

## **BUFFER AVERAGING PLAN**

#### FOR

## 7C'S POOL HOUSE Mill Creek, WA

Wetland Resources, Inc. Project #19124

Prepared By Wetland Resources, Inc. 9505 19th Avenue SE, Suite 106 Everett, WA 98208 (425) 337-3174

Prepared For Coast Construction Group LLC Attn: Trevor Gaskin 328 N Olympic Avenue Arlington, WA 98223

Original: August 22, 2019 *Revision 1*: November 11, 2019

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## **1.0 INTRODUCTION**

The subject site is a 4.54-acre parcel located at the southern corner of the intersection between North Creek Drive and Dumas Road in the City of Mill Creek, Washington, (parcel #28053100203700) within a portion of Section 31, Township 28N, Range 5E, W.M. Access to the subject site is from the west via North Creek Drive. Surrounding land use consists primarily of dense residential and commercial centers. Multi-family housing is immediately adjacent to the north and west, and the south and east are mostly undeveloped forest. On-site topography varies, sloping generally to the southeast.

Currently the property is undeveloped forest with a scrub-shrub understory. The on-site vegetation is dominated by Western red cedar (*Thuja plicata*), Douglas fir (*Pseudotsuga menziesii*), salmonberry (*Rubus spectabilis*), salal (*Gaultheria shallon*), red alder (*Alnus rubra*), sword fern (*Polystichum munitum*), and trailing evergreen blackberry (*Rubus ursinus*).



Figure 1 - Aerial view of the subject property

A wetland study was performed on the subject property by *Harmsen & Associates, Inc.* The on-site findings of this determination are presented in the report, 18-181 Carr - Wetland Delineation Report (dated May 18, 2018), hereafter referred to as the "Harmsen report." This report is included in Appendix A of this report. There is one on-site Category III wetland (Wetland A), which is located in the northeastern portion of the site. This wetland is depicted on the Buffer Averaging Plan Map (Appendix C of this report).

A wetland study was performed on the property to the south by Shannon & Wilson, Inc. The findings of this study are presented in the Wetland Delineation Report – Remillard Property, dated April 15, 2014, hereafter referred to as the "Remillard report." There is one Category III wetland (Wetland B – off-site) identified in the eastern portion of the property. This wetland is depicted 176 feet south of the property boundary. Pursuant to Mill Creek Municipal Code (MCMC 18.06.930(B)(3), Category III wetlands receive protective buffers of 50 feet adjacent adjacent to low impact land use and 100 feet adjacent to high impact land use. Therefore, Wetland B does not cast a buffer onto the subject property. Please refer to the Remillard report (Appendix B) – Figure 2 for a depiction of this wetland and associated buffer widths.

Wetland Resources, Inc. (WRI) visited the subject property on May 21, 2019 to assess on-site areas within and adjacent to the on-site wetland buffers in order to prepare this buffer averaging plan.

## **1.1 PROJECT DESCRIPTION**

Coast Construction Group LLC, hereafter referred to as the applicant, proposes to construct a pool house facility on the subject site. The development will consist of a recreational building, parking, concrete pathways, and associated utilities and infrastructure. The overall footprint of the proposed project partially extends into the standard buffer associated with Wetland A. In order to avoid potential buffer impacts associated with the project, the applicant proposes to implement buffer averaging as stipulated in MCMC 18.06.930(C). To accommodate the proposed site plan the applicant proposes to reduce a 5,230 square-foot buffer area to the south of Wetland A. As compensation, an equal amount of buffer will be provided. The additional buffer area is of at least equal quality as that being reduced. Additionally, the applicant will install three downed logs, two bird nest boxes, and one bat box to enhance wildlife habitat functions on the site. Per MCMC 18.06.80, the modified buffer edge will be demarcated by fencing and critical area signage.

## **1.2 STATEMENT OF QUALIFICATIONS**

This Buffer Averaging Plan report was prepared by Joie Goodman and Scott Brainard.

Joie Goodman holds a Bachelor of Arts degree in Botany and Conservation Biology and a Master of Science Degree in Land Resources from the University of Wisconsin. She has also completed a professional development certificate in Wetland Science and Management through the University of Washington. Her professional experience includes conducting surveys as well as research and recovery efforts for rare and endangered plant species, including plant reintroductions. She has worked as a contractor for the US Forest Service and as an employee at two botanical gardens. Joie has four years of experience working with Wetland Resources, Inc. as an ecologist. Her experience includes conducting wetland and stream delineations, developing wetland, stream, and buffer mitigation plans, conducting functions and values analyses, monitoring mitigation and restoration projects, and ensuring project compliance with local, state, and federal permitting requirements.

Scott Brainard holds a Bachelors degree in Environmental Policy and Impact Assessment from Huxley College, Western Washington University, and is a Certified Professional Wetland Scientist and an active member of the Society of Wetland Scientists. With Wetland Resources since 1994, his experience includes project management, wetland reconnaissance/feasibility, permit coordination, delineation, construction supervision, mitigation planning, wetland creation and construction design, ecological and aquatic resource monitoring, and technical report writing.

## 2.0 CRITICAL AREAS CLASSIFICATIONS

Wetlands were classified pursuant to Chapter 18.06 of the Mill Creek Municipal Code (MCMC).

Wetland A HGM Class: Depressional Cowardin Classification: Palustrine, Forested Wetland, Broad-leaved Deciduous, Saturated DOE Rating Score: 17 DOE/City of Mill Creek Classification: Category III City of Mill Creek High Impact Land Use Buffer: 100 Feet

The on-site wetland (Wetland A) is classified as a Category III wetland based on the Harmsen report (Appendix A). In Mill Creek, Category III wetlands receive 100-foot protective buffers when high impact land use is proposed.

## **3.0 BUFFER AVERAGING**

To avoid potential buffer impacts associated with the proposed development plan, the applicant proposes to utilize buffer averaging as allowed under MCMC 18.06.930(C). To accommodate the site plan, 5,230 square feet of buffer averaging reduction is proposed. 5,230 square feet of buffer averaging addition is proposed to compensate for the buffer reduction. By providing additional buffer areas that are higher in quality as compared with the proposed buffer reduction area, he proposed buffer averaging plan results in a modest overall improvement in on-site buffer functions and values. The criteria required for buffer width averaging under MCMC 18.06.930(C) is cited in *italics*, with responses below in normal text:

C. The director shall have the authority to "average" buffer widths on a case-by-case basis where a qualified professional demonstrates to the director's satisfaction that all the following criteria are met:

1. The total area contained in the buffer area after averaging is no less than that which would be contained within the standard buffer;

The total area of proposed buffer reduction (5,230 square feet) is equal to that proposed as additional buffer. The compensatory area of buffer being provided is divided into two areas (2,284 and 2,946 square feet), on either side of the buffer reduction area.

2. The buffer averaging does not reduce the functions or values of the wetland;

Areas provided as additional buffer are of higher quality compared to the buffer reduction area. The area of buffer proposed for reduction through averaging is degraded by human refuse, low habitat heterogeneity, and invasive vegetation such as Himalayan blackberry (see Figure 3). In contrast, the portion of the additional buffer being provided through averaging is a complex, multi-story forest community with little to no invasive plant cover (see Figure 4). Overall, vegetation structure and habitat complexity within the wetland buffer will be increased through the proposed buffer averaging, and buffer functionality is expected to be improve.

## 3. The portion of the buffer reduced through buffer averaging is less than 25 percent of the total buffer length on a project site;

The total buffer length on the project site is 1,019 linear feet (see Figure 2). The portion of the standard buffer proposed for buffer averaging reduction is 252.68 linear feet, which represents 24.8 percent of the total on-site buffer length. Therefore, the portion of the buffer length being reduced is less than 25 percent of the total.



**Figure 2** – Total buffer length on project site.

## 4. The wetland contains variations in sensitivity due to existing physical characteristics or the character of the buffer varies in slope, soils, or vegetation; and

As described above, the area proposed for buffer reduction contains low habitat heterogeneity and includes invasive vegetation. The area proposed for buffer addition is a complex multi-story forest community with little to no invasive plant cover. Therefore, the proposed buffer averaging results in an improvement in the level of on-site buffer functions and values.

5. The buffer width is not reduced to less than 50 percent of the standard width, except that no buffer dimension shall be less than 25 feet.

The averaged buffer will be 56.7 feet wide at its narrowest point, which is greater than 50 percent of the standard 100-foot buffer width.



Figure 3 - Degraded conditions in the proposed buffer averaging reduction area.



Figure 4 - Healthy, multi-story forest conditions in the proposed buffer averaging addition area.

## 4.0 WILDLIFE HABITAT FEATURES

To enhance wildlife habitat function on the site, the applicant shall install three downed logs and two bird nest boxes within the buffer on Wetland A.

#### Downed Logs

WDNR Forest Practices Illustrated (Revised 2017) recommends that 2 downed logs per acre be retained for wildlife habitat and that these should be at least 20 feet in height and 12 inches diameter at breast height (DBH). As the on-site wetland and buffer occupy approximately 1.6 acres, three downed logs from the clearing to take place on the site for construction (outside the wetland buffer) will be retained and placed within the on-site buffer area. These should meet the minimum height and diameter guidelines or as close as possible given the trees available from construction clearing on the site. The downed logs shall be placed at least 20 feet apart. Actual placement of the downed logs will be determined on site and shall avoid damage to existing trees in the buffer.

#### Bird Nest Boxes

Two bird nest boxes appropriate for Pacific Northwest native songbirds shall be installed within the buffer of Wetland A. These shall be installed per the height and orientation specifications for the boxes/species chosen and shall be located 15 to 25 feet apart. NRCS and Wildlife Habitat Council (2008) and the Cornell Lab of Ornithology (2019) provide information on the recommended size and placement of bird nest boxes.

## 5.0 CRITICAL AREA PROTECTIVE MEASURES

## 5.1 BUILDING SETBACKS

Pursuant to MCMC 18.06.840, buildings and other structures shall be set back a distance of 10 feet from the edges of all critical area buffers. Impervious ground surfaces less than 2,500 square feet may be allowed in the building setback area. The proposed site plan includes 147 square feet of impervious ground surface (a portion of the proposed parking) within the 10-foot building setback.

## 5.2 CRITICAL AREA SIGNS AND FENCING

Pursuant to MCMC 18.06.810, the boundary of the outer edge of the buffer shall be identified with fencing. Signs or markers shall be placed every 100 feet. The location of the final buffer, fencing, and signs is depicted on the Buffer Averaging Plan Map (Appendix C).

## 5.3 NOTICE ON TITLE

Pursuant to MCMC 18.06.820, the owner of the property shall file a notice with the Snohomish County auditor according to the direction of the City. The applicant shall submit proof that the notice has been filed for public record before any occupancy or use of the approved development.

## 6.0 Use OF This Report

This Buffer Averaging Plan is supplied to Coastal Construction Group, LLC as a means of determining appropriate on-site buffer mitigation as required by the City of Mill Creek during the permitting process. This report is based largely on readily observable conditions and, to a lesser extent, on readily ascertainable conditions. No attempt has been made to determine hidden or concealed conditions.

The laws applicable to wetlands are subject to varying interpretations and may be changed at any time by the courts or legislative bodies. This report is intended to provide information deemed relevant in the applicant's attempt to comply with the laws now in effect.

The work for this report conforms to the standard of care employed by wetland ecologists. No other representation or warranty is made concerning the work or this report, and any implied representation or warranty is disclaimed.

Wetland Resources, Inc.

Joie Goodman Associate Ecologist

Scott Brainard Principal Ecologist, PWS

## 7.0 REFERENCES

- Bat Conservation International. 2019. Bat Houses. <u>http://www.batcon.org/resources/getting-involved/bat-houses</u>
- Cornell Lab of Ornithology. 2019. *NestWatch*. Nest Box Placement. <u>https://nestwatch.org/learn/all-about-birdhouses/nest-box-placement/</u>
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- NRCS. 2016. Web Soil Survey. United States Department of Agriculture. http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx
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- Mill Creek, City of. *Mill Creek Municipal Code*. Title 18, Environment. Chapter 06, Environmentally Critical Areas.
- Snohomish, County of. 2016. Snohomish County PDS Map Portal. https://snohomishcountywa.gov/3752/PDS-Map-Portal
- US Army COE. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0). Vicksburg, MS
- USFWS. 2016. National Wetlands Inventory (NWI) Online Mapper. http://www.fws.gov/wetlands/Data/Mapper.html.
- WDFW. 2016a. Priority Habitat and Species (PHS) Interactive Map. http://apps.wdfw.wa.gov/phsontheweb/.
- WDFW. 2016b. SalmonScape Online Mapping Application. http://apps.wdfw.wa.gov/salmonscape/map.html.

## **APPENDIX A**



Daniel Carr 21600 31<sup>st</sup> Dr. SE Bothell, WA 98021 May 18, 2018 H&AI Job #18-181 (206) 595-9928 daniel@7cswimschool.com

Dear Daniel,

On May 14, 2018, HAI Wetland Specialist Erynn O. Sullivan conducted a wetland delineation on the property of interest, located at the southerly quadrant of the intersection of North Creek Dr. and Dumas Rd. in the city of Mill Creek, also described as "Lot 3 of Heatherwood Apartments Binding Site Plan" (APN#28053100203700). The following attachments are included with this study:

- Wetland Delineation figure
- Photo Sheet
- Wetland Determination Data Sheets (3 sets)
- Wetland Rating Form with 10-page Appendix

#### Methodology

Information from the public domain was used in this delineation study. Resources include Snohomish County's property mapping tool (SCOPI) & GIS tool (PDS Map Portal); USDA Natural Resources Conservation Service soil mapping tool (Web Soil Survey); US Fish & Wildlife Service National Wetland Inventory (Wetlands Mapper); Washington Dept. of Ecology's Water Quality Assessment tool (Water Quality Atlas); Washington Dept. of Fish & Wildlife's mapping tool (Salmonscape); US Army Corps of Engineers National Wetland Plant List (NWPL); and Google Earth.

The area of interest was evaluated for physical wetland indicators using methodology described in the *Corps of Engineers Wetland Delineation Manual* (hereafter Manual) (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region V.2.0* (hereafter WMVC Supplement) (USACE 2010). The area of interest was evaluated for wetland function using methodology described in the *Washington State Wetland Rating System for Western Washington* (hereafter Rating System) (WaECY 2014).

Determination of wetland boundaries rely upon assessment of vegetation, soils, and hydrology, and are sampled at several locations on site to verify presence or absence of wetland conditions. Each sample point was numbered and marked with pink survey flagging. The wetland boundary was marked using pink survey flagging and sequential numbering (HAI 05/14/2018 #A-1 through #A-26); sampling points were marked in the same manner (HAI 05/14/18 #SP A-1 through #A-3).

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#### 5/18/2018

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Fig. 1: Snohomish County parcel map, with approximate location of Wetland depicted by star

#### **Existing Conditions**

The area of interest is situated on a small plateau above the easterly side of North Creek and Sitka Creek in the Cedar-Samammish Water Resources Inventory Area (WRIA #8). The wetland is situated in a wooded depression which, at its northerly tip, is approximately 70' from Dumas Rd. North Creek lies to the west within 1 Km of the property.

The subject property encompasses 4.54 acres, is currently undeveloped, and zoned as "city". Plant communities on the parcel are mixed conifer and hardwood, with brushy understory: upland areas are dominated by *Pseudotsuga menziesii*, *Gaultheria shallon*, *Rubus ursinus*; slope areas (particularly in the southeasterly portion) are dominated by *Alnus rubra*, *Rubus spectabilis*, *Polystichum munitum*.

#### Wetlands

One wetland was identified on the property (Wetland A). Wetland A is a depressional wetland in the easterly portion of the parcel, adjacent to Dumas Rd; there is no inlet or outlet. Wetland A is situate atop a very localized plateau which drops to the south.

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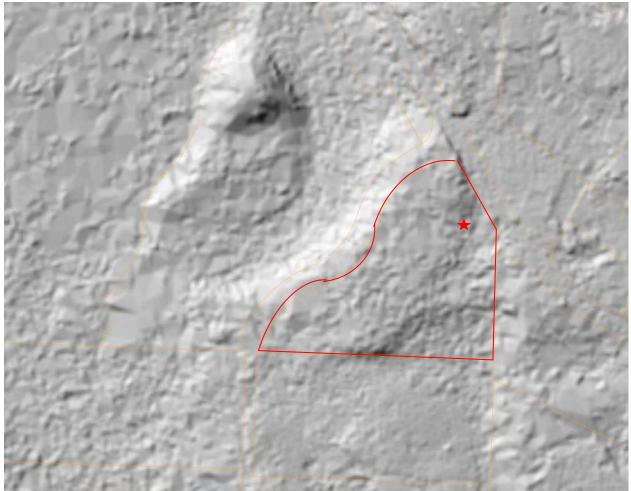


Fig. 2: Subject property (outlined in red) and vicinity; approximate location of Wetland A denoted by star symbol.

Vegetation within Wetland A consists of Oregon crabapple (*Malus fusca*, FACW), Hardhack (*Spiraea douglasii*, FACW), and Salmonberry shrub (*Rubus spectabilis*, FAC), with skunk cabbage (*Lysichiton americanus*, OBL) and Pacific water-parsley (*Oenanthe sarmentosa*, OBL) being the dominant components of the herb strata. At the sample points, canopy cover originates from trees growing outside of the wetland boundary. Rooting zone soil is black (10YR 2/1); yellowish brown (10YR 5/6) redoximorphic features occur in small soft masses below a dark surface. In the southerly portion of the wetland, depleted conditions below dark surface soil was observed; in the northerly portion of the wetland redox features below a thick dark surface soil was observed. The primary hydrology indicators observed were surface water (A1), high water table (A2), and saturation (A3); secondary indicators observed were geomorphic position (D2) and water-stained leaves (B9).

#### Wetland Rating

Wetland A is rated as Category III per the Western Washington Rating System, with an overall score of 17/27 points. This wetland carries a score of 7/9 for Improving Water Quality, a score of 5/9 for Hydrologic Function, and a score of 5/9 for Habitat Function. North Creek (+/- 0.33 mi westerly) is shown on the state Water Quality Atlas as a Category 5 water body, i.e. "data show[s] that the water quality standards have been violated for one or more pollutants" and is on the state's 303(d) list. Sitka Creek (+/- 0.2 mi westerly) is shown on the state Water Quality Atlas as a Category 4c water body, i.e. it is impaired by conditions such as "low flow, stream channelization".

#### **Local Regulations**

In Snohomish County, wetlands are regulated under Title 30.62A of the Snohomish County Code. This portion of the Code applies buffer widths based on wetland category, and may increase buffer widths based on higher Water Quality or Habitat scores. Because Wetland A scores 5 (moderate) for Habitat Function, a minimum 110' buffer is allowable, with buffer mitigation measures for high intensity land use (§30.62A.340(4)(c)(i)(A & B) SCC).

Although Snohomish County does not explicitly require a minimum setback from wetland buffers during land-disturbing activities and construction, the County does require that impacts to vegetation within critical area buffers be avoided (§30.62A.310(3)(a) SCC). To comply with this code, a margin of 15' around the buffer should be considered.

#### **State & Federal Regulations**

Wetlands with hydrologic connections to navigable US waters are regulated by the US Army Corps of Engineers, under §404 of the federal Clean Water Act (1972). Isolated wetlands are regulated by the Washington State Dept. of Ecology under the state Clean Water Act, Chapter 90.48 RCW. Filling and any other alteration of wetlands requires notification to and permits from Wa ECY and possibly USACE.

We appreciate the opportunity to serve you. Please call us if you have any questions regarding this determination.

Sincerely,

Enjono. Suti 5/18/18

Erynn O. Sullivan Wetland Specialist

#### 5/18/2018

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LAND SURVEYING



CIVIL ENGINEERING

#### Wetland A, APN 28053100203700



*ISLAND COUNTY* 840 SE 8<sup>th</sup> Avenue, Ste. 102 Oak Harbor, Washington 98277 tel: (360) 675-5973 **/** fax: (360) 675-7255 **SNOHOMISH COUNTY** 125 East Main Street, Ste. 104

125 East Main Street, Ste. 104 Monroe, Washington 98272 tel: (360) 794-7811 / fax: (360) 805-9732

P:\Work\Projects\2018\18-181 Carr\WTL\2018 Wetland Delineation\Wetland figure.docx

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Attachments: Wetland Delineation Map 3 Wetland Data Forms Western Washington Wetland Rating Summary Appendix with figures

#### References

In addition to references listed on page one:

Pojar & Mackinnon. Plants of the Pacific Northwest Coast. 1994

Hitchcock & Cronquist. Flora of the Pacific Northwest. 1973.

US Army Corps of Engineers. Wetlands Delineation Manual. January 1987.

US Army Corps of Engineers. *Regional Supplement to the Corps of Engineers Wetlands Delineation Manual; Western Mountains, Valleys, and Coast Region*. May 2010.

Washington State Department of Ecology. *Washington State Wetland Rating System for Western Washington: 2014 Update.* January 2015.

