods ***(see p. 73)*** *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count (see text for descriptions of hydroperiods).* ☐ Permanently flooded or inundated — 4 or more present — 3 pts ☑ Seasonally flooded or inundated — 3 present — 2 pts ☐ Occasionally flooded or inundated — 2 present — 1 pt ☑ Saturated only — 1 present — 0 pts ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland **Map of hydroperiods** ☐ Lake-fringe wetland 2 pts ☐ Freshwater tidal wetland 2 pts	**Figure A** 1
H1.3 Richness of Plant Species ***(see p. 75)*** Count the number of plant species in the wetland that cover at least 10 square feet. *(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, or Canadian thistle Number of Species Counted: ☐ >19 species 2 pts ☑ 5-19 species 1 pt ☐ <5 species 0 pts List of species counted (not required):	 1
Total for this page	2

H1.4. Interspersion of Habitats ***(see p. 76)*** Decide from the diagrams below, whether interspersion between Cowardin vegetation classes (described in H1.1), or the classes and un-vegetated 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**	**Figure B** 0
H1.5 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 points column.* ☐ Large, downed, woody debris within the wetland (>4 inches diameter and 6 pt long) ☐ Standing snags in the wetland (diameter at bottom >4 inches) ☐ Undercut banks are present for at least 6.6ft (2m) and/or overhanging vegetation which extends at least 3.3ft (1m) over a stream 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 ☐ At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in area that are permanently or seasonally inundated (structures for egg-laying by amphibians) ☐ Invasive plants cover less than 25% of the wetland area in each stratum of plants *Note: the 20% stated in early printings of the manual on page 78 is an error.*	0
H1. Total Score – potential for providing habitat *Add the scores in all H1 columns above*	**2**

Comments:

H2. Does the wetland unit have the opportunity to provide habitat for many species?

H2.1 Buffers ***(see p. 80)*** — **Figure A**

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

- ☐ 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. No structures are within undisturbed part of buffer. (Relatively undisturbed also means no-grazing, no landscaping, no daily human use.) **5 pts**
- ☑ 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >50% circumference. **4 pts**
- ☐ 50m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **4 pts**
- ☐ 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >25% circumference. **3 pts**
- ☐ 50m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >50% circumference. **3 pts**

If the buffer does not meet any of the above criteria

- ☐ No paved areas (except paved trails) or buildings within 25m (80ft) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. **2 pts**
- ☐ No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **2 pts**
- ☐ Heavy grazing in the buffer. **1 pt**
- ☐ 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). **0 pts**
- ☐ Buffer does not meet any of the criteria above. **1 pt**

Aerial photo showing buffers

4

H2.2 Corridors and Connections ***(see p. 81)***

H2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150ft 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, and paved roads are considered breaks in the corridor.

YES = 4 points (go to question H 2.3)__ NO = go to question H2.2.2

H2.2.2 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 question H2.3) NO = go to question H2.2.3.

H2.2.3 Is the wetland:

- ☑ within five miles (8km) of a brackish or salt water estuary OR
- ☐ within three miles of a large field or pasture (>40 acres) OR
- ☐ within one mile of a lake greater than 20 acres?

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

1

Total for page 5

H2.3 Near or adjacent to other priority habitats listed by *WDFW* ***(see new and*** complete descriptions of WDFW priority habitat, 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.*

4

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 0.4ha (1 acre).
- ☐ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife. (Full description 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) which are >81 cm (32 in) dbh or > 200 yrs of age. Mature Forest-Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100% ; decay, decadence, numbers of snags, and quality of large downed material is generally less than that found in old-growth; 800-200 yrs old west of Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (full description 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 take the form of a dry prairie or wet prairie (full description 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 description of habitats and the definition of relatively undisturbed are in WDFW PHS report p. 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 (25ft) high and occurring below 5000ft.
- ☐ **Talus**: Homogeneous areas of rock rubble ranging in average size from 0.15 to 2.0 m (0.5 to 6.5ft), composed as 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 DBH of >51 cm (20 in) in Western Washington and are >2M (6.5ft) in height. Priority logs are >30 cm (12 in) in diameter at the largest end and > 6M (20ft) long.

If the wetland has 3 or more priority habitats	**4 pts**
2 priority habitats	**3 pts**
1 priority habitat	**1 pt**
no priority habitats	**0 pts**

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H2.4)

Wetland C

H2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland* that best fits) (see p.84) ☐ There are at least three 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, field, or other development). **5 pts** ☐ The wetland is Lake-fringe on a lake with little disturbance and there are three other lake-fringe wetlands within ½ mile. **5 pts** ☑ There are at least three other wetlands with in ½ mile, BUT the connection between them is disturbed. **3 pts** ☐ The wetland is Lake-fringe on a lake WITH disturbance and there are three other lake-fringe wetlands within ½ mile. **3 pts** ☐ There is at least one other wetland within ½ mile. **2 pts** ☐ There are no other wetlands within ½ mile. **0 pts**	3
H2. Total Score - opportunity to provide habitat *Add the scores in all of the H2 columns above*	**12**
Total for H1	**2**
Add the points from the total H1 and H2 boxes **Total Score for Habitat Functions** *Add the score to table on page 1*	**14**

Wetland name or number:

D Depressional and Flats Wetlands WATER QUALITY FUNCTIONS - indicators that wetland functions improve the water quality.	**Points (only 1 score per box)**
D1. Does the wetland unit have the potential to improve water quality?	(see p. 38)
D1.1 Characteristics of surface water flows out of the wetland: ☐ Unit is a depression with no surface water leaving it (no outlet) 3 pts ☐ Unit has intermittently flowing, OR highly constricted permanently flowing outlet 2 pts ☐ Unit has an un-constricted, or slightly constricted, surface outlet (*permanently flowing*) 1 pt ☐ Unit is a flat depression (Q.7), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch 1 pt *(If ditch is not permanently flowing, treat unit as "intermittently flowing")* **Provide photo or drawing**	Figure n/a 0
D1.2 The soil two inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES 4 pts NO 0 pts	0
D1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): ☐ Wetland has persistent, ungrazed, vegetation in >95% of the area 5 pts ☐ Wetland has persistent, ungrazed, vegetation in ≥ ½ of the area 3 pts ☐ Wetland has persistent, ungrazed, vegetation in ≥ 1/10 of the area 1 pt ☐ Wetland has persistent, ungrazed, vegetation in< 1/10 of the area 0 pts **Map of Cowardin vegetation classes**	**Figure n/a** 0
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 conditions 5 out of 10 years. ☐ Area seasonally ponded is > ½ total area of the wetland 4 pts ☐ Area seasonally ponded is > ¼ total area of the wetland 2 pts ☐ Area seasonally ponded is < ¼ total area of the wetland 0 pts **Map of Hydroperiods**	**Figure n/a** 0
Total for D1 Add the points in the boxes above	**0**
D2 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 quality in streams, lakes, or groundwater down gradient 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 quality as opportunity. ☐ Grazing in the wetland or within 150 feet ☐ Untreated stormwater discharges to the wetland ☐ Tilled fields or orchards within 150 feet of the wetland ☐ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ☐ Residential, urban areas, or golf courses are within 150 feet 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
Total- Water Quality Functions Multiply the score from D1 by D2 *Add the score to the table on page 1*	**0**

WETLAND RATING FORM - WESTERN WASHINGTON

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

Project: Little Squalicum Park Date of site visit: 3/18/2014
Name of wetland (if known): Wetland E
Rated by: Burns, Porter Trained by Ecology? Yes ☑ No ☐
Date of training: 2005

Sec: 23 Township: 38N Range: 02E Is S/T/R in Appendix D: Yes ☐ No ☑

Map of wetland unit: Figure A and B

Estimated Size: 609 sf

SUMMARY OF RATING

Category based on FUNCTIONS of wetland

☐ I ☐ II ☑ III ☐ IV

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

Score for Water Quality Functions	14
Score for Hydrologic Functions	8
Score for Habitat Functions	13
TOTAL score for Functions	**35**

Category based on SPECIAL CHARACTERISTICS of wetland

☐ I ☐ II ☑ Does not apply

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	☐
Old Growth Forest	☐	Flats	☐
Coastal Lagoon	☐	Freshwater Tidal	☐
Interdunal	☐		☐
None of the above	☑	check if unit has multiple HGM classes	☐

Wetland E

Does the wetland unite 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 of 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 speices (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	☐	☑
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered species?* For the purpose of this rating system, "documented" means the wetland is on the appropirate 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 WDFW for the state?*	☐	☑
SP4. *Does the wetland unit have a local significant in addition to its function?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having species significant.	☐	☑

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 instruction on classifying wetlands.

Wetland Rating Form- Western Washington
Version 2 to be used with Ecology PUB 04-06-025 August 2004

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 wetland usually controlled by tides (i.e. except during floods)?
   NO = go to question 2 ☐ YES = the wetland class is **Tidal Fringe**

   If yes, is the salinity of the wetland 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.

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water into it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO = go to question 3. ☐ **YES** = the wetland class if **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 (8ha) in size;
   At least 30% of the open water area is deeper than 6.6 ft (2m)?
   NO = go to question 4. ☐ **YES** = the wetland class if **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 types 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 question 5. ☐ **YES** = the wetland class is **Slope**

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 rive is not flooding.*
NO = go to question 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 question 7. ☐ **YES** = the wetland class is **Depressional**

7. Is the wetland unit located in a very flat are wit 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 higher groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
NO = go to question 8. ☑ **YES** = the wetland class is **Depressional**

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

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.

SC 1.0 Estuarine Wetlands ***(see p. 86)***
Does the wetland meet the following criteria for Estuarine wetlands?
☐ The dominant water regime is tidal,
☐ Vegetated, and
☐ With a salinity of greater than 0.5 ppt.
☐ YES = go to question SC 1.1
☑ NO = not estuarine wetland

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 question SC 1.2

SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions?
☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and 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.

☐ YES = Category I ☐ NO = Category II

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)

Verified through: ☐ S/T/R information in Appendix D, or
☑ Accessed from WNHP/DNR website

☐ YES = Contact WNHP/DNR (see p. 79) and go to question SC 2.2
☑ NO = not Natural Heritage Wetland

SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species?

☐ YES = Category 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 the answer yes you will still need rate the wetland based on its functions.

1. Does the wetland 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 filed key to identify organic soils).

YES = go to question 3 NO = go to question 2

2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable harpan such as clay or volcanic wash, or that are floating on a lake or pond?

YES = go to question 3 ☑ NO = is NOT a bog for rating purposes

3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, is present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of total shrub and herbaceous cover consists of species in Table 3)? *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.*

☐ YES = is a bog for purposes of rating NO = go to question 4

4. Is the unit forested (>30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemenn'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 total shrub/herbaceous cover)?

☐ YES = Category I ☐ NO = is NOT a bog for the purposes of rating

SC 4.0 Forested Wetland *(see p. 90)*

Does the wetland unit have at least 1 acre of forest that meets one of these criteria for the Department of Fish and Wildlife's forest as priority habitats? If the answer is YES the wetland still needs to be rated based on its functions.

☐ **Old-growth forests**: (west of the 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/ha) that are at least 200 years of age OR have a dbh of 32 inches (81cm) or more.
Note: The criterion for dbh is based on measurement for upland forests. Two-hundred year old trees in wetland will have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forest do not necessarily have to have trees of this diameter.

☐ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 to 200 years old OR have an average dbh exceeding 21 inches (53cm); crown cover may be less than 100%; decay, decadence, number of snags, and quality of large downed material is generally less than that found in old-growth.

☐ YES = Category I ☑ NO = NOT a forested wetland with special characteristics

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 question SC 5.1 ☑ NO = NOT a wetland in a coastal lagoon

SC 5.1 Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species. (se list of invasive species on p. 74).
☐ At least 3/4 of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.
☐ The wetland is larger that 1/10 acre (4350 square feet).

☐ YES = Category I ☐ NO = Category II

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 of WBUO)?

YES = go to question SC6.1 ☑ NO = NOT an interdunal wetland for rating

If the answer is YES the wetland still need to be rated based on its functions.

In practical terms that mean the following geographic areas:

- ☐ The 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 a mosaic of wetlands that is one acre or larger?

☐ YES = Category II NO = go to question SC 6.2

SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that are between 0.1 and 1 acre?

☐ YES = Category III

Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1. If NO was answered for all types enter "Not Applicable" on p. 1.	n/a

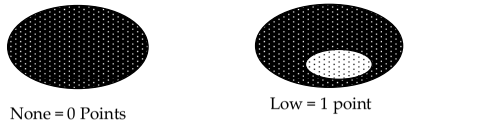
D Depressional and Flats Wetlands WATER QUALITY FUNCTIONS - indicators that wetland functions improve the water quality.	**Points (only 1 score per box)**
D1. Does the wetland unit have the potential to improve water quality?	(see p. 38)
D1.1 Characteristics of surface water flows out of the wetland: ☐ Unit is a depression with no surface water leaving it (no outlet) 3 pts ☑ Unit has intermittently flowing, OR highly constricted permanently flowing outlet 2 pts ☐ Unit has an un-constricted, or slightly constricted, surface outlet (*permanently flowing*) 1 pt ☐ Unit is a flat depression (Q.7), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch 1 pt *(If ditch is not permanently flowing, treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure A** 2
D1.2 The soil two inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES 4 pts NO 0 pts	0
D1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): ☑ Wetland has persistent, ungrazed, vegetation in >95% of the area 5 pts ☐ Wetland has persistent, ungrazed, vegetation in ≥ ½ of the area 3 pts ☐ Wetland has persistent, ungrazed, vegetation in ≥ 1/10 of the area 1 pt ☐ Wetland has persistent, ungrazed, vegetation in< 1/10 of the area 0 pts **Map of Cowardin vegetation classes**	**Figure B** 5
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 conditions 5 out of 10 years. ☐ Area seasonally ponded is > ½ total area of the wetland 4 pts ☐ Area seasonally ponded is > ¼ total area of the wetland 2 pts ☑ Area seasonally ponded is < ¼ total area of the wetland 0 pts **Map of Hydroperiods**	**Figure A** 0
Total for D1 Add the points in the boxes above	**7**
D2 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 quality in streams, lakes, or groundwater down gradient 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 quality as opportunity. ☐ Grazing in the wetland or within 150 feet ☐ Untreated stormwater discharges to the wetland ☐ Tilled fields or orchards within 150 feet of the wetland ☐ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ☑ Residential, urban areas, or golf courses are within 150 feet 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 = 2
Total- Water Quality Functions Multiply the score from D1 by D2 *Add the score to the table on page 1*	**14**

D Depressional and Flats Wetlands HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream degradation		**Points (only 1 score per box)**
D3. Does the wetland unit have the potential to reduce flooding and erosion?		(see p. 46)
D3.1 Characteristics of surface water flows out of the wetland unit:		
☐ Unit is a depression with no surface water leaving (no outlet)	4 pts	2
☑ Unit has an intermittently flowing, OR highly constricted permanently flowing outlet	2 pts	
☐ Unit is flat depression (Q.7), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outer is a man-made ditch	1 pt	
(If ditch is not permanently flowing, treat unit as "intermittently flowing")		
☐ Unit has an un-constricted, or slightly constricted, surface outlet (*permanently flowing*)	0 pts	
D3.2 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 deeper part (if dry).*		
☐ Marks of ponding are 3 ft or more above the surface or bottom of outlet	7 pts	1
☐ The wetland is a headwater wetland	5 pts	
☐ Marks of ponding between 2 ft to < 3 ft from the surface or bottom of outlet	5 pts	
☐ Marks are at least 0.5 ft to < 2 ft from the surface or bottom of outlet	3 pts	
☑ Unit is flat (yes to Q.2 or Q.7) but has small depressions on the surface that trap water	1 pt	
☐ Marks of ponding less than 0.5 ft	0 pts	
D3.3 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 the unit	5 pts	5
☐ The area of the basin is 10 to 100 times the area of the unit	3 pts	
☐ The area of the basin is more than 100 times the area of the unit	0 pts	
☐ Entire unit is in the FLATS class	5 pts	
Total for D3 Add the points in the boxes above		**8**
D4 Does the wetland unit have the opportunity to reduce flooding and erosion? Answer YES if the wetland is in a location in the watershed where it provides flood storage, or reduction in water velocity; it 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 a floodgate, tide gate, flap valve, reservoir, ect; OR you estimate that more than 90% of the water in the wetland is from groundwater in area where damaging groundwater flooding does 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
Total- Hydrologic Functions Multiply the score from D3 by D4 *Add score to table on page 1*		**8**