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

Project/Site: 18-181 / APN28053100203700	City/County: MILL CREEK / SNOHOMISH Sampling Date: 05/14/2018				
Applicant/Owner: DANIEL CARR	State: WA Sampling Point: SP A-1				
Investigator(s): ERYNN O. SULLIVAN	Section, Township, Range: NW QTR S31 T28N R05E				
	Local relief (concave, convex, none): CONVEX Slope (%): 2				
Subregion (LRR): MLRA 2 Lat: 47	7° 52' 32" N Long: 122° 13' 05' W Datum: WGS84				
Soil Map Unit Name: ALDERWOOD GRAVELLY SANDY LOAM, 0-89	% SLOPES NWI classification: PSS1C				
Are climatic / hydrologic conditions on the site typical for this time of ye	year? Yes _✔ No (If no, explain in Remarks.)				
Are Vegetation, Soll, or Hydrology significantly	y disturbed? Are "Normal Circumstances" present? Yes ✓ No				
Are Vegetation, Soil, or Hydrology naturally pro	roblematic? (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	In the Complex Area				

Hydric Soil Present? Wetland Hydrology Present?	Yes No Yes No	Is the Sampled Area within a Wetland?	Yes	No
Remarks:				

#### **VEGETATION – Use scientific names of plants.**

	Absolute	Dominant		Dominance Test worksheet:	
Tree Stratum (Plot size: 25' dia)		Species?		Number of Dominant Species	
1. Pseudotsuga meniesii	25	Y	FACU	That Are OBL, FACW, or FAC:	(A)
2. Alnus rubra	60	Y	FAC	Total Number of Dominant	
3				Species Across All Strata:	(B)
4					(-)
	85	= Total Co	VOT	Percent of Dominant Species	
Sapling/Shrub Stratum (Plot size: 25' dia )		- 10tai 00	401	That Are OBL, FACW, or FAC:	(A/B)
1. Rubus spectabilis	30	Y	FAC	Prevalence Index worksheet:	
2. Sambucus racemosa	20	Y	FACU	Total % Cover of:Multiply by:	_
•·				OBL species 0 x 1 = 0	_
				FACW species $0$ $x 2 = 0$	_
4			-	FAC species 200 x 3 = 600	
5			-	FACU species 155 x 4 = 620	-
10 dia	50	= Total Co	ver	UPL species $0$ $x 5 = 0$	-
Herb Stratum (Plot size: 10' dia )	00		540		- (D)
1. Maianthemum dilatatum	80	Y	FAC	Column Totals: 355 (A) 1220	_ (B)
2. Claytonia sibirica	40	N	FAC	Prevalence index = $B/A = 3.44$	
3. Polystichum munitum	70	<u>Y</u>	FACU	Hydrophytic Vegetation Indicators:	
4. Rubus ursinus	40	N	FACU	1 - Rapid Test for Hydrophytic Vegetation	
5	-			2 - Dominance Test is >50%	
6					
7 8				4 - Morphological Adaptations <sup>1</sup> (Provide supplications) (Provide supplication	orting
9				5 - Wetland Non-Vascular Plants <sup>1</sup>	
10				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain	n)
11				<sup>1</sup> Indicators of hydric soil and wetland hydrology m	
	230			be present, unless disturbed or problematic.	
Woody Vine Stratum (Plot size: N/A )					
1				Hydrophytic	
2				Vegetation	
6n ·		= Total Cov		Present? Yes No	
% Bare Ground in Herb Stratum		= Total Cov			
Remarks:				I	
Alnus rubra cover originates outside the sampling area					

Depth (inches)	clibrioli. (poscilio	a to the debi	th needed to docum	ient die marcator	AL COULUM	rue anzence	
(inches)	Matrix		Redox	Features			
	Color (moist)	%	Color (moist)	<u>%</u> Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-2							duff
2-6	10YR 2/2	100				LOAMY /	GRAVELLY
6-12	10YR 3/2	100				LOAMY /	GRAVELLY
12-24	10YR 4/1	100				GRAVELLY	/ SANDY / CLAYEY
					·		
	·						
				<u> </u>	·		
<u></u>		_		s			
			Reduced Matrix, CS		ed Sand Gra		ation: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators: (Appl	cable to all	LRRs, unless other	wise noted.)		Indicato	rs for Problematic Hydric Solls <sup>3</sup> :
Histoso	· ·		Sandy Redox (S	•			n Muck (A10)
	pipedon (A2)		Stripped Matrix				Parent Material (TF2)
	listic (A3) en Sulfide (A4)		Loamy Mucky M Loamy Gleyed I	Aineral (F1) (excer	MLRA 1)		/ Shallow Dark Surface (TF12) er (Explain in Remarks)
	en Sunde (A4) ed Below Dark Surfa	ice (A11)	Depleted Matrix				
	ark Surface (A12)		Redox Dark Su	. ,		<sup>3</sup> Indicato	rs of hydrophytic vegetation and
	Mucky Mineral (S1)		Depleted Dark S	• •			nd hydrology must be present,
	Gleyed Matrix (S4)		Redox Depress	ions (F8)		unles	s disturbed or problematic.
Restrictive	Layer (if present):						
Type:							
Depth (in	nches):					Hydric Soil	Present? Yes No
Remarks:						<u> </u>	
NO REDOX	FEATURES WERE	OBSERVE	)				
HYDROLO							
Wetland Hy	drology Indicators	5:					
Primary Indi	icators (minimum of	one required	d; check all that apply				ndary Indicators (2 or more required)
	e Water (A1)			ned Leaves (B9) (	except	v	Vater-Stained Leaves (B9) (MLRA 1, 2,
	ater Table (A2)		MLRA	1, 2, 4A, and 4B)			
🖌 🖌 Saturat	ion (A3)			-			4A, and 4B)
	Manles (D4)		Salt Crust	(B11)			4A, and 4B) Prainage Patterns (B10)
Water N	• •		Aquatic Im	(B11) vertebrates (B13)		c	<b>4A, and 4B)</b> prainage Patterns (B10) pry-Season Water Table (C2)
Water M	ent Deposits (B2)		Aquatic Inv Hydrogen	(B11) vertebrates (B13) Sulfide Odor (C1)		C	<b>4A, and 4B)</b> Trainage Patterns (B10) Dry-Season Water Table (C2) Taturation Visible on Aerial Imagery (C9)
Water M Sedime	ent Deposits (B2) eposits (B3)		Aquatic Inv Hydrogen Oxidized F	(B11) vertebrates (B13) Sulfide Odor (C1) Rhizospheres along		C S ts (C3) G	<b>4A, and 4B)</b> rrainage Patterns (B10) bry-Season Water Table (C2) saturation Visible on Aerial Imagery (C9) seomorphic Position (D2)
Water M Sedime Drift De Algal M	ent Deposits (B2) eposits (B3) lat or Crust (B4)		Aquatic Inv Hydrogen Oxidized F Presence	(B11) vertebrates (B13) Sulfide Odor (C1) Rhizospheres along of Reduced Iron (C	(4)	C S ts (C3) S	<b>4A, and 4B)</b> Prainage Patterns (B10) Pry-Season Water Table (C2) Eaturation Visible on Aerial Imagery (C9) Beomorphic Position (D2) Schallow Aquitard (D3)
Water M Sedime Drift De Algal M	ent Deposits (B2) eposits (B3) lat or Crust (B4) eposits (B5)		Aquatic Im Hydrogen Oxidized F Presence o Recent Iro	(B11) vertebrates (B13) Sulfide Odor (C1) Rhizospheres along of Reduced Iron (C n Reduction In Tille	:4) ed Soils (C6		<b>4A, and 4B)</b> prainage Patterns (B10) pry-Season Water Table (C2) paturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) phallow Aquitard (D3) AC-Neutral Test (D5)
Water M Sedime Drift De Algal M Iron De Surface	ent Deposits (B2) eposits (B3) lat or Crust (B4) eposits (B5) e Soil Cracks (B6)		Aquatic Im Hydrogen Oxidized F Presence of Recent Iro Stunted or	(B11) vertebrates (B13) Sulfide Odor (C1) Rhizospheres along of Reduced Iron (C n Reduction in Tille Stressed Plants (I	:4) ed Soils (C6	C S ts (C3) C S ) F	<b>4A, and 4B)</b> Prainage Patterns (B10) Pry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9) Beomorphic Position (D2) shallow Aquitard (D3) AC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Water M Sedime Drift De Algal M Iron De Surface	ent Deposits (B2) aposits (B3) lat or Crust (B4) aposits (B5) a Soil Cracks (B6) tion Visible on Aeria		Aquatic Im Hydrogen Oxidized F Presence of Recent Iro Stunted or Other (Exp	(B11) vertebrates (B13) Sulfide Odor (C1) Rhizospheres along of Reduced Iron (C n Reduction In Tille	:4) ed Soils (C6	C S ts (C3) C S ) F	<b>4A, and 4B)</b> prainage Patterns (B10) pry-Season Water Table (C2) paturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) phallow Aquitard (D3) AC-Neutral Test (D5)
Water M Sedime Drift De Algal M Iron De Surface Inundat	ent Deposits (B2) aposits (B3) lat or Crust (B4) aposits (B5) a Soil Cracks (B6) tion Visible on Aeria ly Vegetated Conca		Aquatic Im Hydrogen Oxidized F Presence of Recent Iro Stunted or Other (Exp	(B11) vertebrates (B13) Sulfide Odor (C1) Rhizospheres along of Reduced Iron (C n Reduction in Tille Stressed Plants (I	:4) ed Soils (C6	C S ts (C3) C S ) F	<b>4A, and 4B)</b> Prainage Patterns (B10) Pry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9) Beomorphic Position (D2) shallow Aquitard (D3) AC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Water M Sedime Drift De Algal M Iron De Surface Inundat	ent Deposits (B2) eposits (B3) lat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Aeria ly Vegetated Conca rvations:	ve Surface (	Aquatic Im Hydrogen Oxidized F Presence ( Recent Iro Stunted or 7) Other (Exp B8)	(B11) vertebrates (B13) Sulfide Odor (C1) Rhizospheres along of Reduced Iron (C n Reduction In Tille Stressed Plants (I plain in Remarks)	:4) ed Soils (C6	C S ts (C3) C S ) F	<b>4A, and 4B)</b> Prainage Patterns (B10) Pry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9) Beomorphic Position (D2) shallow Aquitard (D3) AC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Water M Sedime Drift De Algal M Iron De Surface Sparse Field Obset Surface Wa	ent Deposits (B2) eposits (B3) lat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Aeria ly Vegetated Conca rvations: ater Present?	ve Surface (	Aquatic Im Hydrogen Oxidized F Presence ( Recent Iro Stunted or 7) Other (Exp B8)	(B11) vertebrates (B13) Sulfide Odor (C1) Rhizospheres along of Reduced Iron (C n Reduction In Tille Stressed Plants (I Stressed Plants (I ches):	:4) ed Soils (C6	C S ts (C3) C S ) F	<b>4A, and 4B)</b> Prainage Patterns (B10) Pry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9) Beomorphic Position (D2) shallow Aquitard (D3) AC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Water M Sedime Drift De Algal M Iron De Surface Sparse Fleid Obset Surface Wa Water Table	ent Deposits (B2) eposits (B3) lat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Aeria ly Vegetated Conca rvations: atter Present? e Present?	ve Surface ( Yes Yes _✓	Aquatic Im Hydrogen Oxidized F Presence o Recent Iro Stunted or 7) Other (Exp B8) No <u>I</u> Depth (inc No Depth (inc	(B11) vertebrates (B13) Sulfide Odor (C1) Rhizospheres along of Reduced Iron (C n Reduction In Tille Stressed Plants (I plain in Remarks) ches):	:4) ed Soils (C6 D1) (LRR A)	C C ts (C3) C S F F	4A, and 4B) prainage Patterns (B10) pry-Season Water Table (C2) iaturation Visible on Aerial Imagery (C9) beomorphic Position (D2) challow Aquitard (D3) AC-Neutral Test (D5) caised Ant Mounds (D6) (LRR A) prost-Heave Hummocks (D7)
Water M Sedime Drift De Algal M Iron De Surface Sparse Fleid Obse Surface Wa Water Table Saturation F	ent Deposits (B2) eposits (B3) lat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Aeria ly Vegetated Conca rvations: atter Present? e Present? Present?	ve Surface ( Yes Yes _✓	Aquatic Im Hydrogen Oxidized F Presence ( Recent Iro Stunted or 7) Other (Exp B8)	(B11) vertebrates (B13) Sulfide Odor (C1) Rhizospheres along of Reduced Iron (C n Reduction In Tille Stressed Plants (I plain in Remarks) ches):	:4) ed Soils (C6 D1) (LRR A)	C C ts (C3) C S F F	<b>4A, and 4B)</b> Prainage Patterns (B10) Pry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9) Beomorphic Position (D2) shallow Aquitard (D3) AC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Water M Sedime Drift De Algal M Iron De Surface Sparse Fleid Obse Surface Wa Water Table Saturation F (includes ca	ent Deposits (B2) eposits (B3) lat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Aeria ly Vegetated Conca rvations: ater Present? e Present? epresent? epillary fringe)	ve Surface ( Yes Yes _✓ Yes _✓	Aquatic Im Hydrogen Oxidized F Presence o Recent Iro Stunted or 7) Other (Exp B8) No <u>I</u> Depth (inc No Depth (inc	(B11) vertebrates (B13) Sulfide Odor (C1) Rhizospheres along of Reduced Iron (C n Reduction In Tille Stressed Plants (I plain in Remarks) ches):	:4) ed Soils (C6 D1) (LRR A)		4A, and 4B) prainage Patterns (B10) pry-Season Water Table (C2) iaturation Visible on Aerial Imagery (C9) beomorphic Position (D2) challow Aquitard (D3) AC-Neutral Test (D5) caised Ant Mounds (D6) (LRR A) prost-Heave Hummocks (D7)
Water M Sedime Drift De Algal M Iron De Surface Surface Surface Wa Water Table Saturation F (includes ca Describe Re	ent Deposits (B2) eposits (B3) lat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Aeria ly Vegetated Conca rvations: ater Present? e Present? epresent? epillary fringe)	ve Surface ( Yes Yes _✓ Yes _✓	Aquatic Im Hydrogen Oxidized F Presence o Recent Iro Stunted or 7) Other (Exp B8) No <u>I</u> Depth (inc No Depth (inc	(B11) vertebrates (B13) Sulfide Odor (C1) Rhizospheres along of Reduced Iron (C n Reduction In Tille Stressed Plants (I plain in Remarks) ches):	:4) ed Soils (C6 D1) (LRR A)		4A, and 4B) prainage Patterns (B10) pry-Season Water Table (C2) iaturation Visible on Aerial Imagery (C9) beomorphic Position (D2) challow Aquitard (D3) AC-Neutral Test (D5) caised Ant Mounds (D6) (LRR A) prost-Heave Hummocks (D7)
Water N Water N Water N Water N Water Drift De Algal M Iron De Surface Inundat Sparse Field Obse Surface Wa Water Table Saturation F (includes ca Describe Re N/A	ent Deposits (B2) eposits (B3) lat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Aeria ly Vegetated Conca rvations: ater Present? e Present? epresent? epillary fringe)	ve Surface ( Yes Yes _✓ Yes _✓	Aquatic Im Hydrogen Oxidized F Presence o Recent Iro Stunted or 7) Other (Exp B8) No <u>I</u> Depth (inc No Depth (inc	(B11) vertebrates (B13) Sulfide Odor (C1) Rhizospheres along of Reduced Iron (C n Reduction In Tille Stressed Plants (I plain in Remarks) ches):	:4) ed Soils (C6 D1) (LRR A)		4A, and 4B) prainage Patterns (B10) pry-Season Water Table (C2) iaturation Visible on Aerial Imagery (C9) beomorphic Position (D2) challow Aquitard (D3) AC-Neutral Test (D5) caised Ant Mounds (D6) (LRR A) prost-Heave Hummocks (D7)
Water N Water N Water N Water N Water Drift De Algal M Iron De Surface Inundat Sparse Field Obse Surface Wa Water Table Saturation F (includes ca Describe Re N/A Remarks:	ent Deposits (B2) aposits (B3) lat or Crust (B4) aposits (B5) a Soil Cracks (B6) tion Visible on Aeria ly Vegetated Conca rvations: ater Present? apillary fringe) ecorded Data (strea	ve Surface ( Yes Yes _✔ Yes _✔ m gauge, mo	Aquatic Im Hydrogen Oxidized F Presence ( Recent Iro Stunted or 7) Other (Exp B8) No <u>V</u> Depth (inc No Depth (inc No Depth (inc Depth (inc	(B11) vertebrates (B13) Sulfide Odor (C1) Rhizospheres along of Reduced Iron (C n Reduction In Tille Stressed Plants (I plain in Remarks) ches):	:4) ed Soils (C6 D1) (LRR A)		4A, and 4B) prainage Patterns (B10) pry-Season Water Table (C2) iaturation Visible on Aerial Imagery (C9) beomorphic Position (D2) challow Aquitard (D3) AC-Neutral Test (D5) caised Ant Mounds (D6) (LRR A) prost-Heave Hummocks (D7)
Water N Water N Water N Water N Water Drift De Algal M Iron De Surface Inundat Sparse Field Obse Surface Wa Water Table Saturation F (includes ca Describe Re N/A Remarks:	ent Deposits (B2) eposits (B3) lat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Aeria ly Vegetated Conca rvations: ater Present? e Present? epresent? epillary fringe)	ve Surface ( Yes Yes _✔ Yes _✔ m gauge, mo	Aquatic Im Hydrogen Oxidized F Presence ( Recent Iro Stunted or 7) Other (Exp B8) No <u>V</u> Depth (inc No Depth (inc No Depth (inc Depth (inc	(B11) vertebrates (B13) Sulfide Odor (C1) Rhizospheres along of Reduced Iron (C n Reduction In Tille Stressed Plants (I plain in Remarks) ches):	:4) ed Soils (C6 D1) (LRR A)		4A, and 4B) prainage Patterns (B10) pry-Season Water Table (C2) iaturation Visible on Aerial Imagery (C9) beomorphic Position (D2) challow Aquitard (D3) AC-Neutral Test (D5) caised Ant Mounds (D6) (LRR A) prost-Heave Hummocks (D7)
Water N Water N Water N Water N Water Drift De Algal M Iron De Surface Inundat Sparse Field Obse Surface Wa Water Table Saturation F (includes ca Describe Re N/A Remarks:	ent Deposits (B2) aposits (B3) lat or Crust (B4) aposits (B5) a Soil Cracks (B6) tion Visible on Aeria ly Vegetated Conca rvations: ater Present? apillary fringe) ecorded Data (strea	ve Surface ( Yes Yes _✔ Yes _✔ m gauge, mo	Aquatic Im Hydrogen Oxidized F Presence ( Recent Iro Stunted or 7) Other (Exp B8) No <u>V</u> Depth (inc No Depth (inc No Depth (inc Depth (inc	(B11) vertebrates (B13) Sulfide Odor (C1) Rhizospheres along of Reduced Iron (C n Reduction In Tille Stressed Plants (I plain in Remarks) ches):	:4) ed Soils (C6 D1) (LRR A)		4A, and 4B) prainage Patterns (B10) pry-Season Water Table (C2) iaturation Visible on Aerial Imagery (C9) beomorphic Position (D2) challow Aquitard (D3) AC-Neutral Test (D5) caised Ant Mounds (D6) (LRR A) prost-Heave Hummocks (D7)

#### WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: 18-181 / APN28053100203700	(	City/Cour	nty: MILL CRE	EEK / SNOHOMISH	_ Sampling Date: 05/14/2018
Applicant/Owner: DANIEL CARR		1			Sampling Point: SP A-2
		Section,		nge: NW QTR S31 T28	
					X Slope (%): 2
					Datum: WGS84
Soil Map Unit Name: ALDERWOOD GRAVELLY SANDY	-			NWI classifi	
Are climatic / hydrologic conditions on the site typical for th					
					present? Yes 🖌 No
Are Vegetation, Soil, or Hydrology					
Are Vegetation, Soil, or Hydrology				eded, explain any answ	
SUMMARY OF FINDINGS - Attach site map	showing	sampl	ing point l	ocations, transect	s, important features, etc.
Hydrophytic Vegetation Present? Yes 🖌			the Sampled	Aroa	
Hydric Soil Present? Yes √			ithin a Wetlar		No
Wetland Hydrology Present? Yes _ ✓	NO		· · · · ·		
PONDED AREA WITHIN 3' OF SAMPLING POINT					
VEGETATION - Use scientific names of pla	nts.				
	Absolute		ant Indicator	Dominance Test wor	ksheet:
<u>Tree Stratum</u> (Plot size: <u>25' dia</u> ) 1. Psuedotsuga menziesii	<u>% Cover</u> 15	N Species	<u>s? Status</u> FACU	Number of Dominant S	
2. Alnus rubra	40	Y	FAC	That Are OBL, FACW,	, or FAC: (A)
		·		Total Number of Domi	~
3				Species Across All Str	ala. <u> </u>
4	55	= Total	Cover	Percent of Dominant S That Are OBL, FACW	
Sapling/Shrub Stratum (Plot size: 25' dia )		-		Prevalence Index wo	
1. Spiraea douglasii		Y	FACW	Total % Cover of:	
2. Rubus spectabilis	30	Y	FAC		x1=
3. Lonicera involucrata	35	Y	FAC		x 2 =
4	-		-		x 3 =
5	105			FACU species	x 4 =
Herb Stratum (Plot size: 10' dia )	105	= Total	Cover	UPL species	x 5 =
1. Oenanthe sarmentosa	50	Y	OBL	Column Totals:	(A) (B)
2. Ranunculus repens	5	N	FAC	Prevalence Inde	x = B/A =
3. Epilobium glaberrimum	3	N	FACW	Hydrophytic Vegetat	
4. Athyrium felix-femina cyclosorum	25	Y	FAC		Hydrophytic Vegetation
5				2 - Dominance Te	est is >50%
6				3 - Prevalence Inc	dex is ≤3.0 <sup>1</sup>
7				4 - Morphological	Adaptations <sup>1</sup> (Provide supporting
8		_			ks or on a separate sheet)
9	-			5 - Wetland Non-V	
10				1	ophytic Vegetation <sup>1</sup> (Explain)
11	83			be present, unless dis	oil and wetland hydrology must turbed or problematic.
Woody Vine Stratum (Plot size: N/A )	03	= Total (	Jover		
1				Hydrophytic	
2				Vegetation	
				Present? Y	es 🖌 No
% Bare Ground in Herb Stratum 50					
Remarks:					
also observed within 25' dia Lysichiton americanus also observed within the herb stratum Plagiomnium ellipt	icum (?) 40%	coverag	e		