These question apply to wetlands of all HGM classes **HABITAT FUNCTIONS -**Indicators that unit functions to provide important habitat			**Points** (Only 1 score per box)
H1. Does the wetland unit have the potential to provide habitat for many species?			
H1.1 Vegetation structure *(see p. 72)* *Check the types of vegetation classes present (as defined in 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 ☑ Scrub/shrub- areas where shrubs have >30% cover ☐ Forested- areas where trees have >30% cover *If the unit has a forested class, check if:* ☐ Forested areas have three out of five strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon *Add the number of vegetation types that qualify. If you have:*			**Figure B** 0
Map of Cowardin vegetation classes	4 or more structures 3 structures 2 structures 1 structure	4 pts 2 pts 1 pt 0 pts	
H1.2 Hydroperiods ***(see p. 73)*** *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count (see text for descriptions of hydroperiods).*			**Figure A**
☐ Permanently flooded or inundated	4 or more present	3 pts	2
☐ Seasonally flooded or inundated	3 present	2 pts	
☑ Occasionally flooded or inundated	2 present	1 pt	
☑ Saturated only	1 present	0 pts	
☐ Permanently flowing stream or river in, or adjacent to, the wetland			
☑ Seasonally flowing stream in, or adjacent to, the wetland			
Map of hydroperiods			
☐ Lake-fringe wetland		2 pts	
☐ Freshwater tidal wetland		2 pts	
H1.3 Richness of Plant Species ***(see p. 75)*** Count the number of plant species in the wetland that cover at least 10 square feet. *(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, or Canadian thistle			
Number of Species Counted:			1
☐ >19 species		2 pts	
☑ 5-19 species		1 pt	
☐ <5 species		0 pts	
List of species counted (not required):			
Total for this page			3

H1.4. Interspersion of Habitats ***(see p. 76)*** — **Figure B**

Decide from the diagrams below, whether interspersion between Cowardin vegetation classes (described in H1.1), or the classes and un-vegetated 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

0

H1.5 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 points column.

0

- ☐ Large, downed, woody debris within the wetland (>4 inches diameter and 6 pt long)
- ☐ Standing snags in the wetland (diameter at bottom >4 inches)
- ☐ Undercut banks are present for at least 6.6ft (2m) and/or overhanging vegetation which extends at least 3.3ft (1m) over a stream 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
- ☐ At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in area 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.

H1. Total Score – potential for providing habitat

Add the scores in all H1 columns above

3

Comments:

H2. Does the wetland unit have the opportunity to provide habitat for many species?

H2.1 Buffers ***(see p. 80)*** — **Figure A**

Choose the description that best represents the condition of the 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."

2

- ☐ 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. No structures are within undisturbed part of buffer. (Relatively undisturbed also means no-grazing, no landscaping, no daily human use.) **5 pts**
- ☐ 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >50% circumference. **4 pts**
- ☐ 50m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **4 pts**
- ☐ 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >25% circumference. **3 pts**
- ☐ 50m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >50% circumference. **3 pts**

If the buffer does not meet any of the above criteria

- ☑ No paved areas (except paved trails) or buildings within 25m (80ft) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. **2 pts**
- ☐ No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **2 pts**
- ☐ Heavy grazing in the buffer. **1 pt**
- ☐ 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). **0 pts**
- ☐ Buffer does not meet any of the criteria above. **1 pt**

Aerial photo showing buffers

H2.2 Corridors and Connections ***(see p. 81)***

1

H2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150ft 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, and paved roads are considered breaks in the corridor.

YES = 4 points (go to question H 2.3)__ NO = go to question H2.2.2

H2.2.2 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 question H2.3) NO = go to question H2.2.3.

H2.2.3 Is the wetland:

- ☑ within five miles (8km) of a brackish or salt water estuary OR
- ☐ within three miles of a large field or pasture (>40 acres) OR
- ☐ within one mile of a lake greater than 20 acres?

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

Total for page — 3

H2.3 Near or adjacent to other priority habitats listed by *WDFW* ***(see new and*** complete descriptions of WDFW priority habitat, 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.*	4
☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 0.4ha (1 acre). ☐ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife. (Full description 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) which are >81 cm (32 in) dbh or > 200 yrs of age. Mature Forest-Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100% ; decay, decadence, numbers of snags, and quality of large downed material is generally less than that found in old-growth; 800-200 yrs old west of Cascade crest. ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (full description 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 take the form of a dry prairie or wet prairie (full description 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 description of habitats and the definition of relatively undisturbed are in WDFW PHS report p. 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 (25ft) high and occurring below 5000ft. ☐ **Talus**: Homogeneous areas of rock rubble ranging in average size from 0.15 to 2.0 m (0.5 to 6.5ft), composed as 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 DBH of >51 cm (20 in) in Western Washington and are >2M (6.5ft) in height. Priority logs are >30 cm (12 in) in diameter at the largest end and > 6M (20ft) long. If the wetland has 3 or more priority habitats **4 pts** 2 priority habitats **3 pts** 1 priority habitat **1 pt** no priority habitats **0 pts** *Note: All vegetated wetlands are by definition a priority habitat but are not included in this list.* Nearby wetlands are addressed in question H2.4)	

H2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland* that best fits) (see p.84) ☐ There are at least three 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, field, or other development). **5 pts** ☐ The wetland is Lake-fringe on a lake with little disturbance and there are three other lake-fringe wetlands within ½ mile. **5 pts** ☑ There are at least three other wetlands with in ½ mile, BUT the connection between them is disturbed. **3 pts** ☐ The wetland is Lake-fringe on a lake WITH disturbance and there are three other lake-fringe wetlands within ½ mile. **3 pts** ☐ There is at least one other wetland within ½ mile. **2 pts** ☐ There are no other wetlands within ½ mile. **0 pts**	3
H2. Total Score - opportunity to provide habitat *Add the scores in all of the H2 columns above*	**10**
Total for H1	**3**
Add the points from the total H1 and H2 boxes **Total Score for Habitat Functions** *Add the score to table on page 1*	**13**

WETLAND RATING FORM - WESTERN WASHINGTON

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

Project: Little Squalicum Park Date of site visit: 3/18/2014
Name of wetland (if known): Wetland F
Rated by: Burns, Porter Trained by Ecology? Yes ☑ No ☐
Date of training: 2005

Sec: 23 Township: 38N Range: 02E Is S/T/R in Appendix D: Yes ☐ No ☑

Map of wetland unit: Figures A and B

Estimated Size: 5,767 sf

SUMMARY OF RATING

Category based on FUNCTIONS of wetland

☐ I ☐ II ☑ III ☐ IV

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

Score for Water Quality Functions	12
Score for Hydrologic Functions	10
Score for Habitat Functions	13
TOTAL score for Functions	**35**

Category based on SPECIAL CHARACTERISTICS of wetland

☐ I ☐ II ☑ Does not apply

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	☐
Old Growth Forest	☐	Flats	☐
Coastal Lagoon	☐	Freshwater Tidal	☐
Interdunal	☐		☐
None of the above	☑	check if unit has multiple HGM classes	☐

Wetland F

Does the wetland unite 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 of 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 speices (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	☐	☑
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered species?* For the purpose of this rating system, "documented" means the wetland is on the appropirate 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 WDFW for the state?*	☐	☑
SP4. *Does the wetland unit have a local significant in addition to its function?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having species significant.	☐	☑

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 instruction on classifying wetlands.