QQIL
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(inches)	Matrix Color (moiot)	0/		x Features	Tunal	Loc <sup>2</sup>	Texture	Deserved
(inches) 0-6 ^	Color (moist) 10YR 2/1	<u>%</u> 100	Color (moist)		_Type <sup>1</sup> _	LOC	<u>Texture</u> CLAYEY /	Remarks GRAVELLY / LOAMY
		90	10YR 5/6	40	~			
	7.5YR 3/1		1018 5/6	10	С	M		/LOAMY WITH SOFT MASSES
20-24 2	2.5Y 5/2	100					CLAYEY /	GRAVELLY
Type: C=Con	centration, D=De		I=Reduced Matrix, CS	-Covered	or Coate	d Sand Gr	ains. <sup>2</sup> Loo	ation: PL=Pore Lining, M=Matrix.
lydric Soil Ind	dicators: (Applie	able to al	I LRRs, unless other	wise note	ed.)		Indicato	rs for Problematic Hydric Solls <sup>3</sup> :
Histosol (A			Sandy Redox (S					n Muck (A10)
Histic Epip Black Histi			Stripped Matrix Loarny Mucky M		) (ovient			Parent Material (TF2) / Shallow Dark Surface (TF12)
	Sulfide (A4)		Loarny Gleyed I	•		MERAI)		er (Explain in Remarks)
	Below Dark Surfa	æ (A11)	Depleted Matrix					· · · · · · · · · · · · · · · · · · ·
	surface (A12)		Redox Dark Sui					ors of hydrophytic vegetation and
	cky Mineral (S1)		Depleted Dark S		7)			nd hydrology must be present,
	yed Matrix (S4) yer (if present):		Redox Depress	ions (F8)			unies	s disturbed or problematic.
Type:	yer (ii present).							
···	es):						Hydric Soil	Present? Yes 🖌 No
							1134110 001	
Remarks:			·				Tryune con	
temarks: YDROLOG	Ŷ		· ·					
Remarks: YDROLOG Vetland Hydro	Y ology indicators		ad: check all that any					
YDROLOG Vetland Hydro Primary Indicat	Y ology Indicators tors (minimum of e		ed; check all that apply			xcept	<u>Seco</u> r	ndary Indicators (2 or more required)
YDROLOG Yetland Hydro Irimary Indicat Surface W	Y ology Indicators tors (minimum of d dater (A1)		✓ Water-Stai	ned Leave		xcept	<u>Seco</u> r	ndary Indicators (2 or more required) /ater-Stained Leaves (B9) (MLRA 1, 2,
YDROLOG Yotland Hydro Ynimary Indicat Surface W	Y ology Indicators tors (minimum of d fater (A1) r Table (A2)		✓ Water-Stai	ned Leave 1, 2, 4A, a		xcept	<u>Secor</u>	ndary Indicators (2 or more required) /ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
YDROLOG Yetland Hydro Yrimary Indicat Surface W / High Wate	Y ology indicators tors (minimum of a tater (A1) r Table (A2) (A3)		✓ Water-Stai	ned Leave <b>1, 2, 4A, a</b> (B11)	nd 4B)	xcept	<u>Secor</u> W D	ndary Indicators (2 or more required) /ater-Stained Leaves (B9) (MLRA 1, 2,
Provide the second state of the second state o	Y ology indicators tors (minimum of a tater (A1) r Table (A2) (A3)		✓ Water-Stai MLRA Salt Crust	ned Leave 1, 2, 4A, a (B11) /ertebrates	nd 4B) 6 (B13)	xcept	<u>Secor</u> W D	ndary Indicators (2 or more required) /ater-Stained Leaves (B9) ( <b>MLRA 1, 2,</b> <b>4A, and 4B)</b> rainage Patterns (B10)
Performation Performation Performation Performation Performation Performation Water Mar Sediment I Drift Deposition	Y ology Indicators ors (minimum of e fater (A1) r Table (A2) (A3) (A3) (ks (B1) Deposits (B2) sits (B3)		✓ Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen S Oxidized R	ned Leave 1, <b>2, 4A, a</b> (B11) vertebrates Sulfide Od Rhizospher	nd 4B) s (B13) or (C1) es along	Living Roo	<u>Secor</u> W D S ts (C3) <u>✓</u> G	ndary Indicators (2 or more required) /ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9 ecomorphic Position (D2)
emarks: /DROLOG /etland Hydro rimary Indicat Surface W / High Wate / Saturation Water Mar Sediment I Drift Depos Algal Mat of	Y ology Indicators tors (minimum of d dater (A1) r Table (A2) (A3) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4)		✓ Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen S Oxidized R Presence o	ned Leave 1, 2, 4A, a (B11) vertebrates Sulfide Od hizospher of Reduces	nd 4B) (B13) or (C1) es along d Iron (C4	Living Roo	<u>Secor</u> <sup>V</sup> D D S ts (C3) <u>✓</u> G S	ndary Indicators (2 or more required) /ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imageny (C9 eeomorphic Position (D2) hallow Aquitard (D3)
emarks: /DROLOG /etland Hydro /etland Hydro / High Wate / Saturation Water Mar Sediment I Drift Depose Algal Mat o Iron Depose	Y ology Indicators fater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5)		✓ Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen 3 Oxidized R Presence o Recent Iron	ned Leave 1, 2, 4A, a (B11) vertebrates Sulfide Od thizospher of Reduces n Reductio	nd 4B) s (B13) or (C1) es along d Iron (C4 on in Tilled	Living Roo ) I Soils (C6	<u>Secor</u> <sup>V</sup> D D S ts (C3) <u>✓</u> G S ) F	Adary Indicators (2 or more required) Vater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (CS ecomorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5)
emarks: /DROLOG /etland Hydro rimary Indicat Surface W / High Wate / Saturation Water Mar Sediment I Drift Depos Algal Mat o Iron Depos Surface So	Y ology Indicators fater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6)	: on <u>e require</u>	✓ Water-Stai MLRA ← Salt Crust ← Aquatic Inv Hydrogen ÷ Oxidized R Presence c Recent Iron Stunted or	ned Leave 1, 2, 4A, a (B11) vertebrates Sulfide Od hizospher of Reduces n Reductio Stressed	nd 4B) or (C1) es along d Iron (C4 on in Tilleo Plants (D	Living Roo ) I Soils (C6	<u>Secor</u> W D D S ts (C3) <u>✓</u> G S ) F, R	ndary Indicators (2 or more required) /ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9 eomorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A)
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PROLOG     Augal Mate     Surface W     High Wate     Saturation     Water Mar     Sediment I     Drift Depos     Algal Mat o     Surface So     Iron Depos     Surface So     Inundation     Sparsely V	Y ology Indicators fors (minimum of a fater (A1) r Table (A2) (A3) (A3) (A3) (A3) (A3) (A3) (A3) (A3	: on <u>e require</u> Imagery (E	✓ Water-Stai MLRA 4 Salt Crust Aquatic Inv Hydrogen 3 Oxidized R Presence 0 Recent Iron Stunted or 37) Other (Exp	ned Leave 1, 2, 4A, a (B11) vertebrates Sulfide Od hizospher of Reduces n Reductio Stressed	nd 4B) or (C1) es along d Iron (C4 on in Tilleo Plants (D	Living Roo ) I Soils (C6	<u>Secor</u> W D D S ts (C3) <u>✓</u> G S ) F, R	ndary Indicators (2 or more required) /ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9 eomorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A)
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PROLOG     Argan Andrew     Surface W     High Wate     Saturation     Water Mar     Sediment I     Drift Depos     Argal Mat o     Iron Depos     Surface So     Inundation     Sparsely V     ield Observa     urface Water     Vater Table Pr     aturation Pres     ncludes capill     escribe Record	Y ology Indicators fors (minimum of ele- fater (A1) r Table (A2) (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) bil Cracks (B6) Visible on Aerial fegetated Concav tions: Present? Sent? ary fringe)	Imagery (E e Surface fes fes	✓     Water-Stail       MLRA	ned Leave <b>1, 2, 4A, a</b> (B11) vertebrates Sulfide Od thizospher of Reduces n Reductio Stressed idain in Res ches): <u>4"</u> ches): <u>SUI</u>	nd 4B) (B13) or (C1) es along d Iron (C4 on in Tillec Plants (D narks) RFACE	Living Roo ) d Soils (C6 1) (LRR A) 	<u>Secor</u> V D S ts (C3) <u>✓</u> G S ) F, R F, F, F, R	Adary Indicators (2 or more required) Vater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9 ecomorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) rost-Heave Hummocks (D7)

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

City/County: MILL CREEK / SNOHOMISH Sampling Date: 05/14/2018
State: WA Sampling Point: SP A-3
Section, Township, Range: NW QTR S31 T28N R05E
_ Local relief (concave, convex, none): <u>CONVEX</u> Slope (%): 2
<sup>2°</sup> 52' 32" N Long: <u>122° 13' 05' W</u> Datum: WGS84
% SLOPES NWI classification: PSS1C
rear? Yes 🗹 No (If no, explain in Remarks.)
y disturbed? Are "Normal Circumstances" present? Yes _✔ No
roblematic? (If needed, explain any answers in Remarks.)
g sampling point locations, transects, important features, etc.
ls the Sampled Area within a Wetland? Yes ✓ No

#### **VEGETATION – Use scientific names of plants.**

Act. 11	Absolute		Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: 25' dia)	<u>% Cover</u>	Species?	Status	Number of Dominant Species
1. Thuja plicata	60	Y	FAC	That Are OBL, FACW, or FAC: (A)
2. Alnus rubra	10	Ν	FAC	Total Number of Deminent
3				Total Number of Dominant       Species Across All Strata:         6   (B)
	-			
4	70	= Total Co		Percent of Dominant Species
Sapling/Shrub Stratum (Plot size: 25' dia )	10		ver	
1. Sambucus racemosa	5	N	FACU	Prevalence Index worksheet:
2. Rubus spectabilis	40	Y	FAC	Total % Cover of: Multiply by:
	25	Y	FACU	OBL species x 1 =
3. Vaccinium parvifolium	20	T	FACO	FACW species x 2 =
4	-	-		FAC species x 3 =
5				
	70	= Total Co	ver	FACU species x 4 =
Herb Stratum (Plot size: 10' dia )		-		UPL species x 5 =
1. Tiarella trifoliata trifoliata	5	N	FAC	Column Totals: (A) (B)
2. Athyrium felix-femina cyclosorum	10	Y	FAC	Prevalence Index = B/A =
3. Maianthemum dilataum	25	Y	FAC	Hydrophytic Vegetation Indicators:
4. Polystichum munitum	10	Y	FACU	1 - Rapid Test for Hydrophytic Vegetation
				2 - Dominance Test is >50%
5				
6				3 - Prevalence Index is ≤3.0 <sup>1</sup>
7				<ul> <li>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</li> </ul>
8				5 - Wetland Non-Vascular Plants <sup>1</sup>
9				
10	-			Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
11	-		<u> </u>	<sup>1</sup> Indicators of hydric soil and wetland hydrology must
	50	= Total Co	ver	be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: N/A )				
1				Hydrophytic
2				Vegetation
		= Total Co	ver	Present? Yes No
% Bare Ground in Herb Stratum 50				
Remarks:				· · · · · · · · · · ·
50% bare ground in herb stratum likely associated with pr	oximity of Th	nuja plicata	(within 5' of	soil pit)
V. parvifolium rooted on downed logs				

SO	L

Depth		60 til0 00	pth needed to docur	110111 0110	indicator	or contirm	I file anselice	or indicators.)
1 A	Matrix		Redo	<u>x Feature</u>	S			-
(inches)	Color (moist)	%	Color (moist)	%	Type	Loc <sup>2</sup>	Texture	Remarks
0-2						<u> </u>	<u>.</u>	T. plicata DUFF
2-4	10YR 2/1	100					LOAMY /	CLAYEY
4-10	10YR 3/6	10					LOAMY /	SANDY LARGE POCKET
4-10	7.5YR 4/1	10		-	·		SANDY	LARGE POCKET
4-22	10YR 2/1	80	·		· · · · · · · · · · · · · · · · · · ·		LOAMY /	CLAYEY
22-24	2.5Y 4/2	98	10YR 5/6	2	С	M	SANDY	/ VERY SMALL SOFT MASSES
<sup>1</sup> Type: C=C	oncentration, D=De	pletion, RM	A=Reduced Matrix, CS	S=Covere	d or Coate	d Sand Gr	ains. <sup>2</sup> Lo	cation: PL=Pore Lining, M=Matrix.
			I LRRs, unless othe					ors for Problematic Hydric Solis <sup>3</sup> :
Histosol			Sandy Redox (					m Muck (A10)
	pipedon (A2)		Stripped Matrix					d Parent Material (TF2)
	istic (A3)		Loamy Mucky Mucky	-		t MLRA 1)		ry Shallow Dark Surface (TF12)
	en Sulfide (A4) d Below Dark Surfa	o (A11)	Loamy Gleyed Depleted Matrix		2)		Otr	ner (Explain in Remarks)
	ark Surface (A12)	20 (ATT)	Redox Dark Su		<b>`</b>		<sup>3</sup> Indicat	ors of hydrophytic vegetation and
	Aucky Mineral (S1)		Depleted Dark					and hydrology must be present,
· · ·	Gleyed Matrix (S4)		Redox Depress					ss disturbed or problematic.
	Layer (If present):					_		
Туре:								
Depth (in	ches):						Hydric Sol	l Present? Yes 🖌 No
Remarks:								
Ì								
İ								
HYDROLO	GY							
- rectanding	drology Indicators							
-	drology Indicators		ad: check ail that ann	~			Sec	andary Indicators (2 or more required)
Primary Indi	cators (minimum of		ed: check all that appl Water-Sta		(PS (RQ) (a	voot		ondary Indicators (2 or more required)
Primary India	cators (minimum of Water (A1)		Water-Sta	ined Leav		xcept		Nater-Stained Leaves (B9) (MLRA 1, 2,
Primary India	cators (minimum of Water (A1) ater Table (A2)		Water-Sta	ined Leav 1, 2, 4A,		xcept	÷.,	Nater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
Primary India Surface High Wa Saturati	cators (minimum of Water (A1) ater Table (A2) on (A3)		Water-Sta MLRA Salt Crust	ined Leav <b>1, 2, 4A,</b> (B11)	and 4B)	xcept		Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10)
Primary India Surface High Wa Saturatia Water M	cators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1)		Water-Sta MLRA Salt Crust Aquatic In	ined Leav <b>1, 2, 4A,</b> (B11) vertebrate	and 4B) es (B13)	xcept	· · · · · · · · · · · · · · · · · · ·	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2)
Primary India Surface High Wa Saturati Water M Sedimen	cators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2)		Water-Sta MLRA Salt Crust Aquatic In Hydrogen	ined Leav 1, 2, 4A, (B11) vertebrate Sulfide O	and 4B) es (B13) dor (C1)	-		Water-Stained Leaves (B9) ( <b>MLRA 1, 2,</b> <b>4A, and 4B)</b> Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9)
Primary India Surface High Wa Saturati Water M Sedimea Drift Dep	cators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3)		Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized F	ined Leav 1, 2, 4A, (B11) vertebrate Sulfide O Rhizosphe	and 4B) es (B13) dor (C1) eres along	Living Roo	  ts (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2)
Primary India Surface High Wa Saturati Water M Sedimea Drift Dej Algal Ma	cators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2)		Water-Sta MLRA Salt Crust Aquatic Im Hydrogen Oxidized F Presence	ined Leav 1, 2, 4A, (B11) vertebrate Sulfide O Rhizosphe of Reduct	and 4B) es (B13) dor (C1) eres along ed Iron (C4	Living Roo	  ts (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3)
Primary India Surface ✓ High Wa ✓ Saturatia Water Ma Sedimera Drift Dej Algal Ma Iron Deg	cators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4)		Water-Sta MLRA Salt Crust Aquatic Im Hydrogen Oxidized F Presence Recent Iro	ined Leav <b>1, 2, 4A,</b> (B11) vertebrate Sulfide O Rhizosphe of Reduce m Reduct	and 4B) es (B13) dor (C1) eres along ed Iron (C4 ion in Tille	Living Roo 4)		Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2)
Primary India Surface ✓ High Wa ✓ Saturatia Water Ma Sedimera Drift Dep Algal Ma Iron Dep Surface	cators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5)	o <u>ne requir</u>	Water-Sta MLRA Salt Crust Aquatic Im Hydrogen Oxidized F Presence Recent Iro Stunted or	ined Leav <b>1, 2, 4A,</b> (B11) vertebrate Sulfide O Rhizosphe of Reduct r Stressec	and 4B) es (B13) dor (C1) eres along ed Iron (C4 ion in Tille I Plants (D	Living Roo 4) d Soils (C6	ts (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5)
Primary India Surface ✓ High Wa ✓ Saturatia Water Ma Sedimera Drift Deg Algal Ma Iron Deg Surface Inundatia	cators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6)	one requin	Water-Sta MLRA Salt Crust Aquatic Im Hydrogen Oxidized F Presence Recent Iro Stunted or Stunted or Other (Exp	ined Leav <b>1, 2, 4A,</b> (B11) vertebrate Sulfide O Rhizosphe of Reduct r Stressec	and 4B) es (B13) dor (C1) eres along ed Iron (C4 ion in Tille I Plants (D	Living Roo 4) d Soils (C6	ts (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Primary India Surface ✓ High Wa ✓ Saturatia Water Ma Sedimera Drift Deg Algal Ma Iron Deg Surface Inundatia	cators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) ion Visible on Aerial y Vegetated Concav	one requin	Water-Sta MLRA Salt Crust Aquatic Im Hydrogen Oxidized F Presence Recent Iro Stunted or Stunted or Other (Exp	ined Leav <b>1, 2, 4A,</b> (B11) vertebrate Sulfide O Rhizosphe of Reduct r Stressec	and 4B) es (B13) dor (C1) eres along ed Iron (C4 ion in Tille I Plants (D	Living Roo 4) d Soils (C6	ts (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
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## **RATING SUMMARY – Western Washington**

 Name of wetland (or ID #):
 A (18-181 Carr)
 Date of site visit:
 05/14/2018

 Rated by
 ERYNN O. SULLIVAN
 Trained by Ecology? X Yes
 No Date of training 04/2016

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

**OVERALL WETLAND CATEGORY** \_\_\_\_\_ (based on functions \_\_\_\_ or special characteristics\_\_\_\_)

### 1. Category of wetland based on FUNCTIONS

**\_\_\_\_Category I** – Total score = 23 - 27

**\_\_\_\_Category II** – Total score = 20 - 22

X Category III – Total score = 16 - 19

Category IV – Total score = 9 - 15

FUNCTION	Improving Water Quality		H	ydrolo	ogic		Habita	at		
					Circle	the ap	oropr	iate ra	tings	
Site Potential	Н	Μ	L	Н	Μ	L	Н	Μ	L	
Landscape Potential	Н	Μ	L	Н	Μ	L	Н	Μ	L	
Value	Н	Μ	L	Н	Μ	L	Н	Μ	L	тот
Score Based on Ratings		7			5			5		17

Score for each function based on three ratings (order of ratings is not important)

9 = H,H,H 8 = H,H,M 7 = H,H,L 7 = H,M,M 6 = H,M,L 6 = M,M,M 5 = H,L,L 5 = M,M,L 4 = M,L,L

3 = L,L,L

## 2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY	
Estuarine	Ι	II
Wetland of High Conservation Value	Ι	
Bog		Ι
Mature Forest	I	
Old Growth Forest		Ι
Coastal Lagoon	Ι	II
Interdunal	III	III IV
None of the above		

# Maps and figures required to answer questions correctly for Western Washington

#### **Depressional Wetlands**

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	1
Hydroperiods	D 1.4, H 1.2	1
Location of outlet (can be added to map of hydroperiods)	D 1.1, D 4.1	N/A
Boundary of area within 150 ft of the wetland (can be added to another figure)	D 2.2, D 5.2	1
Map of the contributing basin	D 4.3, D 5.3	2
1 km Polygon: Area that extends 1 km from entire wetland edge - including	H 2.1, H 2.2, H 2.3	З
polygons for accessible habitat and undisturbed habitat		5
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	4,5
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	6

#### **Riverine Wetlands**

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

#### Lake Fringe Wetlands

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

#### Slope Wetlands

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

## HGM Classification of Wetlands in Western Washington

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

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

- 1. Are the water levels in the entire unit usually controlled by tides except during floods?
  - $\times$  NO go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1
  - 1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

NO – Saltwater Tidal Fringe (Estuarine) If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.

- 2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
- X NO go to 3**YES** – The wetland class is **Flats** If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.
- 3. Does the entire wetland unit **meet all** of the following criteria? \_\_\_\_The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size; \_\_\_\_At least 30% of the open water area is deeper than 6.6 ft (2 m).

NO - go to 4

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

- 4. Does the entire wetland unit **meet all** of the following criteria?
  - \_\_\_\_\_The wetland is on a slope (*slope can be very gradual*).
  - The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
  - \_\_\_\_\_The water leaves the wetland **without being impounded**.

 $_X$  NO – go to 5

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

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

- 5. Does the entire wetland unit **meet all** of the following criteria?
  - The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.
  - \_\_\_\_The overbank flooding occurs at least once every 2 years.

#### **YES – Freshwater Tidal Fringe**

Wetland name or number \_\_\_\_\_ A (18-181 Carr)

- <sup>X</sup> NO go to 6
   **YES** The wetland class is **Riverine NOTE**: The Riverine unit can contain depressions that are filled with water when the river is not flooding
- 6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7

X **YES** – The wetland class is **Depressional** 

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

NO – go to 8

YES – The wetland class is Depressional

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

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

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

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

DEPRESSIONAL AND FLATS WETLANDS		
Water Quality Functions - Indicators that the site functions to improve wa	ater quality	
D 1.0. Does the site have the potential to improve water quality?		
D 1.1. Characteristics of surface water outflows from the wetland:		
Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (		
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowin	points = 3 g outlet. points = 2	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch.	points = 1 points = 1	3
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions). Ye	es = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cow	vardin classes):	
Wetland has persistent, ungrazed, plants > 95% of area	points = 5	
Wetland has persistent, ungrazed, plants > $\frac{1}{2}$ of area	points = 3	
Wetland has persistent, ungrazed plants > $^{1}/_{10}$ of area	points = 1	5
Wetland has persistent, ungrazed plants $<^{1}/_{10}$ of area	points = 0	5
D 1.4. Characteristics of seasonal ponding or inundation:		
This is the area that is ponded for at least 2 months. See description in manual.		
Area seasonally ponded is > $\frac{1}{2}$ total area of wetland	points = 4	
Area seasonally ponded is > $\frac{1}{4}$ total area of wetland	points = 2	2
Area seasonally ponded is < ¼ total area of wetland	points = 0	4
Total for D 1 Add the points in the b	ooxes above	10

#### **Rating of Site Potential** If score is: $12-16 = H \times 6-11 = M = 0-5 = L$ Record the rating on the first page

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0	0
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? SourceYes = 1 No = 0	0
Total for D 2Add the points in the boxes above	1

**Rating of Landscape Potential** If score is: **3 or 4 = H X 1 or 2 = M 0 = L** *Record the rating on the first page* 

D 3.0. Is the water quality improvement provided by the site valuable to society?		
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0		
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? Yes = 1 No = 0	1	
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality ( <i>answer YES if there is a TMDL for the basin in which the unit is found</i> )? Yes = 2 No = 0		
Total for D 3Add the points in the boxes above	3	
Rating of ValueIf score is: $X = H$ I = MO = LRecord the rating on the first page		

DEPRESSIONAL AND FLATS WETLANDS	
Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradat	ion
D 4.0. Does the site have the potential to reduce flooding and erosion?	
D 4.1. Characteristics of surface water outflows from the wetland:       wetland is a depression or flat depression with no surface water leaving it (no outlet)       points = 4         Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outletpoints = 2       Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch points = 1         Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing       points = 0	4
D 4.2. Depth of storage during wet periods: Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part. Marks of ponding are 3 ft or more above the surface or bottom of outletpoints = 7Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	3
D 4.3. Contribution of the wetland to storage in the watershed: Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.         The area of the basin is less than 10 times the area of the unit       points = 5         The area of the basin is 10 to 100 times the area of the unit       points = 3         The area of the basin is more than 100 times the area of the unit       points = 0         Entire wetland is in the Flats class       points = 5	0
Total for D 4Add the points in the boxes above	7
Rating of Site Potential If score is:       12-16 = H       X       6-11 = M       0-5 = L       Record the rating on the	first page
D 5.0. Does the landscape have the potential to support hydrologic functions of the site?	-
D 5.1. Does the wetland receive stormwater discharges? Yes = 1 No = 0	0
D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff? Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?Yes = 1No = 0	1
Total for D 5Add the points in the boxes above	2
Rating of Landscape Potential       If score is:       3 = H       X       1 or 2 = M       0 = L       Record the rating on the	first page
D 6.0. Are the hydrologic functions provided by the site valuable to society?	-
D 6.1. <u>The unit is in a landscape that has flooding problems</u> . <i>Choose the description that best matches conditions around the wetland unit being rated. Do not add points.</i> <u>Choose the highest score if more than one condition is met</u> . The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):	
<ul> <li>Flooding occurs in a sub-basin that is immediately down-gradient of unit.</li> <li>Surface flooding problems are in a sub-basin farther down-gradient.</li> <li>Flooding from groundwater is an issue in the sub-basin.</li> </ul>	
The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. <i>Explain why</i> points = 0There are no problems with flooding downstream of the wetland.points = 0	0
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	
Yes = 2 No = 0	0
Total for D 6     Add the points in the boxes above	0
<b>Rating of Value</b> If score is: $2-4 = H$ $1 = M$ $X = 0 = L$ Record the rating on the	first page

	cators that site functions to p		
H 1.0. Does the site have the po	otential to provide habitat?		
H 1.1. Structure of plant communi	ty: Indicators are Cowardin classes o	and strata within the Forested class. Check the	
Cowardin plant classes in th	e wetland. Up to 10 patches may be	e combined for each class to meet the threshold	
of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Ad		Add the number of structures checked.	
Aquatic bed		4 structures or more: points = 4	
Emergent		3 structures: points = 2	
$\frac{X}{x}$ Scrub-shrub (areas where shrubs have > 30% cover)		2 structures: points = 1	
$\underline{X}$ Forested (areas where trees have > 30% cover)		1 structure: points = 0	
If the unit has a Forest	-		4
	3 out of 5 strata (canopy, sub-canop rithin the Forested polygon	py, shrubs, herbaceous, moss/ground-cover)	4
1.2. Hydroperiods			
	gimes (hydroperiods) present withir nd or ¼ ac to count ( <i>see text for des</i>	n the wetland. The water regime has to cover scriptions of hydroperiods).	
Permanently flooded or inundated		4 or more types present: points = 3	
Seasonally flooded or inundated		3 types present: points = 2	
Occasionally flooded or inundated		2 types present: points = 1	
Saturated only		1 type present: points = 0	
	ream or river in, or adjacent to, the	wetland	
	am in, or adjacent to, the wetland		
Lake Fringe wetland		2 points	
Freshwater tidal wetla	nd	2 points	2
1.3. Richness of plant species			
	species in the wetland that cover at	least 10 ft <sup>2</sup>	
		the size threshold and you do not have to name	
	-	s, purple loosestrife, Canadian thistle	
If you counted: > 19 species		points = 2	
5 - 19 species		points = 1	1
< 5 species		points = 0	1
1 1.4. Interspersion of habitats			
Decide from the diagrams b	elow whether interspersion among	Cowardin plants classes (described in H 1.1), or	
		nudflats) is high, moderate, low, or none. <i>If you</i>	
have four or more plant clas	sses or three classes and open water	r, the rating is always high.	
None = 0 points	<b>Low</b> = 1 point	Moderate = 2 points	
	-		
All three diagrams			
a this row			
n this row are <b>HIGH</b> = 3points			2