Wetland Rating Form- Western Washington
Version 2 to be used with Ecology PUB 04-06-025 August 2004

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 wetland usually controlled by tides (i.e. except during floods)?
   NO = go to question 2 ☐ YES = the wetland class is **Tidal Fringe**

   If yes, is the salinity of the wetland 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.

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water into it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO = go to question 3. ☐ **YES** = the wetland class if **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 (8ha) in size;
   At least 30% of the open water area is deeper than 6.6 ft (2m)?
   NO = go to question 4. ☐ **YES** = the wetland class if **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 types 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 question 5. ☐ **YES** = the wetland class is **Slope**

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 rive is not flooding.*
NO = go to question 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 question 7. ☐ **YES** = the wetland class is **Depressional**

7. Is the wetland unit located in a very flat are wit 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 higher groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
NO = go to question 8. ☑ **YES** = the wetland class is **Depressional**

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

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.

SC 1.0 Estuarine Wetlands ***(see p. 86)***
Does the wetland meet the following criteria for Estuarine wetlands?
☐ The dominant water regime is tidal,
☐ Vegetated, and
☐ With a salinity of greater than 0.5 ppt.
☐ YES = go to question SC 1.1
☑ NO = not estuarine wetland

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 question SC 1.2

SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions?
☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and 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.

☐ YES = Category I ☐ NO = Category II

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)

Verified through: ☐ S/T/R information in Appendix D, or
☑ Accessed from WNHP/DNR website

☐ YES = Contact WNHP/DNR (see p. 79) and go to question SC 2.2
☑ NO = not Natural Heritage Wetland

SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species?

☐ YES = Category 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 the answer yes you will still need rate the wetland based on its functions.

1. Does the wetland 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 filed key to identify organic soils).

YES = go to question 3 NO = go to question 2

2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable harpan such as clay or volcanic wash, or that are floating on a lake or pond?

YES = go to question 3 ☑ NO = is NOT a bog for rating purposes

3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, is present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of total shrub and herbaceous cover consists of species in Table 3)? *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.*

☐ YES = is a bog for purposes of rating NO = go to question 4

4. Is the unit forested (>30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemenn'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 total shrub/herbaceous cover)?

☐ YES = Category I ☐ NO = is NOT a bog for the purposes of rating

SC 4.0 Forested Wetland *(see p. 90)*

Does the wetland unit have at least 1 acre of forest that meets one of these criteria for the Department of Fish and Wildlife's forest as priority habitats? If the answer is YES the wetland still needs to be rated based on its functions.

☐ **Old-growth forests**: (west of the 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/ha) that are at least 200 years of age OR have a dbh of 32 inches (81cm) or more.
Note: The criterion for dbh is based on measurement for upland forests. Two-hundred year old trees in wetland will have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forest do not necessarily have to have trees of this diameter.

☐ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 to 200 years old OR have an average dbh exceeding 21 inches (53cm); crown cover may be less than 100%; decay, decadence, number of snags, and quality of large downed material is generally less than that found in old-growth.

☐ YES = Category I ☑ NO = NOT a forested wetland with special characteristics

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 question SC 5.1 ☑ NO = NOT a wetland in a coastal lagoon

SC 5.1 Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species. (se list of invasive species on p. 74).
☐ At least 3/4 of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.
☐ The wetland is larger that 1/10 acre (4350 square feet).

☐ YES = Category I ☐ NO = Category II

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 of WBUO)?

YES = go to question SC6.1 ☑ NO = NOT an interdunal wetland for rating

If the answer is YES the wetland still need to be rated based on its functions.

In practical terms that mean the following geographic areas:

- ☐ The 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 a mosaic of wetlands that is one acre or larger?

☐ YES = Category II NO = go to question SC 6.2

SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that are between 0.1 and 1 acre?

☐ YES = Category III

Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1. If NO was answered for all types enter "Not Applicable" on p. 1.	n/a

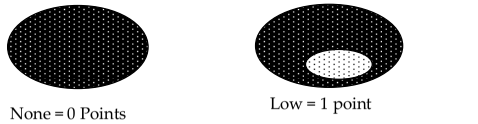
D Depressional and Flats Wetlands WATER QUALITY FUNCTIONS - indicators that wetland functions improve the water quality.	**Points (only 1 score per box)**
D1. Does the wetland unit have the potential to improve water quality?	(see p. 38)
D1.1 Characteristics of surface water flows out of the wetland: ☑ Unit is a depression with no surface water leaving it (no outlet) 3 pts ☐ Unit has intermittently flowing, OR highly constricted permanently flowing outlet 2 pts ☐ Unit has an un-constricted, or slightly constricted, surface outlet (*permanently flowing*) 1 pt ☐ Unit is a flat depression (Q.7), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch 1 pt *(If ditch is not permanently flowing, treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure A** 3
D1.2 The soil two inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES 4 pts NO 0 pts	0
D1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): ☐ Wetland has persistent, ungrazed, vegetation in >95% of the area 5 pts ☑ Wetland has persistent, ungrazed, vegetation in ≥ ½ of the area 3 pts ☐ Wetland has persistent, ungrazed, vegetation in ≥ 1/10 of the area 1 pt ☐ Wetland has persistent, ungrazed, vegetation in< 1/10 of the area 0 pts **Map of Cowardin vegetation classes**	**Figure B** 3
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 conditions 5 out of 10 years. ☐ Area seasonally ponded is > ½ total area of the wetland 4 pts ☐ Area seasonally ponded is > ¼ total area of the wetland 2 pts ☑ Area seasonally ponded is < ¼ total area of the wetland 0 pts **Map of Hydroperiods**	**Figure A** 0
Total for D1 Add the points in the boxes above	**6**
D2 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 quality in streams, lakes, or groundwater down gradient 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 quality as opportunity. ☐ Grazing in the wetland or within 150 feet ☐ Untreated stormwater discharges to the wetland ☐ Tilled fields or orchards within 150 feet of the wetland ☐ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ☑ Residential, urban areas, or golf courses are within 150 feet 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 = 2
Total- Water Quality Functions Multiply the score from D1 by D2 *Add the score to the table on page 1*	**12**

D Depressional and Flats Wetlands HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream degradation		**Points (only 1 score per box)**
D3. Does the wetland unit have the potential to reduce flooding and erosion?		(see p. 46)
D3.1 Characteristics of surface water flows out of the wetland unit:		
☑ Unit is a depression with no surface water leaving (no outlet)	4 pts	4
☐ Unit has an intermittently flowing, OR highly constricted permanently flowing outlet	2 pts	
☐ Unit is flat depression (Q.7), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outer is a man-made ditch	1 pt	
(If ditch is not permanently flowing, treat unit as "intermittently flowing")		
☐ Unit has an un-constricted, or slightly constricted, surface outlet (*permanently flowing*)	0 pts	
D3.2 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 deeper part (if dry).*		
☐ Marks of ponding are 3 ft or more above the surface or bottom of outlet	7 pts	1
☐ The wetland is a headwater wetland	5 pts	
☐ Marks of ponding between 2 ft to < 3 ft from the surface or bottom of outlet	5 pts	
☐ Marks are at least 0.5 ft to < 2 ft from the surface or bottom of outlet	3 pts	
☑ Unit is flat (yes to Q.2 or Q.7) but has small depressions on the surface that trap water	1 pt	
☐ Marks of ponding less than 0.5 ft	0 pts	
D3.3 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 the unit	5 pts	5
☐ The area of the basin is 10 to 100 times the area of the unit	3 pts	
☐ The area of the basin is more than 100 times the area of the unit	0 pts	
☐ Entire unit is in the FLATS class	5 pts	
Total for D3 Add the points in the boxes above		**10**
D4 Does the wetland unit have the opportunity to reduce flooding and erosion? Answer YES if the wetland is in a location in the watershed where it provides flood storage, or reduction in water velocity; it 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 a floodgate, tide gate, flap valve, reservoir, ect; OR you estimate that more than 90% of the water in the wetland is from groundwater in area where damaging groundwater flooding does occur. *Note which of the following indicators of opportunity apply.*		(see p. 49) Multiplier = 1
☐ Wetland is in a headwater of a river or stream that has flooding problems		
☐ Wetland drains to a river or stream that has flooding problems		
☐ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems.		
☐ Other:		
YES = multiplier is 2 NO = multiplier is 1		
Total- Hydrologic Functions Multiply the score from D3 by D4 *Add score to table on page 1*		**10**

These question apply to wetlands of all HGM classes **HABITAT FUNCTIONS -**Indicators that unit functions to provide important habitat		**Points** (Only 1 score per box)
H1. Does the wetland unit have the potential to provide habitat for many species?		
H1.1 Vegetation structure *(see p. 72)* *Check the types of vegetation classes present (as defined in Cowardin) - Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.*		**Figure B**
☐ Aquatic bed		
☑ Emergent plants		
☐ Scrub/shrub- areas where shrubs have >30% cover		
☑ Forested- areas where trees have >30% cover		
If the unit has a forested class, check if:		
☐ Forested areas have three out of five strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon		
Add the number of vegetation types that qualify. If you have:		1
Map of Cowardin vegetation classes	4 or more structures 4 pts 3 structures 2 pts 2 structures 1 pt 1 structure 0 pts	
H1.2 Hydroperiods ***(see p. 73)*** *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count (see text for descriptions of hydroperiods).*		**Figure A**
☐ Permanently flooded or inundated	4 or more present 3 pts	1
☑ Seasonally flooded or inundated	3 present 2 pts	
☐ Occasionally flooded or inundated	2 present 1 pt	
☑ Saturated only	1 present 0 pts	
☐ Permanently flowing stream or river in, or adjacent to, the wetland		
☐ Seasonally flowing stream in, or adjacent to, the wetland		
Map of hydroperiods		
☐ Lake-fringe wetland	2 pts	
☐ Freshwater tidal wetland	2 pts	
H1.3 Richness of Plant Species ***(see p. 75)*** Count the number of plant species in the wetland that cover at least 10 square feet. *(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, or Canadian thistle		
Number of Species Counted:		0
☐ >19 species	2 pts	
☐ 5-19 species	1 pt	
☑ <5 species	0 pts	
List of species counted (not required):		
Total for this page		2

H1.4. Interspersion of Habitats ***(see p. 76)*** — **Figure B**

Decide from the diagrams below, whether interspersion between Cowardin vegetation classes (described in H1.1), or the classes and un-vegetated 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

1

H1.5 Special Habitat Features ***(see p. 77)*** — 0

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the points column.

- ☐ Large, downed, woody debris within the wetland (>4 inches diameter and 6 pt long)
- ☐ Standing snags in the wetland (diameter at bottom >4 inches)
- ☐ Undercut banks are present for at least 6.6ft (2m) and/or overhanging vegetation which extends at least 3.3ft (1m) over a stream 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
- ☐ At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in area 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.

H1. Total Score – potential for providing habitat — **3**

Add the scores in all H1 columns above

Comments:

H2. Does the wetland unit have the opportunity to provide habitat for many species?

H2.1 Buffers ***(see p. 80)*** — **Figure A**

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

- ☐ 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. No structures are within undisturbed part of buffer. (Relatively undisturbed also means no-grazing, no landscaping, no daily human use.) **5 pts**
- ☐ 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >50% circumference. **4 pts**
- ☐ 50m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **4 pts**
- ☐ 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >25% circumference. **3 pts**
- ☐ 50m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >50% circumference. **3 pts**

If the buffer does not meet any of the above criteria

- ☐ No paved areas (except paved trails) or buildings within 25m (80ft) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. **2 pts**
- ☑ No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **2 pts**
- ☐ Heavy grazing in the buffer. **1 pt**
- ☐ 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). **0 pts**
- ☐ Buffer does not meet any of the criteria above. **1 pt**

Aerial photo showing buffers

2

H2.2 Corridors and Connections ***(see p. 81)***

H2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150ft 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, and paved roads are considered breaks in the corridor.

YES = 4 points (go to question H 2.3)__ NO = go to question H2.2.2

H2.2.2 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 question H2.3) NO = go to question H2.2.3.

H2.2.3 Is the wetland:

- ☑ within five miles (8km) of a brackish or salt water estuary OR
- ☐ within three miles of a large field or pasture (>40 acres) OR
- ☐ within one mile of a lake greater than 20 acres?

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

1

Total for page — 3

H2.3 Near or adjacent to other priority habitats listed by *WDFW* ***(see new and*** complete descriptions of WDFW priority habitat, 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.*	4
☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 0.4ha (1 acre). ☐ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife. (Full description 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) which are >81 cm (32 in) dbh or > 200 yrs of age. Mature Forest-Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100% ; decay, decadence, numbers of snags, and quality of large downed material is generally less than that found in old-growth; 800-200 yrs old west of Cascade crest. ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (full description 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 take the form of a dry prairie or wet prairie (full description 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 description of habitats and the definition of relatively undisturbed are in WDFW PHS report p. 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 (25ft) high and occurring below 5000ft. ☐ **Talus**: Homogeneous areas of rock rubble ranging in average size from 0.15 to 2.0 m (0.5 to 6.5ft), composed as 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 DBH of >51 cm (20 in) in Western Washington and are >2M (6.5ft) in height. Priority logs are >30 cm (12 in) in diameter at the largest end and > 6M (20ft) long. If the wetland has 3 or more priority habitats **4 pts** 2 priority habitats **3 pts** 1 priority habitat **1 pt** no priority habitats **0 pts** *Note: All vegetated wetlands are by definition a priority habitat but are not included in this list.* Nearby wetlands are addressed in question H2.4)	

H2.4 Wetland Landscape *(choose the* ***one*** *description of the landscape around the wetland* that best fits) (see p.84) ☐ There are at least three 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, field, or other development). **5 pts** ☐ The wetland is Lake-fringe on a lake with little disturbance and there are three other lake-fringe wetlands within ½ mile. **5 pts** ☑ There are at least three other wetlands with in ½ mile, BUT the connection between them is disturbed. **3 pts** ☐ The wetland is Lake-fringe on a lake WITH disturbance and there are three other lake-fringe wetlands within ½ mile. **3 pts** ☐ There is at least one other wetland within ½ mile. **2 pts** ☐ There are no other wetlands within ½ mile. **0 pts**	3
H2. Total Score - **opportunity to provide habitat** *Add the scores in all of the H2 columns above*	**10**
Total for H1	**3**
Add the points from the total H1 and H2 boxes **Total Score for Habitat Functions** *Add the score to table on page 1*	**13**

WETLAND RATING FORM - WESTERN WASHINGTON

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

Project: Little Squalicum Park Date of site visit: 3/18/2014
Name of wetland (if known): Wetland G
Rated by: Burns, Porter Trained by Ecology? Yes ☑ No ☐
Date of training: 2005

Sec: 23 Township: 38N Range: 02E Is S/T/R in Appendix D: Yes ☐ No ☑

Map of wetland unit: Figures A and B

Estimated Size: 3343 sf

SUMMARY OF RATING

Category based on FUNCTIONS of wetland

☐ I ☐ II ☐ III ☑ IV

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

Score for Water Quality Functions	2
Score for Hydrologic Functions	5
Score for Habitat Functions	14
TOTAL score for Functions	**21**

Category based on SPECIAL CHARACTERISTICS of wetland

☐ I ☐ II ☑ Does not apply

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	☑
Old Growth Forest	☐	Flats	☐
Coastal Lagoon	☐	Freshwater Tidal	☐
Interdunal	☐		☐
None of the above	☑	check if unit has multiple HGM classes	☐

Does the wetland unite 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 of 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 speices (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	☐	☑
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered species?* For the purpose of this rating system, "documented" means the wetland is on the appropirate 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 WDFW for the state?*	☐	☑
SP4. *Does the wetland unit have a local significant in addition to its function?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having species significant.	☐	☑

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 instruction on classifying wetlands.