H 1.5. Special habitat features:	
Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i>	
X Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).	
Standing snags (dbh > 4 in) within the wetland	
Undercut banks are present for at least 6.6 ft (2 m) <b>and/or</b> overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)	
Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet weathered where wood is exposed)	
At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated <i>(structures for egg-laying by amphibians)</i>	
X Invasive plants cover less than 25% of the wetland area in every stratum of plants (see H 1.1 for list of strata)	2
Total for H 1Add the points in the boxes above	11

Rating of Site Potential If score is: \_\_\_15-18 = H \_\_\_X 7-14 = M \_\_\_\_0-6 = L

Record the rating on the first page

H 2.0. Does the landscape have the potential to support the habitat functions of the site?			
H 2.1. Accessible habitat (include only habitat that directly abuts wetland unit).	1 🗖		
Calculate: % undisturbed habitat <u>3</u> + [(% moderate and low intensity land	uses)/2] <u>14</u> = $_{17}^{17}$ %		
If total accessible habitat is:			
> 1/3 (33.3%) of 1 km Polygon	points = 3		
20-33% of 1 km Polygon	points = 2		
10-19% of 1 km Polygon	points = 1	1	
< 10% of 1 km Polygon	points = 0	T	
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.			
<i>Calculate:</i> % undisturbed habitat $\frac{28}{}$ + [(% moderate and low intensity land	uses)/2] <u>14</u> = <u>42</u> %		
Undisturbed habitat > 50% of Polygon	points = 3		
Undisturbed habitat 10-50% and in 1-3 patches	points = 2		
Undisturbed habitat 10-50% and > 3 patches	points = 1	0	
Undisturbed habitat < 10% of 1 km Polygon	points = 0	2	
H 2.3. Land use intensity in 1 km Polygon: If			
> 50% of 1 km Polygon is high intensity land use	points = (- 2)	0	
≤ 50% of 1 km Polygon is high intensity	points = 0	-2	
Total for H 2 Add the p	points in the boxes above	1	
Rating of Landscape Potential If score is:4-6 = H $\underline{X}$ _1-3 = M< 1 = L	Record the rating on th	e first page	

H 3.0. Is the habitat provided by the site valuable to society? H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? Choose only the highest score that applies to the wetland being rated. Site meets ANY of the following criteria: points = 2— It has 3 or more priority habitats within 100 m (see next page) — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) — It is mapped as a location for an individual WDFW priority species — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 10 Site does not meet any of the criteria above points = 0**Rating of Value** If score is: 2 = H 1 = M X = 0 = LRecord the rating on the first page LAND SURVEYING



CIVIL ENGINEERING

Daniel Carr 21600 31<sup>st</sup> Dr. SE Bothell, WA 98021 May 15, 2018 H&AI Job #18-181 (206) 595-9928 daniel@7cswimschool.com

# APPENDIX to WETLAND RATING SUMMARY Maps & Figures required for Western Washington Wetland Rating Summary

Figure 1. Wetland A, Category III, Cowardian Plant Class PSS1C and land use within 150', Map of hydroperiods and Wetland A boundary

- Figure 2. Approximate map of contributing basin
- Figure 3. 1Km polygon around Wetland A
- Figure 4. Map of 303(d) listed waters in the basin
- Figure 5. TMDLs for North Creek
- Figure 6. Assessed waters WRIA8
- Figure 7. WDFW Salmonid Maps
- Figure 8. NWI Vicinity Map
- NRCS Soil Map (3 pages)

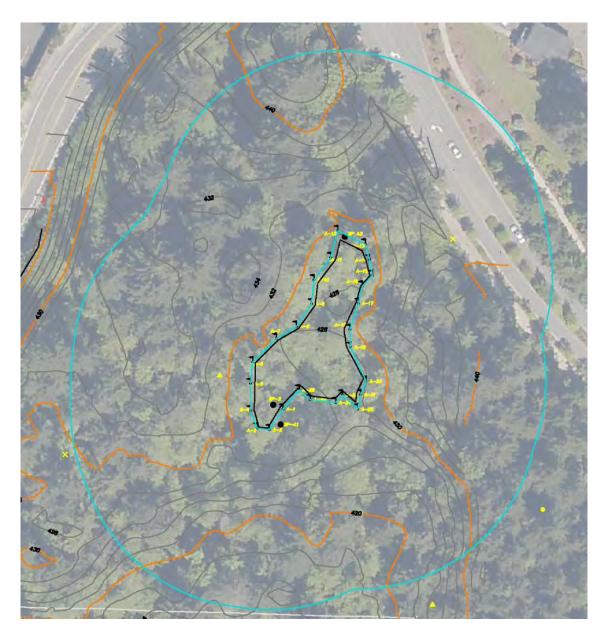


Figure 1. Wetland A, Category III (depicted in aqua, interior line), Cowardian Plant Class PSS1C and land use within 150' (depicted in aqua, exterior line), Map of hydroperiods (depicted in black)

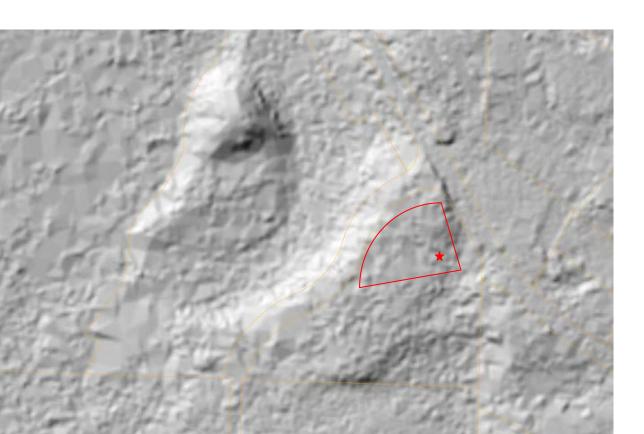
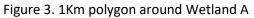
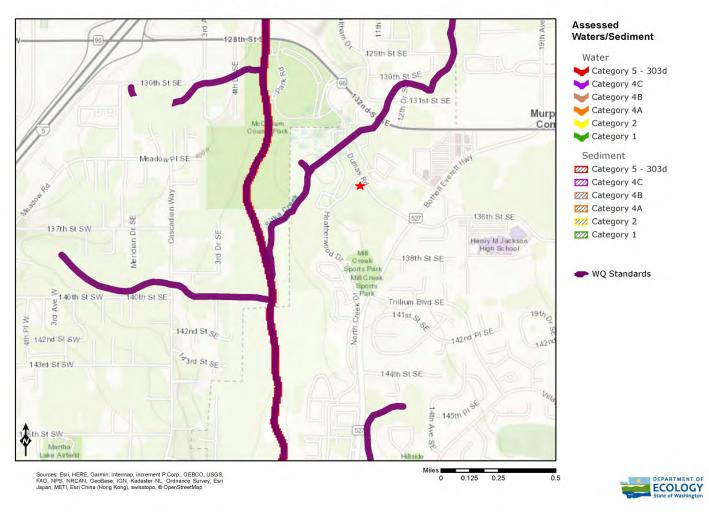


Figure 2. Approximate map of contributing basin (depicted in red; Wetland A represented by star)





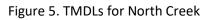


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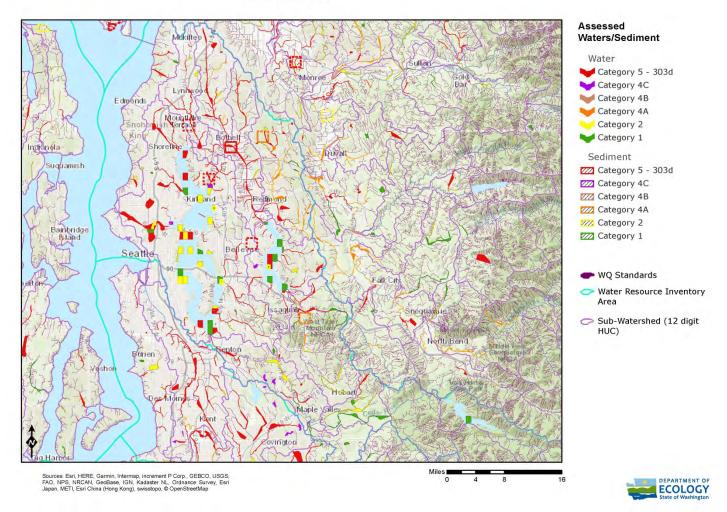
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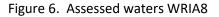
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Parameter: Dissolved Oxygen	2004 Category: 2	Parameter: Bacteria	2004 Category: 4A
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	2 sample values (17%) showed an excursion of the criterion (9.5 mg/L) for this 1 sample values (55%) showed an excursion of the criterion (9.5 mg/L) for this waterbody.	ctu/100mL)	
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- ter entre entre transforment and a state	en in passi i i min i des ade i i i	Location ID. [NCLU_SNOCO]. [SNOCO-NCLU]	- In water year 2007, 7 of 11 sample values (64%) showed an excursion of the %
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May 18, 2018

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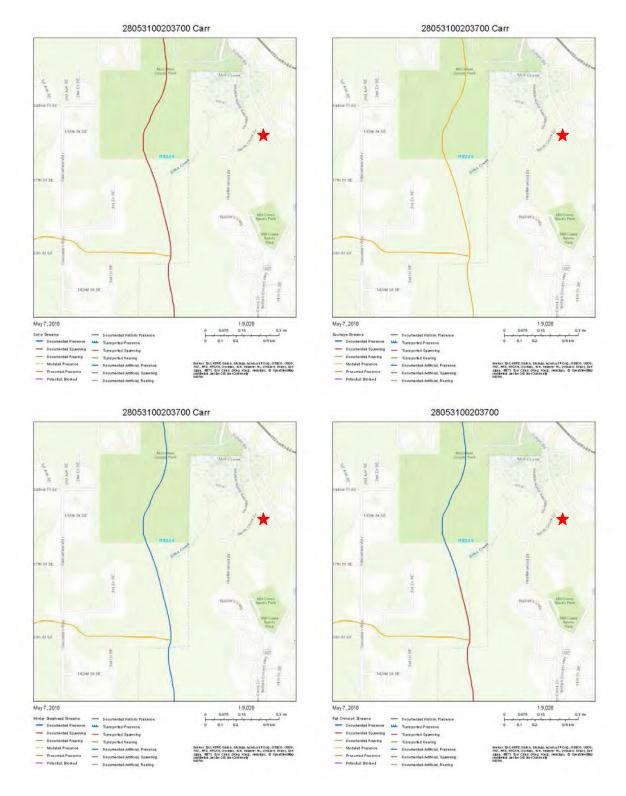
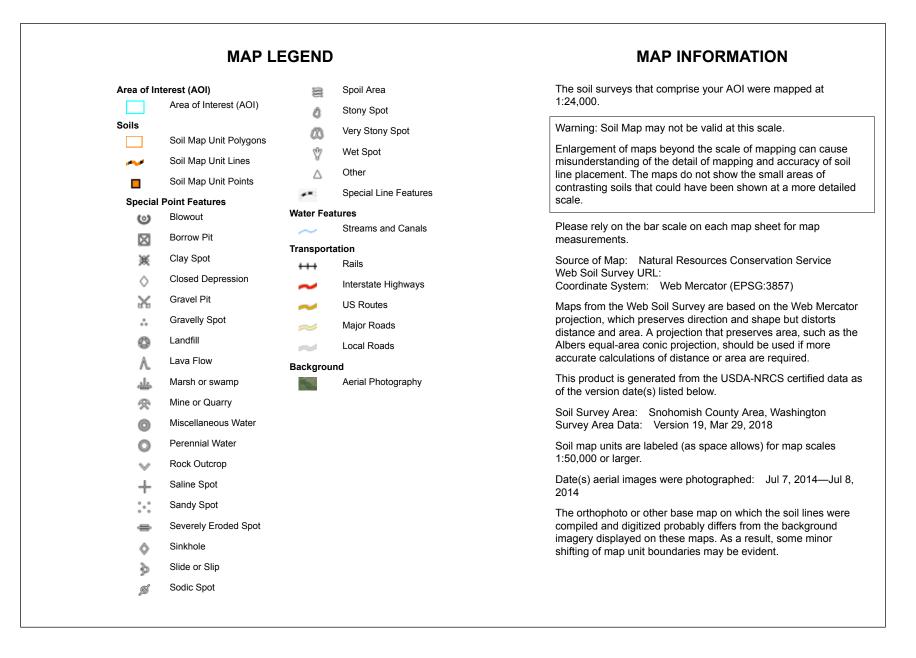


Figure 7. WDFW Salmonid Maps (site depicted by red star)



Figure 8. NWI Vicinity Map (approximate location of Wetland A depicted by red star)





USDA

# Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1	Alderwood gravelly sandy loam, 0 to 8 percent slopes	89.4	61.8%
3	Alderwood gravelly sandy loam, 15 to 30 percent slopes	2.6	1.8%
17	Everett very gravelly sandy loam, 0 to 8 percent slopes	11.1	7.7%
32	McKenna gravelly silt loam, 0 to 8 percent slopes	5.7	3.9%
34	Mukilteo muck	14.5	10.0%
39	Norma loam	7.7	5.3%
51	Pits	7.7	5.3%
69	Terric Medisaprists, nearly level	6.0	4.1%
82	Xerorthents, nearly level	0.0	0.0%
Totals for Area of Interest		144.8	100.0%

## APPENDIX **B**

#### Wetland Delineation Report Remillard Property Mill Creek, Washington

April 15, 2014



Excellence. Innovation. Service. Value. Since 1954.

> Submitted To: Mr. Scott Smith, P.E. City of Mill Creek Public Works Department 15728 Main Street Mill Creek, Washington 98012

> > By: Shannon & Wilson, Inc. 400 N 34<sup>th</sup> Street, Suite 100 Seattle, Washington 98103

> > > 21-1-12456-001

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- B Wetland Determination Data Forms Western Mountains, Valleys, and Coast Region
- C Wetland Rating Forms
- D Important Information About Your Wetland Delineation/Mitigation and/or Stream Classification Report

## WETLAND DELINEATION REPORT REMILLARD PROPERTY MILL CREEK, WASHINGTON

## **1.0 INTRODUCTION**

Shannon & Wilson, Inc. conducted a wetland delineation on the 4.55-acre Remillard property located at 13723 North Creek Drive in Mill Creek, Washington (Figure 1). The Remillard property, identified as Snohomish County tax parcel 28053100201700, is located in the NW ¼ of Section 31, Township 28N, Range 5E. The property was formerly occupied by a residence, but the residence was demolished and the property is currently used as overflow parking for the Freedom Field sports park, located approximately 400 feet to the south.

It is our understanding that the City of Mill Creek (hereafter referred to as "the City") owns the Remillard property and the adjacent Dobson property to the south, and that the City is considering either constructing a City-occupied building on one or both of the properties or potentially selling them. The purpose of our wetland delineation is to provide baseline site conditions to determine buildable areas on the properties. Our findings for the Dobson property are discussed in a separate report.

The scope of services for our wetland delineation on the Remillard property was limited to the following tasks:

- Conduct a background review of information relating to the site.
- Complete a wetland delineation on project site and categorize the site wetland(s) using the Washington State Wetland Rating System for Western Washington.
- Complete a wetland delineation report describing our findings including wetland category and standard buffer widths.

#### 2.0 METHODS

Potential wetlands were identified using methods described in the Washington State Department of Ecology's (Ecology's) 1997 Washington State Wetland Identification and Delineation Manual, U.S. Army Corps of Engineers' (the Corps') 1987 Wetland Delineation Manual, and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region Version 2.0 (May 2010).

Potential wetland areas were determined using the triple-parameter approach, which considers vegetation types, soil conditions, and hydrologic conditions. For an area to be considered wetland, it must display each of the following: (a) dominant plant species that are considered hydrophytic by the accepted classification indicators, (b) soils that are considered hydric under federal definition, and (c) indications of wetland hydrology, in accordance with federal definition. Appendix A provides a detailed description of methodology used.

Identified wetlands were delineated by flagging the wetland boundaries with pink "wetland boundary" flags. Data point locations were flagged with orange flagging.

#### 3.0 DOCUMENT REVIEW

Prior to conducting fieldwork, we reviewed the following background information:

- U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) Web Soil Survey interactive mapping system (2009)
- U.S. Fish and Wildlife Service National Wetland Inventory (USFWS) (NWI) Wetlands Mapper interactive mapping system (2014)
- 2005 wetland delineation report by Parametrix for the Remillard property
- 2008 wetland functions and values assessment by Raedeke Associates, Inc. (Raedeke) for five adjoining parcels including the Remillard property
- 2011 wetland verification report by ESA Associates (ESA)

The NRCS web soil survey identifies the site soils as Alderwood gravelly sandy loam. This soil series is not identified as a hydric soil in Washington.

The USFWS NWI online mapper did not identify any wetlands on or adjacent to the Remillard property.

The 2005 Parametrix report delineated a wetland near the eastern boundary of the Remillard property, which extended off-site to the south. The wetland was identified as palustrine forested system and rated as a Category IV wetland based on the City of Mill Creek Municipal Code (MCMC).

The 2008 Raedeke assessment appeared to be limited to a visual observation of the five parcels and wetland functions and values ratings for each wetland observed. Raedeke mapped a linear wetland generally along the eastern site boundary similar to Parametrix's delineated wetland. Raedeke indicated that the wetland was a palustrine forested/scrub-shrub wetland and rated it as

a Category III wetland based on Ecology's rating system and the MCMC. No data plots were performed as part of this assessment.

In 2011, ESA performed a wetland verification on the Remillard property and the Dobson property to the north. The wetland verification included a visual observation of the 2005 wetland boundary flags and a recategorization of the site wetland. No data plots were performed as part of this verification. ESA concurred with the 2005 wetland boundaries and categorized the site wetland as a Category II wetland.

#### 4.0 WETLAND ASSESSMENT

We conducted our wetland delineation fieldwork on March 26 and 27 and April 4, 2014. On the morning of April 4, 2014, we met on-site with Brock Rylander from ESA, the City's on-call review consultant, to verify field conditions.

In general, the Remillard property is a mixture of forested areas and lawn. A gravel driveway extends from North Creek Drive eastward to the eastern third of the property, then turns south onto the Dobson property. Gravel parking areas abut the gravel driveway on the eastern third of the property. Most of the Remillard property slopes to the west toward North Creek Drive; however, the southeastern quarter of the site slopes to the east to a small swale along the eastern property boundary.

One wetland, identified as Wetland A, was delineated on the southeast portion of the Remillard property (Figure 2). Descriptions of the site wetland and uplands follow. Vegetation is described below by common name, with the scientific name and indicator status in parentheses. Soils are described with the associated Munsell® Color Charts color. See Appendix B for Wetland Data Forms.

#### 4.1 Wetland A

Wetland A is a small emergent/scrub-shrub palustrine wetland located in a topographic swale on the eastern boundary of the Remillard property. Dominant wetland vegetation included salmonberry (*Rubus spectabilis*, FAC), black twinberry (*Lonicera involucrata*, FAC), American brooklime (*Veronica Americana*, OBL), mannagrass (*Glyceria* sp., FACW or OBL), lady fern (*Athyrium filix-femina*, FAC), and creeping buttercup (*Ranunculus repens*, FACW).

Surface soils observed within Wetland A consisted of black (10 YR 2/1) silt loam to 9 inches below ground surface (bgs) except for a 3-inch layer of very dark grayish brown (10 YR 3/2)

loamy sand between 2 and 5 inches bgs. Subsoils consisted of very dark brown (10 YR 2/2) gravelly sandy loam. Prior to 2010, soils with a chroma of one (e.g., 10 YR 2/1 and 10 YR 3/1) met the hydric soil criteria. However, the hydric soil criteria changed in 2010 and the indicators observed in the site soil no longer meet the hydric soil criteria without redoximorphic concentrations (redox dark surface) or higher organic content (histosol, histic epipedon, and/or black histic). No redoximorphic concentrations were observed in the swale's soil during our fieldwork or noted in previous investigations, and the soil does not have an organic content high enough to meet the histosol, histic epipedon, or black histic definitions.

During our fieldwork, soils in Wetland A were saturated to the surface, and up to 4 inches of ponding was noted in some areas. However, our fieldwork was conducted during the wettest March on record. At the time of our fieldwork, we had accumulated 7.97 inches of rain for the month versus the monthly average of 3.17 inches. Therefore, it is not known whether the observed hydrology is typical of an average rainfall year. Hydrology within Wetland A is likely provided by surface runoff from the north, east, and west and drains off-site to the south.

Although hydric soil indicators were not present in the soil pits we logged and the site hydrology observed may not be typical of an average rainfall year, we concluded that Wetland A is a wetland based on the presence of obligate plant species (i.e., plant species that are found in wetlands 90 percent of the time). Therefore, wetland boundaries were delineated based on the presence of obligate plant species. Portions of the swale to the north and south of Wetland A exhibited similar soil and hydrologic conditions but were dominated by FAC species (i.e., vegetation that is equally suited to growing in wetlands and uplands) and FACU species; therefore, these areas were not considered wetlands.

## 4.2 Other Uplands

Uplands observed included a mixture of lawn and areas of native shrubs and trees. Dominant native upland vegetation observed included Douglas fir (*Pseudotsuga menziesii*, FACU), western red cedar (*Thuja plicata*, FAC), western hemlock (*Tsuga heterophylla*, FAC), red alder (*Alnus rubra*, FAC), salmonberry (*Rubus spectabilis*, FAC), sword fern (*Polystichum munitum*, FACU), Oregon grape (*Mahonia nervosa*, FACU), and false lily of the valley (*Maianthemum dilatatum*, FAC).

Upland soils on most of the site were dry to slightly moist and consisted of 4 inches of very dark grayish brown (10 YR 3/2) loam over dark brown (10 YR 3/3) gravelly sandy loam.

Two upland areas were ponded during our site visit: a small (approximately 150 square feet) created farm pond and a low spot on the northwest corner of the site, abutting North Creek Drive. The farm pond was predominantly unvegetated and appeared to be dug in an upland area. The soils in this area consisted of 3 inches of black (10 YR 2/1) sandy loam over brown (10 YR 5/3) gravelly, sandy loam. It is our opinion that the pond should not be regulated as a wetland because soils did not meet the hydric soil criteria and because it appears to have been dug in an upland area.

The low spot along North Creek Drive, approximately 2,000 square feet in size, was dominated by creeping buttercup (*Ranunculus repens*, FACW) and a filamentous algae. Soils in this area consisted of 2 inches of very dark gray (10 YR 3/1) sandy loam over 11 inches of very dark brown (10 YR 2/2) gravelly, sandy loam. Subsoils consisted of brown (10 YR 4/4) gravelly, sandy loam. Up to 4 inches of ponding was noted in this area. Although the vegetation and hydrology of this area meet the wetland criteria, the soils do not exhibit hydric soil characteristics. It appears that this area may be starting to develop wetland conditions due to road runoff and/or because the road is acting as a dam to prevent water from flowing to the west. We recommend that the City dig a drainage ditch from this area to the nearby storm drain to the south to prevent this area from forming hydric soils characteristics and being regulated as a wetland in the future.

#### 5.0 REGULATIONS

Several local, state, and federal regulations apply to development proposals in and/or near wetlands. A summary of applicable regulatory implications is given below.

#### 5.1 City of Mill Creek (City)

The City regulates wetlands under Chapter 18.06 (Environmentally Critical Areas) of the MCMC (2013).

The MCMC requires applicants to use the Wetland Rating System for Western Washington (Ecology Publication No. 04-06-014), or as amended. The rating system was last amended in 2004; however, a draft amendment is currently being peer reviewed. Using the current (2004) rating system, Wetland A is rated as a Category III wetland due to its high water-quality functions, low hydrologic functions, and moderate habitat functions.

Using the draft Wetland Rating System for Western Washington that is under review, Wetland A would still be rated a Category III wetland. Under this rating system, the wetland is still considered to have high water-quality functions, low hydrologic functions, and moderate habitat functions.

See Appendix C for our wetland rating forms using both the current and draft rating systems.

#### 5.1.1 Wetland Buffers

The MCMC requires a 50- to 100-foot buffer around Category III wetlands, depending on the potential impact of the adjacent land use (low or high). The City previously determined that the existing site use (overflow parking and gravel driveway) is a low-intensity land use. Therefore, the wetland should have a 50-foot buffer under the existing land use. However, most residential and commercial developments, with the exception of detention/retention ponds, are considered a high-impact land use. Therefore, the City would likely require a 100-foot buffer on the site wetland if future development is proposed.

The MCMC allows for buffer averaging where a qualified professional demonstrates to the director's satisfaction that: (1) the total area contained in the buffer area after averaging is no less than that which would be contained within the standard buffer; (2) the buffer averaging does not reduce the functions or values of the wetland; (3) the portion of the buffer reduced through buffer averaging is less than 25 percent of the total buffer length on a project site; (4) the wetland contains variations in sensitivity due to existing physical characteristics or the character of the buffer varies in slope, soils, or vegetation; and (5) the buffer width is not reduced to less than 50 percent of the standard width, except that no buffer dimension shall be less than 25 feet. Therefore, the buffer may be averaged down to 25 feet (or 50 feet for future site redevelopment) along 25 percent of the length of the buffer on site if the above conditions are met.

## 5.1.2 Wetland Mitigation

Impacts to wetlands and buffers are allowed where avoidance and minimization measures cannot avoid impacts. However, compensatory mitigation for impacts must occur. Wetland acreage replacement ratios for Category III wetlands are 2-to-1 ratio for wetland creation/ re-establishment, 4:1 ratio for wetland rehabilitation, and 8-to-1 ratio for wetland enhancement. A combination of 1:1 ratio of creation/re-establishment and 2:1 ratio of enhancement is also allowed.

The MCMC allows wetland mitigation bank credits to be used as compensatory mitigation if the bank is certified by the City and state, the wetland mitigation bank provides appropriate compensation for the proposed impacts, and the proposed use of credits is consistent with the terms and conditions of the bank's certification. However, at this time no City- or state-approved wetland mitigation banks have service areas that include the City.

#### 5.2 State Regulations

Ecology has been designated by the U.S. Environmental Protection Agency (EPA) to implement Section 401 of the federal Clean Water Act (CWA) in Washington State for most projects that require a permit under CWA Section 404 (see Section 5.3). However, the EPA generally implements the CWA Section 401 water quality certification process for projects that occur on federally-owned lands. The purpose of the CWA Section 401 water quality certification process is to ensure that federally permitted activities comply with federally approved water quality laws for the protection of waters of the United States. Those aquatic areas determined by the Corps to be disconnected from relatively permanent waters to traditionally navigable waters of the United States are considered "isolated" and are not regulated under Sections 401 or 404 of the CWA.

Ecology regulates all waters of the state, including isolated wetlands, through the Water Pollution Control Act (Revised Code of Washington, Chapter 90.48) and associated water-quality regulations (Washington Administrative Code, Chapter 173-201A). Those impacts to waters of the United States that do not require a CWA Section 401 and 404 permit require an Administrative Order from Ecology authorizing the impacts under state law. Compensatory mitigation for unavoidable impacts is typically required by Ecology for these impacts in accordance with their joint guidance with EPA and the Corps in *Wetland Mitigation in Washington State, Part 1: Agency Policies and Guidance* (Ecology, 2006).

#### 5.3 Federal Regulations

The Corps' CWA Section 404 review process is required for projects involving discharges of dredge or fill materials into the waters of the United States, including non-isolated wetlands and streams. Wetland A may be considered isolated since it drains to the south to the City's sport park and into a detention pond to the west (i.e., it has no continuous surface water connection to North Creek). However, the Corps has the final determination on whether a wetland is within their jurisdiction. If the Corps takes jurisdiction over Wetland A, any proposed impacts to Wetland A would require a CWA Section 404 permit from the Corps.

Compensatory mitigation for impacts to jurisdictional wetlands is typically required by the Corps in accordance with their joint guidance with the State of Washington and EPA (see Section 5.2).

#### 6.0 CLOSURE

The findings and conclusions documented in this report have been prepared for specific application to this project, and have been developed in a manner consistent with that level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area, and in accordance with the terms and conditions set forth in our agreement. The conclusions and recommendations presented in this report are professional opinions based on interpretation of information currently available to us, and are made within the operational scope, budget, and schedule constraints of this project. No warranty, express or implied, is made.

Shannon & Wilson, Inc. has prepared Appendix D, "Important Information About Your Wetland Delineation/Mitigation and/or Stream Classification Report," to assist you and others in understanding the use and limitations of our reports.

#### SHANNON & WILSON, INC.

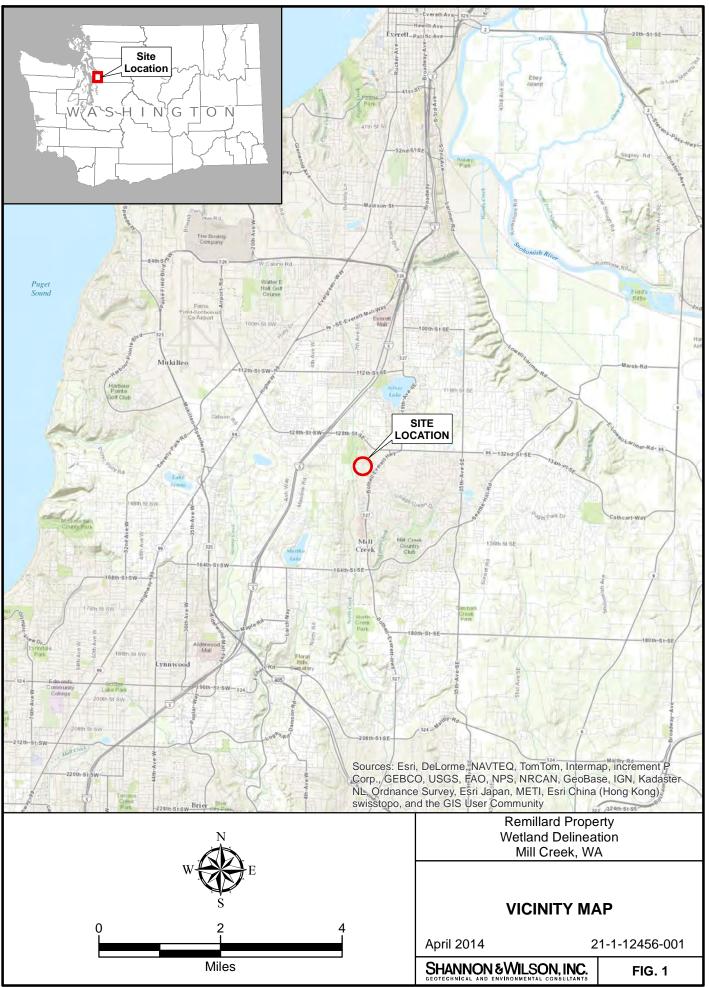
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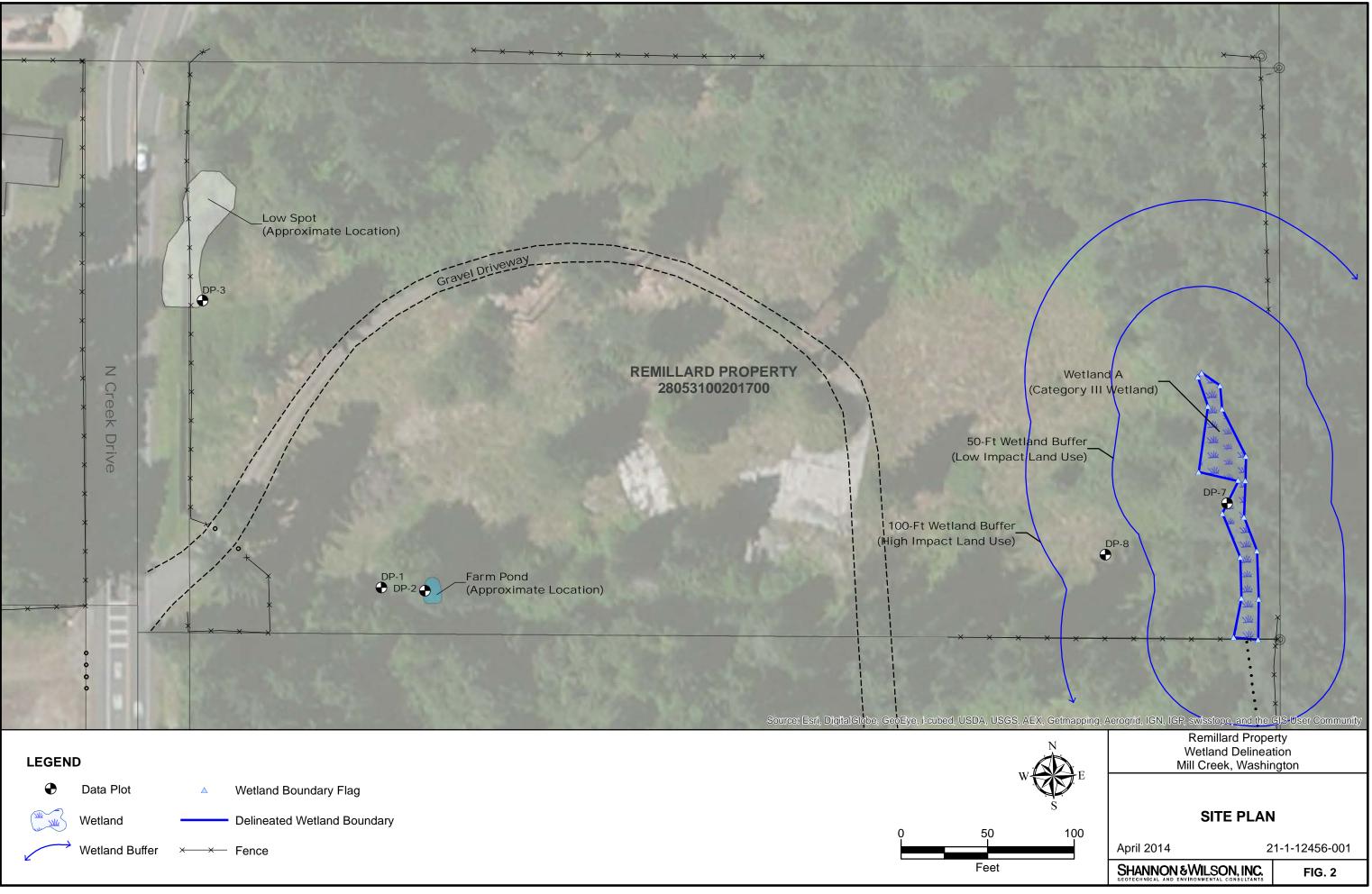
Becki Kniveton, P.W.S. Senior Principal Biologist

BSK:KLW/bsk

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## APPENDIX A

## WETLAND DELINEATION METHODOLOGY

## SHANNON & WILSON, INC.

#### APPENDIX A

## WETLAND DELINEATION METHODOLOGY

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#### APPENDIX A

#### WETLAND DELINEATION METHODOLOGY

The triple-parameter approach, as required in the Washington State Department of Ecology's (Ecology's) 1997 *Washington State Wetlands Identification and Delineation Manual*, the United States Army Corps of Engineers' (the Corps') 1987 *Corps of Engineers Wetland Delineation Manual*, and the Corps' 2010 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual*, and the Corps' 2010 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual*. *Western Mountains, Valleys, and Coast Region (Version 2.0)* was used to identify and delineate the wetlands on the site described in this report. The triple-parameter approach requires that vegetation, soils, and hydrology are each evaluated to determine the presence of wetlands. An area is considered to be a wetland if each of the following is met: (a) dominant hydrophytic vegetation is present in the area, (b) the soils in the area are hydric, and (c) the necessary hydrologic conditions within the area are met.

A determination of wetland presence was made by conducting a Routine Delineation. Corresponding upland and wetland plots were recorded to characterize surface and subsurface conditions and more accurately determine the boundaries of on-site wetlands.

## A.1 WETLAND VEGETATION

Hydrophytic plants are plant species specially adapted for saturated and/or anaerobic conditions. These species can be found in areas where there is a significant duration and frequency of inundation, which produces permanently or periodically saturated soils. Hydrophytic species, due to morphological, physiological, and reproductive adaptations, have the ability to grow, effectively compete, reproduce, and thrive in anaerobic soil. Indicators of hydrophytic vegetation are based on the wetland indicator status of plant species on the national wetland plant list (Lichvar, 2012). Plants are categorized as Obligate (OBL), Facultative Wetland (FACW), Facultative (FAC), Facultative Upland (FACU), or Upland (UPL). Species in the facultative categories (FACW, FAC, and FACU) are recognized as occurring in both wetlands and non-wetlands to varying degrees. Most wetlands are dominated mainly by species rated as OBL, FACW, or FAC (Table A-1).

# TABLE A-1PLANT INDICATOR STATUS GROUPS

Plant Indicator Status Categories
Obligate Wetland ( <b>OBL</b> ) – Plants that almost always occur in wetlands.
Facultative Wetland (FACW) – Plants that usually occur in wetlands, but may occur in non-wetlands.
Facultative (FAC) – Plants that occur in wetlands or non-wetlands.
Facultative Upland (FACU) – Plants that usually occur in non-wetlands, but may occur in wetlands.
Obligate Upland (UPL) – Plants that almost never occur in wetlands.

(Lichvar, 2012)

The approximate percentage of absolute cover for each of the different plant species occurring within the tree, sapling/shrub, woody vine, and herbaceous strata was determined. Trees within a 30-foot radius; sapling/shrubs and woody vines within a 15-foot radius; and herbaceous species within a 5-foot radius of each data point were identified and noted. However, where site conditions merited it, the dimensions of the tree, sapling/shrub, woody vine, and herbaceous strata were modified.

The dominance test is the primary hydrophytic vegetation indicator and it is used in all wetland delineations. Dominant plant species are considered to be those that, when cumulatively totaled in descending order of absolute percent cover, exceed 50 percent of the total absolute cover for each vegetative stratum. Any additional species individually representing 20 percent or greater of the total absolute cover for each vegetative strata are also considered dominant. Hydrophytic vegetation is considered to be present when greater than 50 percent of the dominant plant species within the area had an indicator status of OBL, FACW, or FAC.

If a plant community does not meet the dominance test in areas where hydric soils and wetland hydrology are present, vegetation is reevaluated using the prevalence index, plant morphological adaptations for living in wetlands, and/or abundance of bryophytes (e.g., mosses) adapted to living in wetlands. The prevalence index is a weighted average that takes into account the abundance of all plant species within the sampling area to determine if hydrophytic vegetation is more or less prevalent. Using the prevalence index, all plants within the sampling area are grouped by wetland indicator status and absolute percent cover is summed for each group. Total cover for each indicator status group is weighted by the following multipliers: OBL=1, FACW=2, FAC=3, FACU=4, UPL=5. The prevalence index is calculated by dividing the sum of the weighted totals by the sum of total cover in the sampling area. A prevalence index of 3.0 or less indicates that hydrophytic vegetation is present.

## A.2 HYDRIC SOILS

Hydric soils are defined as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (USDA SCS, 1994). Repeated periods of saturation and inundation for more than a few days, in combination with soil microbial activity, causes depletion in oxygen (anaerobic conditions) and results in delayed decomposition of organic matter and reduction of iron, manganese, and sulfur elements. As a result of these processes, most hydric soils develop distinctive characteristics observable in the field during both wet and dry periods. (USDA NRCS, 2010). These characteristics may be exhibited as an accumulation of organic matter; bluish-gray, green-gray, or low chroma and high value soil colors; mottling or other concentrations of iron and manganese; and/or hydrogen sulfide odor similar to a rotten egg smell.

The USDA Natural Resources Conservation Service (NRCS) has developed official hydric soil indicators as summarized in *Field Indicators of Hydric Soils in the United States* (USDA NRCS, 2010). These indicators were developed to assist in delineation of hydric soils and are based predominantly on hydric soils near the margins of wetlands. Some hydric soils, including soils within the wettest parts of wetlands, may lack any of the approved hydric soil indicators. If a hydric soil indicator is present, the soil is determined to be hydric. If no hydric soil indicator is present, additional site information is used to assess whether the soil meets the definition of hydric soil.

Identification of hydric soils was aided through observation of surface hydrologic characteristics and indicators of wetland hydrology (e.g., drainage patterns). Soil characteristics were observation at several data points, placed both inside and outside the wetland. Holes were dug with a shovel to the depth needed to document an indicator or to confirm the absence of hydric soil indicators. Soil organic content was estimated visually and texturally. Soil colors were examined in the field immediately after sampling. Dry soils were moistened. Soil colors were determined through analysis of the hue, value, and chroma best represented in the Munsell® Soil Color Chart.

## A.3 WETLAND HYDROLOGY

Wetland hydrology is determined by observable evidence that inundation or soil saturation have occurred during a significant portion of the growing season repeatedly over a period of years so that wet condition have been sufficient to produce wetland vegetation and hydric soils. Wetland hydrology indicators give evidence of a continuing wetland hydrologic regime. Wetland hydrology criteria were considered to be satisfied if it appeared that wetland hydrology was

present for at least 5 to 12.5 percent (12 to 31 days) of the growing season. The growing season in western Washington is typically considered to be from March 1 to October 31 (244 days). However, the growing season is considered to have begun when: (a) evidence of plant growth has begun on two non-evergreen vascular plants, and (b) the soil reaches a temperature of 41 degrees Fahrenheit at 12 inches. The Seattle District Corps of Engineers requires 14 consecutive days of inundation or saturation for a wetland hydrology to be considered present.

Wetland hydrology was evaluated by direct visual observation of surface inundation or soil saturation in data plots. The area near each data point was examined for indicators of wetland hydrology. Wetland hydrology indicators are categorized as primary or secondary based on their estimated reliability. Wetland hydrology was considered present if there was evidence of one primary indicator or at least two secondary indicators.

Some primary indicators include surface water, a shallow water table or saturated soils observed within 12 inches of the surface, dried watermarks, drift lines, sediment deposits, water-stained leaves, and algal mat/crust. Some secondary indicators include a water table within 12 to 24 inches of the surface during the dry season; drainage patterns; a landscape position in a depression, drainage, or fringe of a water body; and a shallow restrictive layer capable of perching water within 12 inches of the surface.

## A.4 DISCLAIMER

This methodology was prepared for reference use only and is not intended to replace Ecology's 1997 Washington State Wetlands Identification and Delineation Manual, the 1987 Corps of Engineers Wetland Delineation Manual, or the Corps' 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0).

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#### **APPENDIX B**

#### WETLAND DETERMINATION DATA FORMS – WESTERN MOUNTAINS, VALLEY, AND COAST REGION

## WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: MC Properties		City/County: MU	Creck Sampling Date: 3/26/14	
			State: WA Sampling Point: DP1	
Investigator(s): BSK, SCC		_ Section, Township, Range:		
			convex, none): Slope (%):	
Subregion (LRR):	Lat:		_ Long: Datum:	
Soil Map Unit Name: Alderwood (	SL		NWI classification:	
Are climatic / hydrologic conditions on the site typi	cal for this time of ye	ear? Yes No	(If no, explain in Remarks.)	
Are Vegetation, Soil, or Hydrology			"Normal Circumstances" present? Yes X No	
Are Vegetation, Soil, or Hydrology			eeded, explain any answers in Remarks.)	
			locations, transects, important features, etc.	
	No			
	No A	Is the Sample	d Area	
Wetland Hydrology Present? Yes		within a Wetla	nd? Yes No 2개막	
Remarks:		, UPDATE	for all data sheets: Marchyender	
2nd wettest March	on recor		ing the Wettest March on ricor,	
		up be	-3512 4/4/14	
VEGETATION – Use scientific names		B. L. H. P. L.		
Tree Stratum (Plot size:)	Absolute % Cover		Dominance Test worksheet: Number of Dominant Species	
1			That Are OBL, FACW, or FAC: (A)	
2			Total Number of Dominant	
3			Species Across All Strata: (B)	
4			Percent of Dominant Species	
Sapling/Shrub Stratum (Plot size:	1	_ = Total Cover	That Are OBL, FACW, or FAC: (A/B)	
1			Prevalence Index worksheet:	
2			Total % Cover of: Multiply by:	
3		·	OBL species         x 1 =           FACW species         x 2 =	
4			FAC species x 2 =	
5			FACU species x 4 =	
Herb Stratum (Piot size:)		_ = Total Cover	UPL species x 5 =	
1. Ranun repens	60	Y FACW	Column Totals: (A) (B)	
2. Coa sp.	5	N	Prevalence Index = B/A =	
3. dandylian 4.		N	Hydrophytic Vegetation Indicators:	
4		· <del> i</del>	1 - Rapid Test for Hydrophytic Vegetation	
5			2 - Dominance Test is >50%	
67			3 - Prevalence Index is ≤3.0 <sup>1</sup>	
7			4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
9			5 - Wetland Non-Vascular Plants <sup>1</sup>	
10			Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
11			<sup>1</sup> Indicators of hydric soil and wetland hydrology must	
Woody Vine Stratum (Dist size)		= Total Cover	be present, unless disturbed or problematic.	
Woody Vine Stratum (Plot size:	5	Y FACU	not state	
2	and the second se	A subscription of the second s	Hydrophytic Vegetation	
			Present? Yes No X	
% Bare Ground in Herb Stratum				
Remarks: NW55 - 20-30% COVA				