Wetland G

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 wetland usually controlled by tides (i.e. except during floods)?
   NO = go to question 2 ☐ YES = the wetland class is **Tidal Fringe**

   If yes, is the salinity of the wetland 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.

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water into it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO = go to question 3. ☐ **YES** = the wetland class if **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 (8ha) in size;
   At least 30% of the open water area is deeper than 6.6 ft (2m)?
   NO = go to question 4. ☐ **YES** = the wetland class if **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 types 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 question 5. ☑ **YES** = the wetland class is **Slope**

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 rive is not flooding.*
NO = go to question 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 question 7. ☐ **YES** = the wetland class is **Depressional**

7. Is the wetland unit located in a very flat are wit 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 higher groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
NO = go to question 8. ☐ **YES** = the wetland class is **Depressional**

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

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.

SC 1.0 Estuarine Wetlands ***(see p. 86)***
Does the wetland meet the following criteria for Estuarine wetlands?
☐ The dominant water regime is tidal,
☐ Vegetated, and
☐ With a salinity of greater than 0.5 ppt.
☐ YES = go to question SC 1.1
☑ NO = not estuarine wetland

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 question SC 1.2

SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions?
☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and 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.

☐ YES = Category I ☐ NO = Category II

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)

Verified through: ☑ S/T/R information in Appendix D, or
☐ Accessed from WNHP/DNR website

☐ YES = Contact WNHP/DNR (see p. 79) and go to question SC 2.2
☑ NO = not Natural Heritage Wetland

SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species?

☐ YES = Category 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 the answer yes you will still need rate the wetland based on its functions.

1. Does the wetland 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 filed key to identify organic soils).

YES = go to question 3 NO = go to question 2

2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable harpan such as clay or volcanic wash, or that are floating on a lake or pond?

YES = go to question 3 ☑ NO = is NOT a bog for rating purposes

3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, is present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of total shrub and herbaceous cover consists of species in Table 3)? *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.*

☐ YES = is a bog for purposes of rating NO = go to question 4

4. Is the unit forested (>30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemenn'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 total shrub/herbaceous cover)?

☐ YES = Category I ☐ NO = is NOT a bog for the purposes of rating

SC 4.0 Forested Wetland *(see p. 90)*

Does the wetland unit have at least 1 acre of forest that meets one of these criteria for the Department of Fish and Wildlife's forest as priority habitats? If the answer is YES the wetland still needs to be rated based on its functions.

☐ **Old-growth forests**: (west of the 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/ha) that are at least 200 years of age OR have a dbh of 32 inches (81cm) or more.
Note: The criterion for dbh is based on measurement for upland forests. Two-hundred year old trees in wetland will have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forest do not necessarily have to have trees of this diameter.

☐ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 to 200 years old OR have an average dbh exceeding 21 inches (53cm); crown cover may be less than 100%; decay, decadence, number of snags, and quality of large downed material is generally less than that found in old-growth.

☐ YES = Category I ☑ NO = NOT a forested wetland with special characteristics

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 question SC 5.1 ☑ NO = NOT a wetland in a coastal lagoon

SC 5.1 Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species. (se list of invasive species on p. 74).
☐ At least 3/4 of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.
☐ The wetland is larger that 1/10 acre (4350 square feet).

☐ YES = Category I ☐ NO = Category II

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 of WBUO)?

YES = go to question SC6.1 ☑ NO = NOT an interdunal wetland for rating

If the answer is YES the wetland still need to be rated based on its functions.

In practical terms that mean the following geographic areas:

- ☐ The 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 a mosaic of wetlands that is one acre or larger?

☐ YES = Category II NO = go to question SC 6.2

SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that are between 0.1 and 1 acre?

☐ YES = Category III

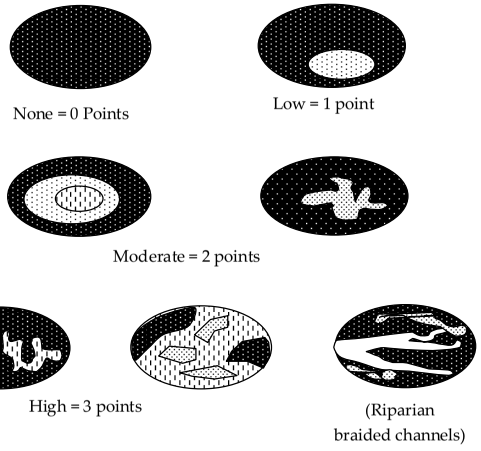
Category of wetland based on Special Characteristics Choose the "highest" rating if wetland falls into several categories, and record on p. 1. If NO was answered for all types enter "Not Applicable" on p. 1.	n/a

S Slope Wetlands WATER QUALITY FUNCTIONS - Indicators that wetland functions improve water quality.		**Points** (Only 1 score per box)
S1. Does the wetland unit have the potential to improve water quality?		*(see p. 64)*
S1.1 Characteristics of the average slope of unit:		
☐ Slope is 1% or less (*a 1% slope has a one foot drop in elevation for every 100ft in horizontal distance).*	3 pts	0
☐ Slope is 1% to 2%	2 pts	
☐ Slope is 2% to 5%	1 pt	
☑ Slope is greater than 5%	0 pts	
S1.2 The soil two inches below the surface (or duff layer) is clay or organic (use NRCS definitions).		
☐ YES	3 pts	0
☐ NO	0 pts	
S1.3 Characteristics of vegetation in the wetland that trap sediments and pollutants: *Choose the points appropriate for the description that bests 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 six inches.*		**Figure B**
☐ Dense, un-grazed, herbaceous vegetation in >90% of the area	6pts	1
☐ Dense, un-grazed, herbaceous > ½ of the area	3 pts	
☐ Dense, woody, vegetation in > ½ of the area	2 pts	
☑ Dense, un-grazed, herbaceous vegetation in> ¼ of the area	1 pt	
☐ Does not meet any of the criteria above for vegetation	0 pts	
Aerial photo or map with vegetation polygons		
Total for S1 Add the points in the boxes above		**1**
S2. 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 down-gradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.*		
☐ Grazing in the wetland or within 150 feet		Multiplier = 2
☐ Untreated stormwater discharges to the wetland		
☐ Tilled fields or orchards within 150 feet of the wetland		
☑ Residential, urban areas, or golf courses are within 150 feet upslope of wetland		
☐ Other:		
YES = multiplier is 2 NO = multiplier is 1		
Total- Water Quality Functions Multiply the score from S1 by S2 *Add the score to the table on page 1*		**2**

S Slope Wetlands HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream degradation	**Points** (Only 1 Score per box)
S3. Does the wetland unit have the potential to reduce flooding and stream erosion?	***(see p. 68)***
S3.1 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 >1/8 inch), or dense enough, to remain erect during surface flows). ☐ Dense, uncut, **rigid**, vegetation covers >90% of the area of the wetland 6 pts ☑ Dense, uncut, **rigid** vegetation > ½ area 3 pts ☐ Dense, uncut, **rigid** vegetation > ¼ area 1 pts ☐ More than ¼ of the area is grazed, mowed, tilled, or vegetation is not rigid 0 pts	3
S3.2 Characteristic of slope wetlands that hold 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 2 pts NO 0 pts	2
Total for S3 Add the points in the boxes above	**5**
S4. Does the wetland unit 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 indicators of opportunity apply.* ☐ Wetland has surface runoff that drains to a river or stream that has flooding problems ☐ Other: *Answer NO if the major source of water is controlled by a reservoir (e.g. the wetland is a seep that is on the downstream side of a dam)* YES = multiplier is 2 NO = multiplier is 1	Multiplier = 1
Total- Hydrologic Functions Multiply the score from S3 by S4 *Add score to table on page 1*	**5**

Wetland Rating Form - Western Washington
Version 2 to be used with Ecology PUB 04-06-025
August 2008