#### SOIL

## Sampling Point: DP1

Profile Descr Depth	Matrix			x Features				
(inches)	Color (moist)	%	Color (moist)	<u>%</u>	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-4	10 72 2/2	150	1				SL	
4-14	10 YP 3/3	150					GSL	
<u>-1-</u>	10 11 2/3	100					0.00	
							÷	
	1							
Type: C=Co	ncentration, D=Dep	pletion, RM	=Reduced Matrix, CS LRRs, unless othe	S=Covered	d or Coate	d Sand G	rains. <sup>2</sup> l Indica	Location: PL=Pore Lining, M=Matrix.
and the second second			Sandy Redox (		July			cm Muck (A10)
_ Histosol (	ipedon (A2)		Stripped Matrix					ted Parent Material (TF2)
Black His			Loamy Mucky		) (except	MLRA 1)		ery Shallow Dark Surface (TF12)
	n Sulfide (A4)		Loamy Gleyed					Other (Explain in Remarks)
	Below Dark Surface	ce (A11)	Depleted Matrix				3	
	rk Surface (A12)		Redox Dark Su					ators of hydrophylic vegetation and
	ucky Mineral (S1)		Depleted Dark Redox Depress		1)			atland hydrology must be present, less disturbed or problematic.
	leyed Matrix (S4) ayer (if present):		Redox Depress	nons (F8)			UN	icas disturbed or problematic,
Type:	ayer (ii present):							
	hes):						Hydric S	oil Present? Yes No 🔀
Remarks:	1007.						14. 60 14.	
	ЗҮ							
YDROLO( Vetland Hyd	Irology Indicators							
YDROLOO Vetland Hyd Primary Indica	Irology Indicators ators (minimum of		d; check all that appl				<u>Se</u>	condary Indicators (2 or more required)
YDROLOO Wetland Hyd Primary Indica Surface V	Irology Indicators ators (minimum of Water (A1)		Water-Sta	ined Leave		xcept	<u>Se</u>	Water-Stained Leaves (B9) (MLRA 1, 2,
YDROLOC Vetland Hyd Primary Indica Surface V High Wat	Irology Indicators ators (minimum of Water (A1) ter Table (A2)		Water-Sta MLRA	ined Leav 1, 2, 4A, a		xcept	<u>Se</u>	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
YDROLOC Vetland Hyd Primary Indica Surface V High Wat Saturatio	Irology Indicators ators (minimum of Water (A1) ter Table (A2) m (A3)		Water-Sta MLRA Salt Crust	ined Leav 1, 2, 4A, a (B11)	and 4B)	xcept	<u>Se</u>	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10)
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YDROLOC Vetland Hyd Primary Indica Surface V High Wat Saturatio Water Ma Sedimen Sedimen Iron Depo Algal Mal Iron Depo Surface S Inundatio Sparsely Surface Wate	Irology Indicators ators (minimum of Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aerial Vegetated Concav rations: ar Present?	one require Imagery (B ve Surface ( Yes	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized F Presence Recent Irc Stunted of Other (Ex) (B8)	ined Leave 1, 2, 4A, a (B11) vertebrate Sulfide Oc Rhizosphe of Reduce on Reduction r Stressed plain in Re ches):	and 4B) s (B13) dor (C1) res along ed Iron (C4 on in Tille Plants (D marks)	Living Roa 4) d Soils (Cl 1) (LRR A		Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9 Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
YDROLOO Vetland Hyd Primary Indica Surface V High Wat Saturatio Water Ma Sediment Drift Dep Algal Mal Iron Depo Surface S Inundatio Sparsely Field Observ Surface Water Water Table F Saturation Pre- Includes cap	Irology Indicators ators (minimum of a Water (A1) ter Table (A2) m (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aerial Vegetated Concav vations: ar Present? Present? esent?	Imagery (B ve Surface ( Yes Yes Yes	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized I Presence Recent Irc Stunted of Stunted of Other (Exp (B8) No C Depth (in No Depth (in	ined Leave 1, 2, 4A, a (B11) vertebrate Sulfide Oc Rhizosphe of Reduce on Reduction r Stressed plain in Re ches): ches):	and 4B) s (B13) dor (C1) res along ed Iron (C4 on in Tille Plants (D marks)	Living Roa 4) d Soils (Cl 1) (LRR A	ots (C3) 6) 1) 1and Hydrol	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)         Drainage Patterns (B10)         Dry-Season Water Table (C2)         Saturation Visible on Aerial Imagery (C9         Geomorphic Position (D2)         Shallow Aquitard (D3)         FAC-Neutral Test (D5)         Raised Ant Mounds (D6) (LRR A)         Frost-Heave Hummocks (D7)
YDROLOO Vetland Hyd Primary Indica Surface V High Wat Saturatio Water Ma Sediment Drift Dep Algal Mal Iron Depo Surface S Inundatio Sparsely Field Observ Surface Wate Water Table F Saturation Pre- Includes cap	Irology Indicators ators (minimum of a Water (A1) ter Table (A2) m (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aerial Vegetated Concav vations: ar Present? Present? esent?	Imagery (B ve Surface ( Yes Yes Yes	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized I Presence Recent Irc Stunted or Stunted or Other (Exp (B8)	ined Leave 1, 2, 4A, a (B11) vertebrate Sulfide Oc Rhizosphe of Reduce on Reduction r Stressed plain in Re ches): ches):	and 4B) s (B13) dor (C1) res along ed Iron (C4 on in Tille Plants (D marks)	Living Roa 4) d Soils (Cl 1) (LRR A	ots (C3) 6) 1) 1and Hydrol	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)         Drainage Patterns (B10)         Dry-Season Water Table (C2)         Saturation Visible on Aerial Imagery (C9)         Geomorphic Position (D2)         Shallow Aquitard (D3)         FAC-Neutral Test (D5)         Raised Ant Mounds (D6) (LRR A)         Frost-Heave Hummocks (D7)
YDROLOO Vetland Hyd Primary Indica Surface V High Wat Saturatio Water Ma Sediment Drift Dep Algal Mal Iron Depo Surface S Inundatio Sparsely Field Observ Surface Wate Water Table F Saturation Pre- Includes cap	Irology Indicators ators (minimum of a Water (A1) ter Table (A2) m (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aerial Vegetated Concav vations: ar Present? Present? esent?	Imagery (B ve Surface ( Yes Yes Yes	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized I Presence Recent Irc Stunted of Stunted of Other (Exp (B8) No C Depth (in No Depth (in	ined Leave 1, 2, 4A, a (B11) vertebrate Sulfide Oc Rhizosphe of Reduce on Reduction r Stressed plain in Re ches): ches):	and 4B) s (B13) dor (C1) res along ed Iron (C4 on in Tille Plants (D marks)	Living Roa 4) d Soils (Cl 1) (LRR A	ots (C3) 6) 1) 1and Hydrol	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)         Drainage Patterns (B10)         Dry-Season Water Table (C2)         Saturation Visible on Aerial Imagery (C9         Geomorphic Position (D2)         Shallow Aquitard (D3)         FAC-Neutral Test (D5)         Raised Ant Mounds (D6) (LRR A)         Frost-Heave Hummocks (D7)
YDROLOO Vetland Hyd Primary Indica Surface V High Wat Saturatio Water Ma Sediment Drift Dep Algal Mal Iron Depo Surface S Inundatio Sparsely Field Observ Surface Water Vater Table F Saturation Pre- Includes cap	Irology Indicators ators (minimum of a Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aerial Vegetated Concav vations: ar Present? Present? Present?	Imagery (B ve Surface ( Yes Yes res n gauge, m	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized I Presence Recent Irc Stunted of Stunted of Other (Exp (B8) No C Depth (in No Depth (in	ined Leave 1, 2, 4A, a (B11) vertebrate Sulfide Oc Rhizosphe of Reduce on Reduction r Stressed plain in Re ches): ches):	and 4B) s (B13) dor (C1) res along ed Iron (C4 on in Tille Plants (D marks)	Living Roa 4) d Soils (Cl 1) (LRR A	ots (C3) 6) 1) 1and Hydrol	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)         Drainage Patterns (B10)         Dry-Season Water Table (C2)         Saturation Visible on Aerial Imagery (C9)         Geomorphic Position (D2)         Shallow Aquitard (D3)         FAC-Neutral Test (D5)         Raised Ant Mounds (D6) (LRR A)         Frost-Heave Hummocks (D7)
YDROLOC Vetland Hyd Primary Indica Surface V High Wat Saturatio Water Ma Sediment Drift Dep Algal Mat Iron Depa Surface S Inundatio Sparsely Field Observ Surface Water Vater Table F Saturation Pro- includes cap Describe Rec	Irology Indicators ators (minimum of a Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aerial Vegetated Concav vations: ar Present? Present? Present?	Imagery (B ve Surface ( Yes Yes res n gauge, m	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized I Presence Recent Irc Stunted of Stunted of Other (Exp (B8) No C Depth (in No Depth (in	ined Leave 1, 2, 4A, a (B11) vertebrate Sulfide Oc Rhizosphe of Reduce on Reduction r Stressed plain in Re ches): ches):	and 4B) s (B13) dor (C1) res along ed Iron (C4 on in Tille Plants (D marks)	Living Roa 4) d Soils (Cl 1) (LRR A	ots (C3) 6) 1) 1and Hydrol	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)         Drainage Patterns (B10)         Dry-Season Water Table (C2)         Saturation Visible on Aerial Imagery (C9)         Geomorphic Position (D2)         Shallow Aquitard (D3)         FAC-Neutral Test (D5)         Raised Ant Mounds (D6) (LRR A)         Frost-Heave Hummocks (D7)
YDROLOC Vetland Hyd Primary Indica Surface V High Wat Saturatio Water Ma Sediment Sediment Drift Dep Algal Mat Iron Dep Surface S Inundatio Sparsely Field Observ Surface Water Vater Table F Saturation Pro includes cap Describe Rec	Irology Indicators ators (minimum of a Water (A1) ter Table (A2) m (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aerial Vegetated Concav vations: ar Present? Present? esent?	Imagery (B ve Surface ( Yes Yes res n gauge, m	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized I Presence Recent Irc Stunted of Stunted of Other (Exp (B8) No C Depth (in No Depth (in	ined Leave 1, 2, 4A, a (B11) vertebrate Sulfide Oc Rhizosphe of Reduce on Reduction r Stressed plain in Re ches): ches):	and 4B) s (B13) dor (C1) res along ed Iron (C4 on in Tille Plants (D marks)	Living Roa 4) d Soils (Cl 1) (LRR A	ots (C3) 6) 1) 1and Hydrol	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)         Drainage Patterns (B10)         Dry-Season Water Table (C2)         Saturation Visible on Aerial Imagery (C9)         Geomorphic Position (D2)         Shallow Aquitard (D3)         FAC-Neutral Test (D5)         Raised Ant Mounds (D6) (LRR A)         Frost-Heave Hummocks (D7)
YDROLOC Vetland Hyd Surface V Surface V High Wat Saturatio Water Ma Sedimen Drift Dep Algal Mat Iron Depa Surface S Inundatio Sparsely Gurface Wate Vater Table F Gaturation Princludes cap Describe Rec	Irology Indicators ators (minimum of a Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aerial Vegetated Concav vations: ar Present? Present? Present?	Imagery (B ve Surface ( Yes Yes res n gauge, m	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized I Presence Recent Irc Stunted of Stunted of Other (Exp (B8) No C Depth (in No Depth (in	ined Leave 1, 2, 4A, a (B11) vertebrate Sulfide Oc Rhizosphe of Reduce on Reduction r Stressed plain in Re ches): ches):	and 4B) s (B13) dor (C1) res along ed Iron (C4 on in Tille Plants (D marks)	Living Roa 4) d Soils (Cl 1) (LRR A	ots (C3) 6) 1) 1and Hydrol	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)         Drainage Patterns (B10)         Dry-Season Water Table (C2)         Saturation Visible on Aerial Imagery (C9)         Geomorphic Position (D2)         Shallow Aquitard (D3)         FAC-Neutral Test (D5)         Raised Ant Mounds (D6) (LRR A)         Frost-Heave Hummocks (D7)

#### WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: MC Propertus				
Applicant/Owner: Mill Coef-			State: MA	_ Sampling Point:
Investigator(s): 1994 SCC	Sect	ion, Township, Ra	nge:	
Landform (hillslope, terrace, etc.):	Loca	al relief (concave,	convex, none):	Slope (%):
Subregion (LRR):	Lat:		Long:	Datum:
Subregion (LRR):	/		NWI classif	ication:
Are climatic / hydrologic conditions on the site typical				
Are Vegetation, Soil, or Hydrology				present? Yes X No
Are Vegetation, Soil, or Hydrology Are Vegetation, Soil, or Hydrology				
			eded, explain any answ	
SUMMARY OF FINDINGS – Attach site	map showing sar	npling point l	ocations, transect	s, important features, etc.
	No			
Hydric Soil Present? Yes		Is the Sampled within a Wetlar	Area	No
Wetland Hydrology Present? Yes <u>/</u>				
Remarks: on edge of man-	made pon	1 - like	en 18" do	w
2nd wettest March or	- record si	POATT - L. L.	Host March	parecord - Ocle
VEGETATION – Use scientific names of		NULE: MI	chept triarch	4/4/14
VEGETATION – Use scientific flames of	· · · · · · · · · · · · · · · · · · ·	minant Indicator	Dominance Test wor	1.1.5
Tree Stratum (Plot size:)			Number of Dominant	
1			That Are OBL, FACW	
2			Total Number of Domi	inant
3			Species Across All Str	4
4	= Te	otal Cover	Percent of Dominant S That Are OBL, FACW	
Sapling/Shrub Stratum (Plot size:	) 20 1	( FAC	Prevalence Index wo	orksheet:
1. Rubus spectabilis			Total % Cover of:	Multiply by:
2			OBL species	x 1 =
3			FACW species	x 2 =
5.			and the second	x 3 =
	= Te	otal Cover		x 4 =
Herb Stratum (Plot size:)				x 5 = (D)
1. Ranun repairs	15	Y_FACW	Column Totals:	(A) (B)
2			Prevalence Inde	
3			Hydrophytic Vegetat	
4			-	Hydrophytic Vegetation
5			2 - Dominance Te	
7			A commence of the second se	Adaptations <sup>1</sup> (Provide supporting
8,			data im Remark	ks or on a separate sheet)
9			5 - Wetland Non-V	Vascular Plants <sup>1</sup>
10			Problematic Hydro	ophytic Vegetation <sup>1</sup> (Explain)
11			<sup>1</sup> Indicators of hydric so be present, unless dis	bil and wetland hydrology must
	= To	tal Cover	De present, uniess dis	turbed of problematic.
Woody Vine Stratum (Plot size:)				
-1			Hydrophytic Vegetation	,
2	= To			es No
% Bare Ground in Herb Stratum	= 10	un ouver		
Remarks: mostly open wa		1)		

#### SOIL

Sampling Point:

High Water Table (A2)       MLRA 1, 2, 4A, and 4B)       4A, and 4B)         Saturation (A3)       Salt Crust (B11)       Drainage Patterns (B10)         Water Marks (B1)       Aquatic Invertebrates (B13)       Dry-Season Water Table (C2)	<u>inches) Color (moist) % Color (moist) % Type<sup>1</sup> Loc<sup>2</sup></u>	SL
3-11       ID YR YA       IDD       GSL         "Type: C=Cancentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.       *Location; PL=Pare Lining, M=Matrix, Indicators for Problemate Hydric Solds*:         Histoad (N1)       Sandy Redox (S5)		the second se
Type:       C=Concentration, D=Dayletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>1</sup> Location: PL=Pore Lining, M=Matrix, Mircle Solts*:          Type:       C=Concentration, D=Dayletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>1</sup> Location: PL=Pore Lining, M=Matrix, Mircle Solts*:          Histic Epipedon (A2)       Single Matrix (S5)	3-11 10 X2 Y3 100	GSL
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators: (Applicable to all LRRs, unless otherwise noted.)         Histic Epideon (A2)       Sandy Redox (S5)		
Type:	Ivdric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)         Histosol (A1)       Sandy Redox (S5)         Histic Epipedon (A2)       Stripped Matrix (S6)         Black Histic (A3)       Loamy Mucky Mineral (F1) (except MLRA 1         Hydrogen Sulfide (A4)       Loamy Gleyed Matrix (F2)         Depleted Below Dark Surface (A11)       Depleted Matrix (F3)         Thick Dark Surface (A12)       Redox Dark Surface (F6)         Sandy Mucky Mineral (S1)       Depleted Dark Surface (F7)         Sandy Gleyed Matrix (S4)       Redox Depressions (F8)	Indicators for Problematic Hydric Soils <sup>3</sup> : 2 cm Muck (A10) Red Parent Material (TF2) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) <sup>3</sup> Indicators of hydrophylic vegetation and wetland hydrology must be present,
Depth (inches):       Hydric Soil Present?       Yes       No         temarks:       VEM		
Remarks:         YDROLOGY         Netland Hydrology Indicators:         Primary Indicators (minimum of one required; check all that apply)       Secondary Indicators (2 or more required)         Sufrace Water (A1)       Water-Stained Leaves (B9) (except       Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)         High Water Table (A2)       MLRA 1, 2, 4A, and 4B)       4A, and 4B)         Saturation (A3)		Hydric Soll Present? Ves No X
Surface Water (A1)	Vetland Hydrology Indicators:	Secondary Indicators (2 or more required)
Surface Water Present? Yes No Depth (inches): Water Table Present? Yes _K_ No Depth (inches): _linck_ Saturation Present? Yes _K_ No Depth (inches): <u>Sunface</u> Wetland Hydrology Present? Yes _K_ No (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	Surface Water (A1)       Water-Stained Leaves (B9) (except         High Water Table (A2)       MLRA 1, 2, 4A, and 4B)         Saturation (A3)       Salt Crust (B11)         Water Marks (B1)       Aquatic Invertebrates (B13)         Sediment Deposits (B2)       Hydrogen Sulfide Odor (C1)         Drift Deposits (B3)       Oxidized Rhizospheres along Living Ro         Algal Mat or Crust (B4)       Presence of Reduced Iron (C4)         Iron Deposits (B5)       Recent Iron Reduction in Tilled Soils (C         Surface Soil Cracks (B6)       Stunted or Stressed Plants (D1) (LRR A)         Inundation Visible on Aerial Imagery (B7)       Other (Explain in Remarks)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9 bots (C3) Geomorphic Position (D2) Shallow Aquitard (D3) C6) FAC-Neutral Test (D5) A) Raised Ant Mounds (D6) (LRR A)
Saturation Present? Yes K No Depth (inches): Surface Wetland Hydrology Present? Yes K No Depth (inches): Surface Wetland Hydrology Present? Yes K No Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	surface Water Present? Yes No <u><!--</u--> Depth (inches):</u>	
Remarks:	aturation Present? Yes <u>K</u> No Depth (inches): <u>Sunface</u> Wet	
	Jamarke.	
	eniarks.	

# WETLAND DETERMINATION DATA FORM -- Western Mountains, Valleys, and Coast Region

Project/Site: MC Properti	es	City/	County: MU	(reck	_ Sampling Date: 3/2/14
pplicant/Owner: Mill Cree					
vestigator(s):K SC					
andform (hillslope, terrace, etc.):		Loc	al relief (concaye,	convex, none):	Slope (%):
ubregion (LRR):		Lat:		_ Long:	Datum:
oil Map Unit Name: Aldouws	1 GGA/			NWI classif	fication:
re climatic / hydrologic conditions on t					
re Vegetation, Soil, or					present? Yes X No
re Vegetation, Soil, or				eded, explain any answ	
SUMMARY OF FINDINGS - A			mpling point I	ocations, transect	s, important reatures, etc.
Hydrophytic Vegetation Present? Hydric Soll Present? Wetland Hydrology Present?	Yes	No	In the Complete	Area	
Hydric Soll Present?	Yes	No <u>^</u>	Is the Sampled within a Wetlan	nd? Yes	No
Wetland Hydrology Present?	Yes	No	and the second se		
Remarks: 2nd writes	+ Maral	m rei	OF UPDA	TE: Wettest	March ~ record
yra: voonor			UT CI	- BED	6 4/4/14
The second second second					1 1.9
EGETATION Use scientific	c names of pla	A State of the second sec			42.12
Tree Stratum (Plot size:	j		ominant Indicator occies? Status	Dominance Test wo	
1				Number of Dominant That Are OBL, FACW	
2.					
3.				Total Number of Dom Species Across All St	
4					
		=1		Percent of Dominant That Are OBL, FACW	, or FAC: (A/B)
Sapling/Shrub Stratum (Plot size:	)			Prevalence Index we	
1				Total % Cover of	Multiply by:
2				OBL species	x 1 =
3				FACW species	x 2 =
4				FAC species	x 3 =
5			Tabal Causa	FACU species	x 4 =
Herb Stratum (Plot size:	)		Total Cover	UPL species	x 5 =
1. Ranunculus	/	60	Y FACW	Column Totals:	(A) (B)
2. algel mat			VIA		ex = B/A =
Δ				Hydrophytic Vegeta	
4				1 - Rapid Test fo	r Hydrophytic Vegetation
5				2 - Dominance T	est is >50%
6				3 - Prevalence In	ndex is ≤3.0 <sup>1</sup>
7				4 - Morphologica	I Adaptations <sup>1</sup> (Provide supporting
8					rks or on a separate sheet)
9				5 - Wetland Non-	rophytic Vegetation <sup>1</sup> (Explain)
10					soil and wetland hydrology must
11				be present, unless di	sturbed or problematic.
Woody Vine Stratum (Plot size:		<u>80</u> =T	otal Cover		
1. Rannelis laci		20	Y FACU	Hydrophytic	
2				Vegetation	
41		20 =T	otal Cover	Present?	res No
% Bare Ground in Herb Stratum					
Remarks:		11	h	1 produin	
alder supli	mp a wr	um sy	Ind'in 6	upression	
			6 1)	0.11	

US Army Corps of Engineers

Western Mountains, Valleys, and Coast - Version 2.0

C	n	IT.
0	U	11.

Sampling Point: DP 3

Depth <u>Matrix</u> (inches) Color (moist) %	needed to document the indicator or confirm <u>Redox Features</u> <u>Color (moist)</u> <u>%_Type<sup>1</sup>_Loc<sup>2</sup></u>	the absence of indicators.)
0-Z 10 TR 3/1 100%.		SL
2-13 10 4/2 1/2 "		GSL
13-15 7.5 YR-4/4 "		GSL
<sup>1</sup> Type: C=Concentration. D=Depletion. RM=F	Reduced Matrix, CS=Covered or Coated Sand Gra	ains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.
Hydric Soil Indicators: (Applicable to all L		Indicators for Problematic Hydric Soils <sup>3</sup> :
Histosol (A1)	_ Sandy Redox (S5)	2 cm Muck (A10)
Histic Epipedon (A2)	_ Stripped Matrix (S6)	Red Parent Material (TF2)
Black Histic (A3)	Loamy Mucky Mineral (F1) (except MLRA 1)	Very Shallow Dark Surface (TF12)
Hydrogen Sulfide (A4)	_ Loamy Gleyed Matrix (F2)	Other (Explain in Remarks)
Depleted Below Dark Surface (A11) Thick Dark Surface (A12)	Depleted Matrix (F3) Redox Dark Surface (F6)	<sup>3</sup> Indicators of hydrophylic vegetation and
Sandy Mucky Mineral (S1)	_ Depleted Dark Surface (F7)	wetland hydrology must be present,
Sandy Gleyed Matrix (S4)	Redox Depressions (F8)	unless disturbed or problematic.
Restrictive Layer (if present):		
Туре:		~
Depth (inches):		Hydric Soil Present? Yes No X
HYDROLOGY Wetland Hydrology Indicators:		
The second se	check all that apply)	Secondary Indicators (2 or more required)
Primary Indicators (minimum of one required; Surface Water (A1)	check all that apply) Water-Stained Leaves (B9) (except	Secondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2,
Primary Indicators (minimum of one required;		
Primary Indicators (minimum of one required; Surface Water (A1) High Water Table (A2) Saturation (A3)	Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) Salt Crust (B11)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10)
Primary Indicators (minimum of one required; Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1)	<ul> <li>Water-Stained Leaves (B9) (except</li> <li>MLRA 1, 2, 4A, and 4B)</li> <li>Salt Crust (B11)</li> <li>Aquatic Invertebrates (B13)</li> </ul>	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2)
Primary Indicators (minimum of one required; Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2)	<ul> <li>Water-Stained Leaves (B9) (except</li> <li>MLRA 1, 2, 4A, and 4B)</li> <li>Salt Crust (B11)</li> <li>Aquatic Invertebrates (B13)</li> <li>Hydrogen Sulfide Odor (C1)</li> </ul>	<ul> <li>Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)</li> <li>Drainage Patterns (B10)</li> <li>Dry-Season Water Table (C2)</li> <li>Saturation Visible on Aerial Imagery (C9)</li> </ul>
Primary Indicators (minimum of one required; Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3)	<ul> <li>Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)</li> <li>Salt Crust (B11)</li> <li>Aquatic Invertebrates (B13)</li> <li>Hydrogen Sulfide Odor (C1)</li> <li>Oxidized Rhizospheres along Living Root</li> </ul>	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) ts (C3) Geomorphic Position (D2)
Primary Indicators (minimum of one required;         Surface Water (A1)         High Water Table (A2)         Saturation (A3)         Water Marks (B1)         Sediment Deposits (B2)         Drift Deposits (B3)         Algal Mat or Crust (B4)	<ul> <li>Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)</li> <li>Salt Crust (B11)</li> <li>Aquatic Invertebrates (B13)</li> <li>Hydrogen Sulfide Odor (C1)</li> <li>Oxidized Rhizospheres along Living Root</li> <li>Presence of Reduced Iron (C4)</li> </ul>	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) ts (C3) Geomorphic Position (D2) Shallow Aquitard (D3)
Primary Indicators (minimum of one required;	<ul> <li>Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)</li> <li>Salt Crust (B11)</li> <li>Aquatic Invertebrates (B13)</li> <li>Hydrogen Sulfide Odor (C1)</li> <li>Oxidized Rhizospheres along Living Root</li> <li>Presence of Reduced Iron (C4)</li> <li>Recent Iron Reduction in Tilled Solls (C6)</li> </ul>	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) ts (C3) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5)
Primary Indicators (minimum of one required;	<ul> <li>Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)</li> <li>Salt Crust (B11)</li> <li>Aquatic Invertebrates (B13)</li> <li>Hydrogen Sulfide Odor (C1)</li> <li>Oxidized Rhizospheres along Living Rool</li> <li>Presence of Reduced Iron (C4)</li> <li>Recent Iron Reduction in Tilled Soils (C6)</li> <li>Stunted or Stressed Plants (D1) (LRR A)</li> <li>Other (Explain in Remarks)</li> </ul>	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) ts (C3) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5)
Primary Indicators (minimum of one required;	<ul> <li>Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)</li> <li>Salt Crust (B11)</li> <li>Aquatic Invertebrates (B13)</li> <li>Hydrogen Sulfide Odor (C1)</li> <li>Oxidized Rhizospheres along Living Rool</li> <li>Presence of Reduced Iron (C4)</li> <li>Recent Iron Reduction in Tilled Soils (C6)</li> <li>Stunted or Stressed Plants (D1) (LRR A)</li> <li>Other (Explain in Remarks)</li> </ul>	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) (C3) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Primary Indicators (minimum of one required;         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)         Field Observations:         Surface Water Present?	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 Rool     Presence of Reduced Iron (C4)     Recent Iron Reduction in Tilled Soils (C6)     Stunted or Stressed Plants (D1) (LRR A)     Other (Explain in Remarks) )  De_Depth (inches):/	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) (C3) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Primary Indicators (minimum of one required;	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 Rool     Presence of Reduced Iron (C4)     Recent Iron Reduction in Tilled Soils (C6)     Stunted or Stressed Plants (D1) (LRR A)     Other (Explain in Remarks) }  Depth (inches):	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) (C3) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Primary Indicators (minimum of one required;	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 Rool     Presence of Reduced Iron (C4)     Recent Iron Reduction in Tilled Soils (C6)     Stunted or Stressed Plants (D1) (LRR A)     Other (Explain in Remarks)  Debeth (inches): b Depth (inches): Wetla	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Is (C3) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7) and Hydrology Present? Yes X No
Primary Indicators (minimum of one required;	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 Rool     Presence of Reduced Iron (C4)     Recent Iron Reduction in Tilled Soils (C6)     Stunted or Stressed Plants (D1) (LRR A)     Other (Explain in Remarks) }  Depth (inches):	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Is (C3) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7) and Hydrology Present? Yes X No
Primary Indicators (minimum of one required;	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 Rool     Presence of Reduced Iron (C4)     Recent Iron Reduction in Tilled Soils (C6)     Stunted or Stressed Plants (D1) (LRR A)     Other (Explain in Remarks)  Debeth (inches): b Depth (inches): Wetla	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Is (C3) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7) and Hydrology Present? Yes X No
Primary Indicators (minimum of one required;	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 Rool     Presence of Reduced Iron (C4)     Recent Iron Reduction in Tilled Soils (C6)     Stunted or Stressed Plants (D1) (LRR A)     Other (Explain in Remarks)  Debeth (inches): b Depth (inches): Wetla	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Is (C3) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7) and Hydrology Present? Yes X No
Primary Indicators (minimum of one required;	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 Rool     Presence of Reduced Iron (C4)     Recent Iron Reduction in Tilled Soils (C6)     Stunted or Stressed Plants (D1) (LRR A)     Other (Explain in Remarks)  Debeth (inches): b Depth (inches): Wetla	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Is (C3) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7) and Hydrology Present? Yes X No
Primary Indicators (minimum of one required;	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 Rool     Presence of Reduced Iron (C4)     Recent Iron Reduction in Tilled Soils (C6)     Stunted or Stressed Plants (D1) (LRR A)     Other (Explain in Remarks)  Debeth (inches): b Depth (inches): Wetla	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Is (C3) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7) and Hydrology Present? Yes X No

WETLAND DETE						
roject/Site: MC Prop	erties	(	City/County:	Mill	alle	Sampling Date: <u>77617</u>
pplicant/Owner: Mill C	vel-				State: _///A	_ Sampling Point: <u> /// - +</u>
vestigator(s): BSK SC	L		Section, Tov	vnship, Ran	ge:	
andform (hillslope, terrace, etc.):			Local relief	(concave) c	onvex, none):	Slope (%):
ubragion (I PP)		Lat			Long:	Datum:
oil Map Unit Name: <u>Aldern</u>	roval GSA	-			NWI classi	fication:
re climatic / hydrologic conditions on	the site typical for	this time of yea	r? Yes	No 7	(If no, explain in	Remarks.)
re Vegetation, Soil, o	r Hydrology	_significantly of	disturbed?	Are "	Normal Circumstances	" present? Yes <u>&gt;</u> No
re Vegetation, Soil, o				(If nee	eded, explain any ansv	vers in Remarks.)
SUMMARY OF FINDINGS - /				a point la	cations, transec	ts, important features, etc
			Samping	g point ic		
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes	NoX	ls th with	e Sampled in a Wetlan	Area d? Yes	No <u>&gt;</u>
Remarks: 2nd wetlest	March	on re	cord	UP01	-PS=12 4	t March on recon 14/14
/EGETATION – Use scientifi	c names of pla	Absolute	Dominant	Indicator	Dominance Test wo	rksheet
<u>Tree Stratum</u> (Plot size: 1		% Cover	Species?	Status	Number of Dominant That Are OBL, FACV	Species 0
2					Total Number of Don Species Across All S	
4			= Total Co	ver	Percent of Dominant That Are OBL, FACV	
Sapling/Shrub Stratum (Plot size: _					Prevalence Index w	orksheet:
1						f: Multiply by:
2					and the second se	x 1 =
4						x2=
5.						x 3 =
		-	= Total Co	ver		x 4 = x 5 =
Herb Stratum (Plot size:		40	4	Grant	The second se	(A) (B)
1. Ranun . repens		10		SLONE FAC		
2. Agriski?' 3. Veronice			Y	OBL	Prevalence Ind Hydrophytic Vegeta	ex = B/A =
4.			_	0		or Hydrophytic Vegetation
5					2 - Dominance T	
6.					3 - Prevalence I	
7					4 - Morphologica	al Adaptations <sup>1</sup> (Provide supporting
8						arks or on a separate sheet)
9				÷	5 - Wetland Non	
10						Irophytic Vegetation <sup>1</sup> (Explain) soil and wetland hydrology must
11		80				isturbed or problematic.
Woody Vine Stratum (Plot size:			= Total Co			
1. Rubus armen.		10		FACU	Hydrophytic Vegetation	N.
2		10	= Total Co	ver	Present?	Yes <u>X</u> No
% Bare Ground in Herb Stratum						
Remarks: frees near franther 5.	ity: ced	lan, col	tonnos	, done	16r	

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Western Mountains, Valleys, and Coast - Version 2.0

OIL		Sampling Point: DP 7
Profile Description: (Describe to the de	pth needed to document the indicator or confir	rm the absence of indicators.)
Depth <u>Matrix</u>	Redox Features Color (moist) % Type <sup>1</sup> Loc <sup>2</sup>	- Tautura Damadua
Color (moist) %		
3-2 10 XR 4/1 100%		- all country -
2-5 1174 3/2 1001		Couny sand "
5-9 10 YR 2/1 100%		Silf Loz_ "
9-18 10 YR 2/2 1001		9L
	/=Reduced Matrix, CS=Covered or Coated Sand (	
lydric Soil Indicators: (Applicable to al		Indicators for Problematic Hydric Soils <sup>3</sup> :
Histosol (A1)	Sandy Redox (S5)	2 cm Muck (A10)
Histic Epipedon (A2)	Stripped Matrix (S6)	Red Parent Material (TF2)
Black Histic (A3) Hydrogen Sulfide (A4)	Loamy Mucky Mineral (F1) (except MLRA 1 Loamy Gleyed Matrix (F2)	<ol> <li>Very Shallow Dark Surface (TF12)</li> <li>Other (Explain in Remarks)</li> </ol>
Hydrogen Suffice (A4) Depleted Below Dark Surface (A11)	Depleted Matrix (F3)	
Thick Dark Surface (A12)	Redox Dark Surface (F6)	<sup>3</sup> Indicators of hydrophytic vegetation and
Sandy Mucky Mineral (S1)	Depleted Dark Surface (F7)	wetland hydrology must be present,
Sandy Gleyed Matrix (S4)	Redox Depressions (F8)	unless disturbed or problematic.
estrictive Layer (if present):		
Туре:		N N
Depth (inches):		Hydric Soil Present? Yes No X
lomarke:		
YDROLOGY	The 5/4 silt @ 17" -	
Vetland Hydrology Indicators:	6 T 1	
Primary Indicators (minimum of one require		Secondary Indicators (2 or more required)
Surface Water (A1)	Water-Stained Leaves (B9) (except	Water-Stained Leaves (B9) (MLRA 1, 2,
_ High Water Table (A2)	MLRA 1, 2, 4A, and 4B)	4A, and 4B)
_ Saturation (A3)	Salt Crust (B11)	Drainage Patterns (B10)
_ Water Marks (B1)	Aquatic Invertebrates (B13)	Dry-Season Water Table (C2)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)	Saturation Visible on Aerial Imagery (C9
_ Drift Deposits (B3)	Oxidized Rhizospheres along Living Ro	
_ Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)	Shallow Aquitard (D3)
_ Iron Deposits (B5)	Recent Iron Reduction in Tilled Soils (C	
_ Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1) (LRR .	A) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Inundation Visible on Assist Income //		FIOSt-fieave nutrinocks (D/)
Inundation Visible on Aerial Imagery (I Sparsely Venetated Concerve Surface)		
_ Sparsely Vegetated Concave Surface		, , , , , , , , , , , , , , , , ,
_ Sparsely Vegetated Concave Surface ield Observations:	(B8)	
Sparsely Vegetated Concave Surface ield Observations: urface Water Present? Yes	(B8) No Depth (inches): いんし	
_ Sparsely Vegetated Concave Surface ield Observations: urface Water Present? Yes X /ater Table Present? Yes	(B8) No Depth (inches): No Depth (inches):	
Sparsely Vegetated Concave Surface Field Observations: Surface Water Present? Yes X Vater Table Present? Yes	(B8) No Depth (inches): No Depth (inches):	tland Hydrology Present? Yes <u>/</u> No
Sparsely Vegetated Concave Surface Field Observations: Surface Water Present? Yes X Water Table Present? Yes	(B8) No Depth (inches): No Depth (inches): No Depth (inches): We	tland Hydrology Present? Yes <u>/</u> No
Sparsely Vegetated Concave Surface Field Observations: Surface Water Present? Yes X Water Table Present? Yes	(B8) No Depth (inches): No Depth (inches): No Depth (inches): We	tland Hydrology Present? Yes <u>/</u> No
Sparsely Vegetated Concave Surface Field Observations: Surface Water Present? Yes X Nater Table Present? Yes	(B8) No Depth (inches): No Depth (inches): No Depth (inches): monitoring well, aerial photos, previous inspections)	tland Hydrology Present? Yes <u>/</u> No ), if available:
Sparsely Vegetated Concave Surface Field Observations: Surface Water Present? Yes Vater Table Present? Yes Saturation Present? Yes	(B8) No Depth (inches): No Depth (inches): No Depth (inches): monitoring well, aerial photos, previous inspections)	tland Hydrology Present? Yes <u>/</u> No ), if available:
Sparsely Vegetated Concave Surface ield Observations: urface Water Present? Yes /ater Table Present? Yes aturation Present? Yes ncludes capillary fringe) escribe Recorded Data (stream gauge, m emarks:	(B8) No Depth (inches): No Depth (inches): No Depth (inches): We	tland Hydrology Present? Yes <u>/</u> No ), if available:

WETLAND DETERMINATION E	ATA FORM	I – Western Mou	intains, Valleys, and Coast Region
Project/Site: MC Properties	C	ity/County Mil	2 Creek Sampling Date: 3/26/14
Applicant/Owner: Mill Creek			
nvestigator(s): BSIL, SCC			
			convex, none): Slope (%):
Sold egion (LRR).	Lat		_ Long: Datum: NWI classification:
Are climatic / hydrologic conditions on the site typical for			
vre Vegetation, Soil, or Hydrology			"Normal Circumstances" present? Yes <u>X</u> No
Are Vegetation, Soil, or Hydrology	_ naturally prob	lematic? (If n	eeded, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site ma	p showing	sampling point l	ocations, transects, important features, etc
Hydrophytic Vegetation Present? Yes <u>×</u> Hydric Soil Present? Yes <u>ves</u> Wetland Hydrology Present? Yes <u>ves</u>	No <u>×</u> No <u>×</u>	Is the Sampled within a Wetla	d Area nd? Yes No_ <u>/</u>
Remarks: Mangin-		UPDATE	: wettest March on record
2nd wettest March			-BGIK 4/4/14
		A 0	- 10510 1/4/14
/EGETATION – Use scientific names of pla	ants.		
Tree Stratum (Plot size:)	Absolute % Cover	Dominant Indicator Species? Status	Dominance Test worksheet:
1			Number of Dominant Species 4 (A)
2			Total Number of Dominant
3			Species Across All Strata: (B)
4			Percent of Dominant Species 57 /
Sapling/Shrub Stratum (Plot size:)		= Total Cover	That Are OBL, FACW, or FAC: (A/B)
1)			Prevalence Index worksheet:
2			Total % Cover of: Multiply by:
3			OBL species x 1 =
4			FACW species x 2 =
5			FAC species x 3 = FACU species x 4 =
Herb Stratum (Plot size: )		= Total Cover	UPL species         x 4           UPL species         x 5
1. curly duck	25	Y FAC	Column Totals: (A) (B)
2 orchard aron	10	Y FACU	
3. Cordamine	-3	Y FACU	Prevalence Index = B/A = Hydrophytic Vegetation Indicators:
4. agrusts?	45	Y FAC	1 - Rapid Test for Hydrophytic Vegetation
5. dandy lin	\$5	Y FACU	2 - Dominance Test is >50%
6. <u>paz</u>	15	Y assume	3 - Prevalence Index is ≤3.0 <sup>1</sup>
7. butter ang	<5	Y FAQN	
8			data in Remarks or on a separate sheet)
9			5 - Wetland Non-Vascular Plants <sup>1</sup> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
10			Indicators of hydric soil and wetland hydrology must
11. all dominant since <50% cover Woody Vine Stratum (Plot size:)	25% =	Total Cover	be present, unless disturbed or problematic.
1			Hydrophytic
2			Vegetation Present? Yes K No
% Bare Ground in Herb Stratum		Total Cover	105 <u>· · · NO</u>
Remarks:			
muss 90% Ma	engine	s veg.	

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Sampling Point: DP 8

Profile Description: (Describe to the o	lepth needed to document the indicator or confi	The disconce of maloutore.
Depth Matrix	Redox Features	- Tautura Damada
(inches) Color (moist) %	<u>Color (moist)</u> % <u>Type<sup>1</sup> Loc<sup>2</sup></u>	
04 10 YR 3/2 100		
4-14 10 TR 3/3 100	· · · · · · · · · · · · · · · · · · ·	_ <u>950</u>
	RM=Reduced Matrix, CS=Covered or Coated Sand	
-lydric Soil Indicators: (Applicable to		Indicators for Problematic Hydric Solls <sup>3</sup> :
Histosol (A1)	Sandy Redox (S5)	2 cm Muck (A10)
Histic Epipedon (A2)	Stripped Matrix (S6) Loamy Mucky Mineral (F1) (except MLRA	Red Parent Material (TF2)     Very Shallow Dark Surface (TF12)
Black Histic (A3) Hydrogen Sulfide (A4)	Loamy Gleyed Matrix (F2)	Other (Explain in Remarks)
Depleted Below Dark Surface (A11)		
Thick Dark Surface (A12)	Redox Dark Surface (F6)	<sup>3</sup> Indicators of hydrophytic vegetation and
Sandy Mucky Mineral (S1)	Depleted Dark Surface (F7)	wetland hydrology must be present,
Sandy Gleyed Matrix (S4)	Redox Depressions (F8)	unless disturbed or problematic.
Restrictive Layer (if present):		
Туре:		the second s
Depth (inches):		Hydric Soil Present? Yes No
compacted	*	
YDROLOGY Wetland Hydrology Indicators:	vizadi chask all that apply)	Secondary Indicators (2 or more required)
YDROLOGY Vetland Hydrology Indicators: Primary Indicators (minimum of one requ		Secondary Indicators (2 or more required)
YDROLOGY Vetland Hydrology Indicators: Primary Indicators (minimum of one requ Surface Water (A1)	Water-Stained Leaves (B9) (except	Water-Stained Leaves (B9) (MLRA 1, 2,
YDROLOGY Vetland Hydrology Indicators: Primary Indicators (minimum of one requ Surface Water (A1) High Water Table (A2)	Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
YDROLOGY Vetland Hydrology Indicators: Yrimary Indicators (minimum of one requ Surface Water (A1) High Water Table (A2) Saturation (A3)	Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) Salt Crust (B11)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10)
YDROLOGY Vetland Hydrology Indicators: Yrimary Indicators (minimum of one requination (A1) High Water Table (A2) Saturation (A3) Water Marks (B1)	<ul> <li>Water-Stained Leaves (B9) (except</li> <li>MLRA 1, 2, 4A, and 4B)</li> <li>Salt Crust (B11)</li> <li>Aquatic Invertebrates (B13)</li> </ul>	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2)
YDROLOGY Vetland Hydrology Indicators: Primary Indicators (minimum of one requestion Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2)	Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)     Salt Crust (B11)     Aquatic Invertebrates (B13)     Hydrogen Sulfide Odor (C1)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9)
YDROLOGY Vetland Hydrology Indicators: Yrimary Indicators (minimum of one requ Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1)	<ul> <li>Water-Stained Leaves (B9) (except</li> <li>MLRA 1, 2, 4A, and 4B)</li> <li>Salt Crust (B11)</li> <li>Aquatic Invertebrates (B13)</li> </ul>	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9)
YDROLOGY Vetland Hydrology Indicators: Primary Indicators (minimum of one requent Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3)	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 R	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) coots (C3) Geomorphic Position (D2) Shallow Aquitard (D3)
YDROLOGY Vetland Hydrology Indicators: Primary Indicators (minimum of one requestions) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4)	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 R     Presence of Reduced Iron (C4)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) oots (C3) Geomorphic Position (D2) Shallow Aquitard (D3) C6) FAC-Neutral Test (D5)
YDROLOGY Vetland Hydrology Indicators: Primary Indicators (minimum of one requestions) 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)	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 R     Presence of Reduced Iron (C4)     Recent Iron Reduction in Tilled Soils ( Stunted or Stressed Plants (D1) (LRR	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) oots (C3) Geomorphic Position (D2) Shallow Aquitard (D3) C6) FAC-Neutral Test (D5)
YDROLOGY Vetland Hydrology Indicators: Primary Indicators (minimum of one requ 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)	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 R     Presence of Reduced Iron (C4)     Recent Iron Reduction in Tilled Soils ( Stunted or Stressed Plants (D1) (LRR     Other (Explain in Remarks)	<ul> <li>Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)</li> <li>Drainage Patterns (B10)</li> <li>Dry-Season Water Table (C2)</li> <li>Saturation Visible on Aerial Imagery (C9)</li> <li>coots (C3)</li> <li>Geomorphic Position (D2)</li> <li>Shallow Aquitard (D3)</li> <li>C6)</li> <li>FAC-Neutral Test (D5)</li> <li>A)</li> <li>Raised Ant Mounds (D6) (LRR A)</li> </ul>
YDROLOGY Vetland Hydrology Indicators: Primary Indicators (minimum of one requent 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 Sparsely Vegetated Concave Surface	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 R     Presence of Reduced Iron (C4)     Recent Iron Reduction in Tilled Soils ( Stunted or Stressed Plants (D1) (LRR     Other (Explain in Remarks)	<ul> <li>Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)</li> <li>Drainage Patterns (B10)</li> <li>Dry-Season Water Table (C2)</li> <li>Saturation Visible on Aerial Imagery (C9)</li> <li>coots (C3)</li> <li>Geomorphic Position (D2)</li> <li>Shallow Aquitard (D3)</li> <li>C6)</li> <li>FAC-Neutral Test (D5)</li> <li>A)</li> <li>Raised Ant Mounds (D6) (LRR A)</li> </ul>
YDROLOGY Vetland Hydrology Indicators: Primary Indicators (minimum of one requestions) 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 Sparsely Vegetated Concave Surface Vegetated Conc	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 R     Presence of Reduced Iron (C4)     Recent Iron Reduction in Tilled Soils ( Stunted or Stressed Plants (D1) (LRR     Other (Explain in Remarks)	<ul> <li>Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)</li> <li>Drainage Patterns (B10)</li> <li>Dry-Season Water Table (C2)</li> <li>Saturation Visible on Aerial Imagery (C9)</li> <li>coots (C3)</li> <li>Geomorphic Position (D2)</li> <li>Shallow Aquitard (D3)</li> <li>C6)</li> <li>FAC-Neutral Test (D5)</li> <li>A)</li> <li>Raised Ant Mounds (D6) (LRR A)</li> </ul>
YDROLOGY Vetland Hydrology Indicators: Primary Indicators (minimum of one requestions) 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 Sparsely Vegetated Concave Surface Surface Water Present? Yes	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 R     Presence of Reduced Iron (C4)     Recent Iron Reduction in Tilled Soils ( Stunted or Stressed Plants (D1) (LRR     (B7) Other (Explain in Remarks)     see (B8)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) oots (C3) Geomorphic Position (D2) Shallow Aquitard (D3) C6) FAC-Neutral Test (D5) A) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
YDROLOGY         Wetland Hydrology Indicators:         Primary Indicators (minimum of one required)	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 R     Presence of Reduced Iron (C4)     Recent Iron Reduction in Tilled Soils (1     Stunted or Stressed Plants (D1) (LRR     (B7) Other (Explain in Remarks)     see (B8)     No Depth (inches): No Depth (inches):	<ul> <li>Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)</li> <li>Drainage Patterns (B10)</li> <li>Dry-Season Water Table (C2)</li> <li>Saturation Visible on Aerial Imagery (C9)</li> <li>coots (C3)</li> <li>Geomorphic Position (D2)</li> <li>Shallow Aquitard (D3)</li> <li>C6)</li> <li>FAC-Neutral Test (D5)</li> <li>A)</li> <li>Raised Ant Mounds (D6) (LRR A)</li> </ul>
YDROLOGY         Primary Indicators (minimum of one requestions)	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 R     Presence of Reduced Iron (C4)     Recent Iron Reduction in Tilled Soils (1     Stunted or Stressed Plants (D1) (LRR     (B7) Other (Explain in Remarks)     see (B8)     No Depth (inches): No Depth (inches):	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)     Drainage Patterns (B10)     Dry-Season Water Table (C2)     Saturation Visible on Aerial Imagery (C9) oots (C3) Geomorphic Position (D2)     Shallow Aquitard (D3) C6) FAC-Neutral Test (D5) A) Raised Ant Mounds (D6) (LRR A)     Frost-Heave Hummocks (D7)
YDROLOGY         Wetland Hydrology Indicators:         Primary Indicators (minimum of one requent)	Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)     Drainage Patterns (B10)     Dry-Season Water Table (C2)     Saturation Visible on Aerial Imagery (C9) oots (C3) Geomorphic Position (D2)     Shallow Aquitard (D3) C6) FAC-Neutral Test (D5) A) Raised Ant Mounds (D6) (LRR A)     Frost-Heave Hummocks (D7)
YDROLOGY         Wetland Hydrology Indicators:         Primary Indicators (minimum of one required)	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 R     Presence of Reduced Iron (C4)     Recent Iron Reduction in Tilled Soils (i     Stunted or Stressed Plants (D1) (LRR     (B7) Other (Explain in Remarks)     see (B8)     No Depth (inches):     No Depth (inches):     We monitoring well, aerial photos, previous inspections	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)     Drainage Patterns (B10)     Dry-Season Water Table (C2)     Saturation Visible on Aerial Imagery (C9)     Soots (C3) Geomorphic Position (D2)     Shallow Aquitard (D3)     FAC-Neutral Test (D5)     A) Raised Ant Mounds (D6) (LRR A)     Frost-Heave Hummocks (D7)
YDROLOGY         Wetland Hydrology Indicators:         Primary Indicators (minimum of one required)	Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)     Drainage Patterns (B10)     Dry-Season Water Table (C2)     Saturation Visible on Aerial Imagery (C9) oots (C3) Geomorphic Position (D2)     Shallow Aquitard (D3) C6) FAC-Neutral Test (D5) A) Raised Ant Mounds (D6) (LRR A)     Frost-Heave Hummocks (D7)
YDROLOGY         Primary Indicators (minimum of one requestion)	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 R     Presence of Reduced Iron (C4)     Recent Iron Reduction in Tilled Soils (i     Stunted or Stressed Plants (D1) (LRR     (B7) Other (Explain in Remarks)     see (B8)     No Depth (inches):     No Depth (inches):     We monitoring well, aerial photos, previous inspections	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)     Drainage Patterns (B10)     Dry-Season Water Table (C2)     Saturation Visible on Aerial Imagery (C9)     Soots (C3) Geomorphic Position (D2)     Shallow Aquitard (D3)     FAC-Neutral Test (D5)     A) Raised Ant Mounds (D6) (LRR A)     Frost-Heave Hummocks (D7)