These question apply to wetlands of all HGM classes **HABITAT FUNCTIONS -**Indicators that unit functions to provide important habitat **H1. Does the wetland unit have the potential to provide habitat for many species?**	**Points** (Only 1 score per box)
H1.1 Vegetation structure *(see p. 72)* *Check the types of vegetation classes present (as defined in 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 ☑ Scrub/shrub- areas where shrubs have >30% cover ☐ Forested- areas where trees have >30% cover *If the unit has a forested class, check if:* ☐ Forested areas have three out of five strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon *Add the number of vegetation types that qualify. If you have:* 4 or more structures 4 pts **Map of Cowardin vegetation classes** 3 structures 2 pts 2 structures 1 pt 1 structure 0 pts	**Figure B** 1
H1.2 Hydroperiods ***(see p. 73)*** *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count (see text for descriptions of hydroperiods).* ☐ Permanently flooded or inundated — 4 or more present — 3 pts ☑ Seasonally flooded or inundated — 3 present — 2 pts ☐ Occasionally flooded or inundated — 2 present — 1 pt ☑ Saturated only — 1 present — 0 pts ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland **Map of hydroperiods** ☐ Lake-fringe wetland 2 pts ☐ Freshwater tidal wetland 2 pts	**Figure A** 1
H1.3 Richness of Plant Species ***(see p. 75)*** Count the number of plant species in the wetland that cover at least 10 square feet. *(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, or Canadian thistle Number of Species Counted: ☐ >19 species 2 pts ☑ 5-19 species 1 pt ☐ <5 species 0 pts List of species counted (not required):	 1
Total for this page	3

H1.4. Interspersion of Habitats ***(see p. 76)*** Decide from the diagrams below, whether interspersion between Cowardin vegetation classes (described in H1.1), or the classes and un-vegetated 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**	**Figure B** 1
H1.5 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 points column.* ☐ Large, downed, woody debris within the wetland (>4 inches diameter and 6 pt long) ☐ Standing snags in the wetland (diameter at bottom >4 inches) ☐ Undercut banks are present for at least 6.6ft (2m) and/or overhanging vegetation which extends at least 3.3ft (1m) over a stream 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 ☐ At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in area that are permanently or seasonally inundated (structures for egg-laying by amphibians) ☐ Invasive plants cover less than 25% of the wetland area in each stratum of plants *Note: the 20% stated in early printings of the manual on page 78 is an error.*	0
H1. Total Score – potential for providing habitat *Add the scores in all H1 columns above*	**4**

Comments:

H2. Does the wetland unit have the opportunity to provide habitat for many species?	
H2.1 Buffers ***(see p. 80)***	**Figure A**
Choose the description that best represents the condition of the buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."	
☐ 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. No structures are within undisturbed part of buffer. (Relatively undisturbed also means no-grazing, no landscaping, no daily human use.) **5 pts**	3
☐ 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >50% circumference. **4 pts**	
☐ 50m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **4 pts**	
☑ 100m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >25% circumference. **3 pts**	
☐ 50m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >50% circumference. **3 pts**	
If the buffer does not meet any of the above criteria	
☐ No paved areas (except paved trails) or buildings within 25m (80ft) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. **2 pts**	
☑ No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **2 pts**	
☐ Heavy grazing in the buffer. **1 pt**	
☐ 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). **0 pts**	
☐ Buffer does not meet any of the criteria above. **1 pt**	
Aerial photo showing buffers	
H2.2 Corridors and Connections ***(see p. 81)***	
H2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150ft 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, and paved roads are considered breaks in the corridor.	1
YES = 4 points (go to question H 2.3)__ NO = go to question H2.2.2	
H2.2.2 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 question H2.3) NO = go to question H2.2.3.	
H2.2.3 Is the wetland:	
☑ within five miles (8km) of a brackish or salt water estuary OR	
☐ within three miles of a large field or pasture (>40 acres) OR	
☐ within one mile of a lake greater than 20 acres?	
YES = **1 point** NO = **0 points**	
Total for page	4

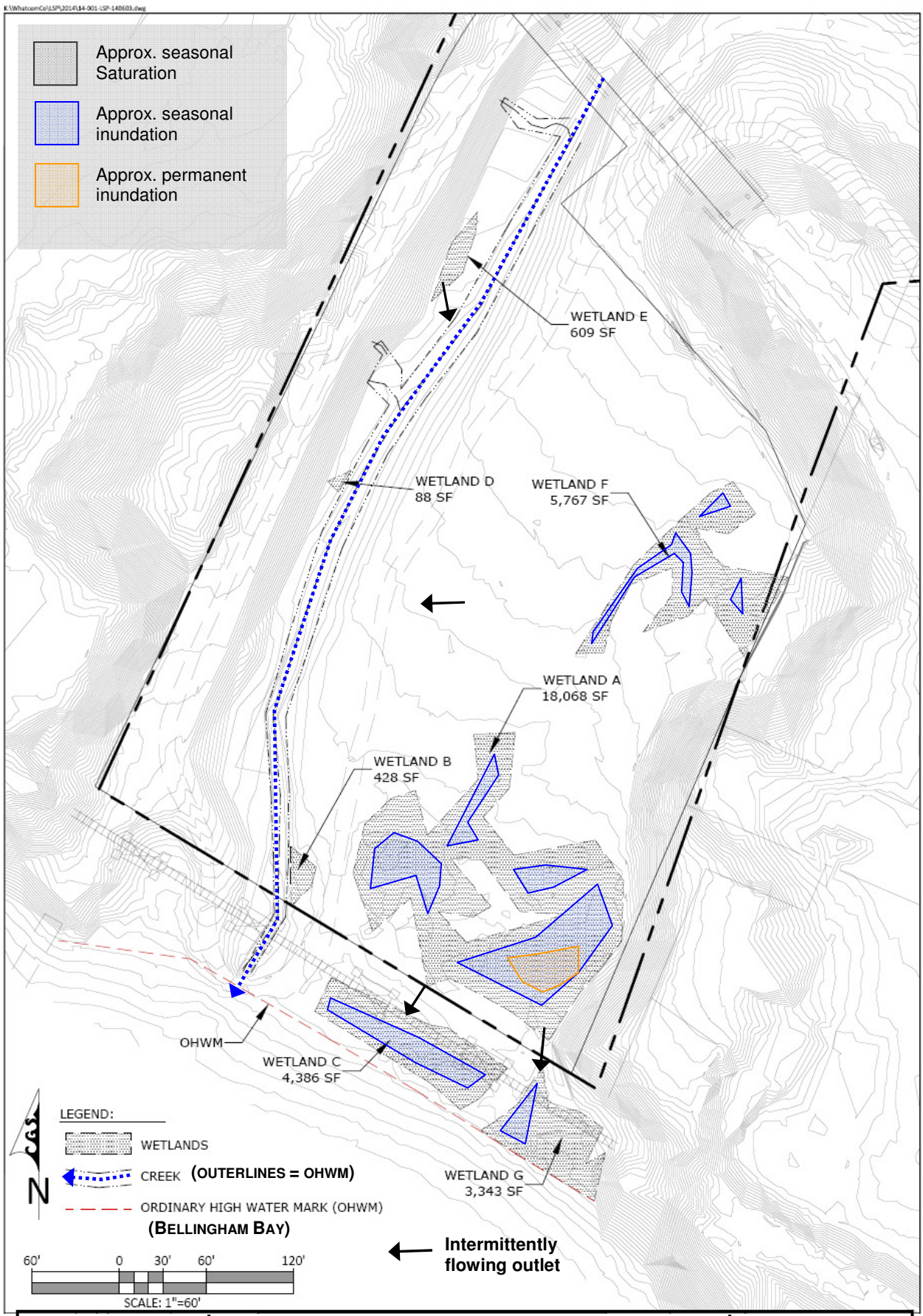
H2.3 Near or adjacent to other priority habitats listed by *WDFW* ***(see new and*** complete descriptions of WDFW priority habitat, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm) Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*	3
☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 0.4ha (1 acre).	
☐ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife. (Full description 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) which are >81 cm (32 in) dbh or > 200 yrs of age. Mature Forest-Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100% ; decay, decadence, numbers of snags, and quality of large downed material is generally less than that found in old-growth; 800-200 yrs old west of Cascade crest.	
☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (full description 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 take the form of a dry prairie or wet prairie (full description 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 description of habitats and the definition of relatively undisturbed are in WDFW PHS report p. 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 (25ft) high and occurring below 5000ft.	
☐ **Talus**: Homogeneous areas of rock rubble ranging in average size from 0.15 to 2.0 m (0.5 to 6.5ft), composed as 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 DBH of >51 cm (20 in) in Western Washington and are >2M (6.5ft) in height. Priority logs are >30 cm (12 in) in diameter at the largest end and > 6M (20ft) long.	
If the wetland has 3 or more priority habitats **4 pts**	
2 priority habitats **3 pts**	
1 priority habitat **1 pt**	
no priority habitats **0 pts**	
Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H2.4)	

Wetland G

H2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland* that best fits) (see p.84) ☐ There are at least three 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, field, or other development). **5 pts** ☐ The wetland is Lake-fringe on a lake with little disturbance and there are three other lake-fringe wetlands within ½ mile. **5 pts** ☑ There are at least three other wetlands with in ½ mile, BUT the connection between them is disturbed. **3 pts** ☐ The wetland is Lake-fringe on a lake WITH disturbance and there are three other lake-fringe wetlands within ½ mile. **3 pts** ☐ There is at least one other wetland within ½ mile. **2 pts** ☐ There are no other wetlands within ½ mile. **0 pts**	3
H2. Total Score - opportunity to provide habitat *Add the scores in all of the H2 columns above*	**10**
Total for H1	**4**
Add the points from the total H1 and H2 boxes **Total Score for Habitat Functions** *Add the score to table on page 1*	**14**

Wetland name or number:

D Depressional and Flats Wetlands WATER QUALITY FUNCTIONS - indicators that wetland functions improve the water quality.	**Points (only 1 score per box)**
D1. Does the wetland unit have the potential to improve water quality?	(see p. 38)
D1.1 Characteristics of surface water flows out of the wetland: ☐Unit is a depression with no surface water leaving it (no outlet) 3 pts ☐Unit has intermittently flowing, OR highly constricted permanently flowing outlet 2 pts ☐Unit has an un-constricted, or slightly constricted, surface outlet (*permanently flowing*) 1 pt ☐Unit is a flat depression (Q.7), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch 1 pt *(If ditch is not permanently flowing, treat unit as "intermittently flowing")* **Provide photo or drawing**	Figure n/a 0
D1.2 The soil two inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES 4 pts NO 0 pts	0
D1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): ☐ Wetland has persistent, ungrazed, vegetation in >95% of the area 5 pts ☐ Wetland has persistent, ungrazed, vegetation in ≥ ½ of the area 3 pts ☐ Wetland has persistent, ungrazed, vegetation in ≥ 1/10 of the area 1 pt ☐ Wetland has persistent, ungrazed, vegetation in< 1/10 of the area 0 pts **Map of Cowardin vegetation classes**	**Figure n/a** 0
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 conditions 5 out of 10 years. ☐ Area seasonally ponded is > ½ total area of the wetland 4 pts ☐ Area seasonally ponded is > ¼ total area of the wetland 2 pts ☐ Area seasonally ponded is < ¼ total area of the wetland 0 pts **Map of Hydroperiods**	**Figure n/a** 0
Total for D1 Add the points in the boxes above	**0**
D2 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 quality in streams, lakes, or groundwater down gradient 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 quality as opportunity. ☐ Grazing in the wetland or within 150 feet ☐ Untreated stormwater discharges to the wetland ☐ Tilled fields or orchards within 150 feet of the wetland ☐ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ☐ Residential, urban areas, or golf courses are within 150 feet 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
Total- Water Quality Functions Multiply the score from D1 by D2 *Add the score to the table on page 1*	**0**



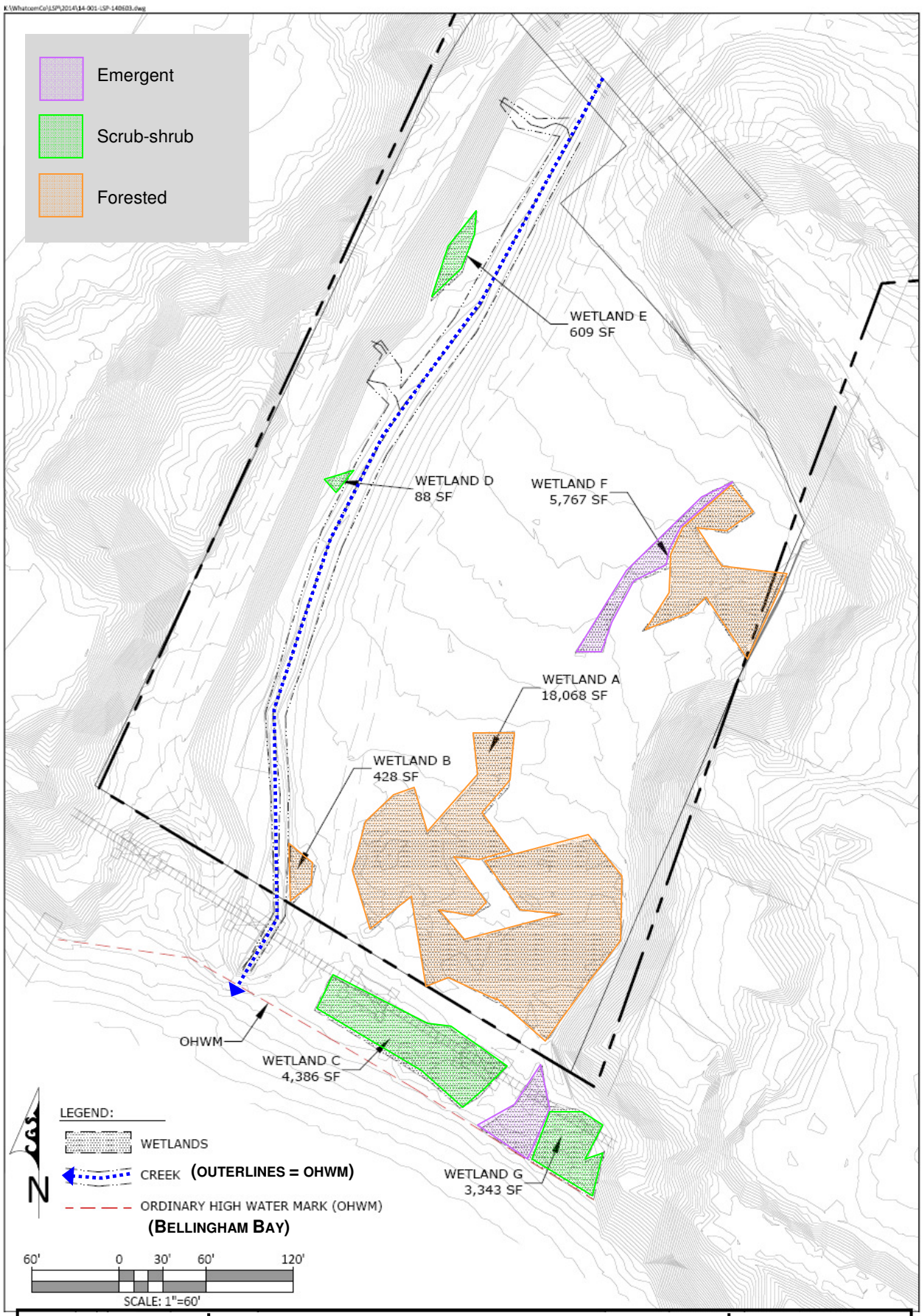
ECOLOGICAL NORTHWEST

Wetland Map
(for WDOE Wetland Rating)

Little Squalicum Park
Critical Areas Delineation Report

Figure A

June 2014



ECOLOGICAL NORTHWEST

Wetland Map
(for WDOE Wetland Rating)

Little Squalicum Park
Critical Areas Delineation Report

Figure B

June 2014

ECOLOGICAL NORTHWEST	**Wetland Map** **(for WDOE Wetland Rating)** **Little Squalicum Park** **Critical Areas Delineation Report**	**Figure C** **June 2014**