#### APPENDIX C

### WETLAND RATING FORMS

Wetland name or number A

Version 2 - Updated July 200 Updated Oct 2008 Name of wetland (if known):	NG FORM – WESTERN WASHINGTON 6 to increase accuracy and reproducibility among users with the new WDFW definitions for priority habitats <u>lland</u> function Date of site vi Trained by Ecology? Yes <u>/ No</u> Date	3/26/14, 3/27/14 isit: <u>4/4/</u> 14
SEC: <u>31</u> TWNSHP: <u>28 M</u> RNGE: <u>58</u>	Is S/T/R in Appendix D? Yes No $X$	
Map of wetland unit:	Figure Estimated size	
SUM	IMARY OF RATING	
Category based on FUNCTIONS		
Category I = Score >=70 Category II = Score 51-69 Category III = Score 30-50 Category IV = Score < 30	Score for Water Quality Functions Score for Hydrologic Functions Score for Habitat Functions <b>TOTAL score for Functions</b>	20 6 17 43

Category based on SPECIAL CHARACTERISTICS of wetland

I\_\_\_\_ II\_\_\_ Does not Apply X

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



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

Summary of basic information about the wetland unit

Wetland name or number \_\_\_\_\_\_

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

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

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

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

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

#### **Classification of Wetland Units in Western Washington**

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

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?  $|NO \rightarrow go to 2$  YES – the wetland class is Tidal Fringe

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

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

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it.

Groundwater and surface water runoff are NOT sources of water to the unit.

NO  $\frac{1}{9}$  go to 3 YES – The wetland class is Flats

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

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

The vegetated part of the wetland is on the shores of a body of permanent open water

(without any vegetation on the surface) at least 20 acres (8 ha) in size;

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

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

- 4. Does the entire wetland unit meet all of the following criteria?
  - \_\_\_\_\_The wetland is on a slope (*slope can be very gradual*),
  - \_\_\_\_\_The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
    - \_\_\_\_The water leaves the wetland without being impounded?
    - NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).

NO go to 5 YES – The wetland class is Slope

Wetland name or number \_\_\_\_\_\_

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

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

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

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

- 6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.* 
  - NO go to 7 (YES)– The wetland class is Depressional
- 7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
  - NO go to 8 **YES** The wetland class is **Depressional**

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

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

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

D	Depressional and Flats Wetlands WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to improve water quality	Points (only 1 score per box)
D	D 1. Does the wetland unit have the <u>potential</u> to improve water quality?	(see p.38)
D	Unit has an <u>unconstricted</u> , or slightly constricted, surface outlet ( <i>permanently flowing</i> ) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and <b>no obvious natural outlet</b> and/or outlet is a man-made ditch ( <i>If ditch is not permanently flowing treat unit as "intermittently flowing"</i> ) Provide photo or drawing	
D	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions)         YES         NO	D
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class)         Wetland has persistent, ungrazed, vegetation >= 95% of area       points = 5         Wetland has persistent, ungrazed, vegetation >= 1/2 of area       points = 3         Wetland has persistent, ungrazed vegetation >= 1/10 of area       points = 1         Wetland has persistent, ungrazed vegetation <= 1/10 of area	Figure
D	D1.4 Characteristics of seasonal ponding or inundation.This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.Area seasonally ponded is > ½ total area of wetland Area seasonally ponded is > ¼ total area of wetland Area seasonally ponded is < ¼ total area of wetland Map of Hydroperiods	Figure
D	Total for D 1Add the points in the boxes above	10
D	<ul> <li>D 2. Does the wetland unit have the <u>opportunity</u> to improve water quality? Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.</li> <li>☆ Grazing in the wetland or within 150 ft</li> <li>☆ Untreated stormwater discharges to wetland</li> <li>— Tilled fields or orchards within 150 ft of wetland</li> <li>— A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging</li> <li>☆ Residential, urban areas, golf courses are within 150 ft of wetland</li> <li>— Wetland is fed by groundwater high in phosphorus or nitrogen</li> </ul>	<i>(see p. 44)</i> multiplier
	- Other VES multiplier is 2 NO multiplier is 1	2

Depressional and Flats Wetlands HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation	Points (only 1 score per box)
D 3. Does the wetland unit have the <u>potential</u> to reduce flooding and erosion?	(see p.46)
D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch points = 1 (If ditch is not permanently flowing treat unit as "intermittently flowing") Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0	D
D 3.2 Depth of storage during wet periods Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry). Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 The wetland is a "headwater" wetland" points = 5 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet — points = 3 Unit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft points = 1	б
D 3.3 Contribution of wetland unit to storage in the watershed         Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.         The area of the basin is less than 10 times the area of unit       points = 5         The area of the basin is 10 to 100 times the area of the unit       points € 3         The area of the basin is more than 100 times the area of the unit       points € 3         Entire unit is in the FLATS class       points = 5	3
Total for D 3Add the points in the boxes above	<u>3</u> (see p. 49
<b>D 4. Does the wetland unit have the opportunity to reduce flooding and erosion?</b> Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. Note which of the following indicators of opportunity apply.         — Wetland is in a headwater of a river or stream that has flooding problems         — Wetland drains to a river or stream that has flooding problems	
flow into a river or stream that has flooding problems Souther would flood athletic field to south	multiplier 2
TOTAL - Hydrologic Functions Multiply the score from D 3 by D 4	6
	D 3.1 Characteristics of surface water flows out of the wetland unit       points = 4         Unit is a depression with no surface water leaving it (no outlet)       points = 4         Unit is a different of the permanently flowing outlet points = 2       points = 1         Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanently flowing)       points = 1         (If ditch is not permanently flowing treat unit as "intermittently flowing")       points = 0         D 3.2 Depth of storage during wet periods       Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).         Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 5         Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 3

R	Riverine and Freshwater Tidal Fringe Wetlands WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality	Points (only 1 score per box)
R	R 1. Does the wetland unit have the <u>potential</u> to improve water quality?	(see p.52)
R	R 1.1 Area of surface depressions within the riverine wetland that can trap sediments during a flooding event:	Figure
	Depressions cover >3/4 area of wetlandpoints = 8Depressions cover > 1/2 area of wetlandpoints = 4If depressions > $\frac{1}{2}$ of area of unit draw polygons on aerial photo or mapDepressions present but cover < 1/2 area of wetland	
	No depressions present points = 0	
R	R 1.2 Characteristics of the vegetation in the unit (areas with >90% cover at person height):Trees or shrubs > 2/3 the area of the unitpoints = 8Trees or shrubs > 1/3 area of the unitpoints = 6Ungrazed, herbaceous plants > 2/3 area of unitpoints = 6Ungrazed herbaceous plants > 1/3 area of unitpoints = 3Trees, shrubs, and ungrazed herbaceous < 1/3 area of unit	Figure
R	Add the points in the boxes above	1
R	<ul> <li>R 2. Does the wetland unit have the <u>opportunity</u> to improve water quality? Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity. — Grazing in the wetland or within 150ft — Untreated stormwater discharges to wetland — Tilled fields or orchards within 150 feet of wetland — A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential, urban areas, golf courses are within 150 ft of wetland — The river or stream linked to the wetland has a contributing basin where human</li> </ul>	(see p.53)
	<ul> <li>activities have raised levels of sediment, toxic compounds or nutrients in the river water above standards for water quality</li> <li>Other</li> </ul>	multiplier
	YES multiplier is 2 NO multiplier is 1	
R	<u>TOTAL</u> - Water Quality Functions Multiply the score from R 1 by R 2 Add score to table on p. 1	

R	<b>Riverine and Freshwater Tidal Fringe Wetlands</b> HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosion	Points (only 1 score per box)
	R 3. Does the wetland unit have the <u>potential</u> to reduce flooding and erosion?	(see p.54)
R	R 3.1 Characteristics of the overbank storage the unit provides:         Estimate the average width of the wetland unit perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of unit)/(average width of stream between banks).         If the ratio is more than 20       points = 9         If the ratio is between 10 - 20       points = 6         If the ratio is 5 - <10       points = 4         If the ratio is 1 - <5       points = 2         If the ratio is < 1       Aerial photo or map showing average widths	Figure
R	R 3.2 Characteristics of vegetation that slow down water velocities during floods: <i>Treat</i> large woody debris as "forest or shrub". Choose the points appropriate for the best description. (polygons need to have >90% cover at person height NOT Cowardin classes): Forest or shrub for >1/3 area OR herbaceous plants > 2/3 area points = 7 Forest or shrub for > 1/10 area OR herbaceous plants > 1/3 area points = 4 Vegetation does not meet above criteria points = 0 Aerial photo or map showing polygons of different vegetation types	Figure
R	Add the points in the boxes above	
R	<ul> <li>R 4. Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion? Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Note which of the following conditions apply.</li> <li>— There are human structures and activities downstream (roads, buildings, bridges, farms) that can be damaged by flooding.</li> <li>— There are natural resources downstream (e.g. salmon redds) that can be damaged by flooding</li> </ul>	(see p.57)
	<ul> <li>Other</li> <li>(Answer NO if the major source of water to the wetland is controlled by a reservoir or the wetland is tidal fringe along the sides of a dike)</li> <li>YES multiplier is 2 NO multiplier is 1</li> </ul>	multiplier
R	<b>TOTAL - Hydrologic Functions</b> Multiply the score from R 3 by R 4 Add score to table on p. 1	

L	Lake-fringe Wetlands WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to improve water quality	Points (only 1 score per box)
L	L 1. Does the wetland unit have the potential to improve water quality?	(see p.59)
L	L 1.1 Average width of vegetation along the lakeshore <i>(use polygons of Cowardin classes)</i> : Vegetation is more than 33ft (10m) wide points = 6 Vegetation is more than 16 (5m) wide and <33ft points = 3 Vegetation is more than 6ft (2m) wide and <16 ft points = 1 Vegetation is less than 6 ft wide points = 0 Map of Cowardin classes with widths marked	Figure
L	L 1.2 Characteristics of the vegetation in the wetland: choose the appropriate description that results in the highest points, and do not include any open water in your estimate of coverage. The herbaceous plants can be either the dominant form or as an understory in a shrub or forest community. These are not Cowardin classes. Area of Cover is total cover in the unit, but it can be in patches. NOTE: Herbaceous does not include aquatic bed. Cover of herbaceous plants is >90% of the vegetated area points = 6 Cover of herbaceous plants is >2/3 of the vegetated area points = 3 Other vegetation that is not aquatic bed or herbaceous covers > 2/3 unit points = 3 Other vegetation that is not aquatic bed in > 1/3 vegetated area points = 1 Aquatic bed vegetation and open water cover > 2/3 of the unit points = 0 Map with polygons of different vegetation types	Figure
L	Add the points in the boxes above	
L	<ul> <li>L 2. Does the wetland have the <u>opportunity</u> to improve water quality? Answer YES if you know or believe there are pollutants in the lake water, or polluted surface water flowing through the unit to the lake. Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.</li> <li>Wetland is along the shores of a lake or reservoir that does not meet water quality standards</li> <li>Grazing in the wetland or within 150ft</li> <li>Polluted water discharges to wetland along upland edge</li> <li>Tilled fields or orchards within 150 feet of wetland</li> <li>Residential or urban areas are within 150 ft of wetland</li> <li>Parks with grassy areas that are maintained, ballfields, golf courses (all within</li> </ul>	<i>(see p.61)</i> multiplier
	<ul> <li>150 ft. of lake shore)</li> <li>— Power boats with gasoline or diesel engines use the lake</li> <li>— Other</li> <li>YES multiplier is 2 NO multiplier is 1</li> </ul>	
L	<u>TOTAL</u> - Water Quality Functions Multiply the score from L1 by L2 Add score to table on p. 1	

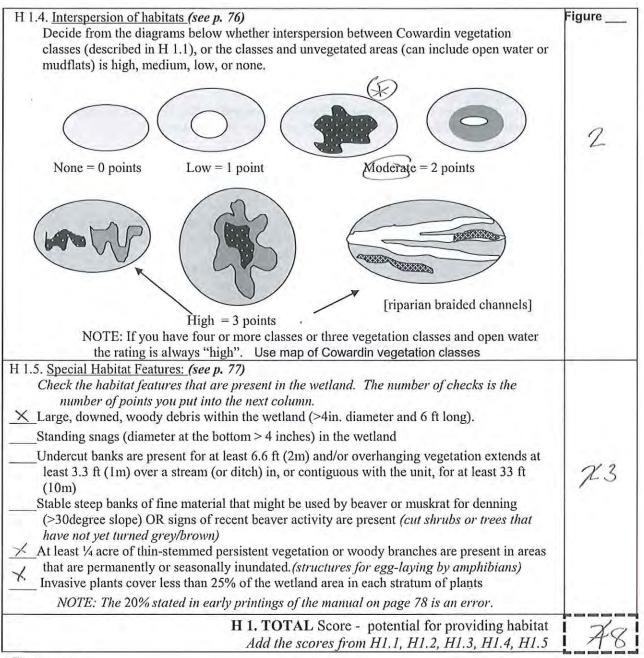
L	Lake-fringe Wetlands HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce shoreline erosion	Points (only 1 score per box)
L	L 3. Does the wetland unit have the <u>potential</u> to reduce shoreline erosion?	(see p.62)
L	L 3 Distance along shore and average width of Cowardin classes along the lakeshore (do not include aquatic bed): (choose the highest scoring description that matches conditions in the wetland) > ¼ of distance is shrubs or forest at least 33 ft (10m) wide points = 6 > ¼ of distance is shrubs or forest at least 6 ft. (2 m) wide points = 4 > ¼ distance is shrubs or forest at least 33 ft (10m) wide points = 4 Vegetation is at least 6 ft (2m) wide (any type except aquatic bed) points = 2 Vegetation is less than 6 ft (2m) wide (any type except aquatic bed) points = 0 Aerial photo or map with Cowardin vegetation classes	Figure
L	Record the points from the box above	
L	<ul> <li>L 4. Does the wetland unit have the <u>opportunity</u> to reduce erosion? Are there features along the shore that will be impacted if the shoreline erodes? Note which of the following conditions apply. — There are human structures and activities along the upland edge of the wetland (buildings, fields) that can be damaged by erosion.</li> <li>— There are undisturbed natural resources along the upland edge of the wetland (e.g. mature forests other wetlands) than can be damaged by shoreline erosion</li> <li>— Other</li> </ul>	<i>(see p.63)</i> multiplier
	YES multiplier is 2 NO multiplier is 1	munipher
L	<b>TOTAL - Hydrologic Functions</b> Multiply the score from L 3 by L 4 Add score to table on p. 1	

S	Slope Wetlands WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to improve water quality	Points (only 1 score per box)
S	S 1. Does the wetland unit have the <u>potential</u> to improve water quality?	(see p.64)
S	S 1.1 Characteristics of average slope of unit:Slope is1% or less (a 1% slope has a 1 foot vertical drop in elevation for every 100 ft horizontal distance)Slope is 1% - 2%Slope is 2% - 5%Slope is greater than 5%	
S	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions)         YES = 3 points         NO = 0 points	
S	S 1.3 Characteristics of the vegetation in the wetland that trap sediments and pollutants: <i>Choose the points appropriate for the description that best fits the vegetation in the</i> <i>wetland. Dense vegetation means you have trouble seeing the soil surface (&gt;75%</i> <i>cover), and uncut means not grazed or mowed and plants are higher than 6 inches.</i> Dense, uncut, herbaceous vegetation > 90% of the wetland area points = 6 Dense, uncut, herbaceous vegetation > 1/2 of area points = 3 Dense, woody, vegetation > ½ of area points = 1 Dense, uncut, herbaceous vegetation > 1/4 of area points = 1 Does not meet any of the criteria above for vegetation polygons	Figure
S	Total for S 1Add the points in the boxes above	
S	<b>S 2. Does the wetland unit have the <u>opportunity</u> to improve water quality?</b> Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.	(see p.67)
	<ul> <li>Grazing in the wetland or within 150ft</li> <li>Untreated stormwater discharges to wetland</li> <li>Tilled fields, logging, or orchards within 150 feet of wetland</li> </ul>	multiplier
	<ul> <li>Residential, urban areas, or golf courses are within 150 ft upslope of wetland</li> <li>Other</li> <li>YES multiplier is 2 NO multiplier is 1</li> </ul>	
S	TOTAL - Water Quality Functions Multiply the score from S1 by S2 Add score to table on p. 1	

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

These questions apply to wetlands of all HO HABITAT FUNCTIONS - Indicators that unit func		habitat	Points (only 1 score per box)
H 1. Does the wetland unit have the <u>potential</u> to	provide habitat for many	species?	
H 1.1 Vegetation structure (see p. 72)			Figure
Check the types of vegetation classes present (as defining class is ¼ acre or more than 10% of the area if uning	it is smaller than 2.5 acres. % cover)	hold for each	
Forested (areas where trees have >30% cov	ver)		1
If the unit has a forested class check if: The forested class has 3 out of 5 strata (can moss/ground-cover) that each cover 20 <sup>6</sup> Add the number of vegetation structures that qualify.	% within the forested polygo		
nua me namber of regenation on actar eo mai qualify.	4 structures or more	points = 4	
Man of Cowardin vagatation classes	3 structures	points = 2	
Map of Cowardin vegetation classes	2 structures	points $= 1$	
trees noted outside wetland	1 structure	points = 0	
H 1.2. Hydroperiods (see p. 73)			Figure
Permanently flooded or inundated Seasonally flooded or inundated Occasionally flooded or inundated Saturated only Permanently flowing stream or river in, or a Seasonally flowing stream in, or adjacent to Lake-fringe wetland = 2 points	, the wetland	points = 2 point = 1 points = 0	1
Freshwater tidal wetland = 2 points	Map of hyd	roperiods	
H 1.3. <u>Richness of Plant Species</u> (see p. 75) Count the number of plant species in the wetland of the same species can be combined to meet the s You do not have to name the species. Do not include Eurasian Milfoil, reed canarys If you counted: List species below if you want to: Mannagrun dock creeping butterup Agnostis III Gen Ueronice Salmanberg	size threshold) grass, purple loosestrife, Ca > 19 species 5 - 19 species < 5 species		1
Salmonberry twinberry			
IN IN DEVICE			

Total for page 3



Comments

4110

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

Total for page 3

Wetland name or number <u>M</u>

<ul> <li>Oregon white Oak: Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (<i>full descriptions in WDFW PHS report p. 158</i>).</li> <li>Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.</li> <li>Westside Prairies: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (<i>full descriptions in WDFW PHS report p. 161</i>).</li> <li>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.</li> <li>Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (<i>full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A</i>).</li> <li>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.</li> <li>Cliffs: Greater than 7.6 m (25 ft) high and occurring below 5000 ft.</li> <li>Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.</li> <li>Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of &gt; 51 cm (20 in) in western Washington and are &gt; 2 m (6.5 ft) in height. Priority logs are &gt; 30 cm (12 in) in diameter at the largest end, and &gt; 6 m (20 ft) long.</li> <li>If wetland has 3 or more priority habitats = 4 points If wetland h</li></ul>	<ul> <li>canopy coverage of the oak component is important (<i>full descriptions in WDFW PHS report p. 158</i>).</li> <li>Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.</li> <li>Westside Prairies: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (<i>full descriptions in WDFW PHS report p. 161</i>).</li> <li>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.</li> <li>Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (<i>full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A</i>).</li> <li>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.</li> <li>Cliffs: Greater than 7.6 m (25 ft) high and occurring below 5000 ft.</li> <li>Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.</li> <li>Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of &gt; 51 cm (20 in) in western Washington and are &gt; 2 m (6.5 ft) in height. Priority logs are &gt; 30 cm (12 in) in diameter at the largest end, and &gt; 6 m (20 ft) long.</li> <li>If wetland has 3 or more priority habitats = 4 points If wetland has 2 priority habitats = 3 points</li> </ul>
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<ul> <li>2.4 Wetland Landscape (choose the one description of the landscape around the wetland that best fits) (see p. 84)</li> <li>There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5</li> <li>The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile, BUT the connections between them are disturbed</li> <li>The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe wetland within ½ mile</li> <li>The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe wetland within ½ mile</li> <li>The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe points = 3</li> <li>The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe wetland within ½ mile.</li> <li>There are no wetlands within ½ mile.</li> </ul>	23
H 2. TOTAL Score - opportunity for providing habitat Add the scores from H2.1,H2.2, H2.3, H2.4	9
TOTAL for H 1 from page 14	78
Fotal Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	1617

#### **CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

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

<b>Wetland Type</b> Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.	Category
<ul> <li>SC 1.0 Estuarine wetlands (see p. 86)</li> <li>Does the wetland unit meet the following criteria for Estuarine wetlands? <ul> <li>The dominant water regime is tidal,</li> <li>Vegetated, and</li> <li>With a salinity greater than 0.5 ppt.</li> <li>YES = Go to SC 1.1 NO</li> </ul> </li> <li>SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park,</li> </ul>	
National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO go to SC 1.2	Cat. I
<ul> <li>SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? YES = Category I NO = Category II</li> <li>— The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native <i>Spartina</i> spp. are 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.</li> <li>— At least ¼ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.</li> <li>— The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.</li> </ul>	Cat. I Cat. II Dual rating I/II

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

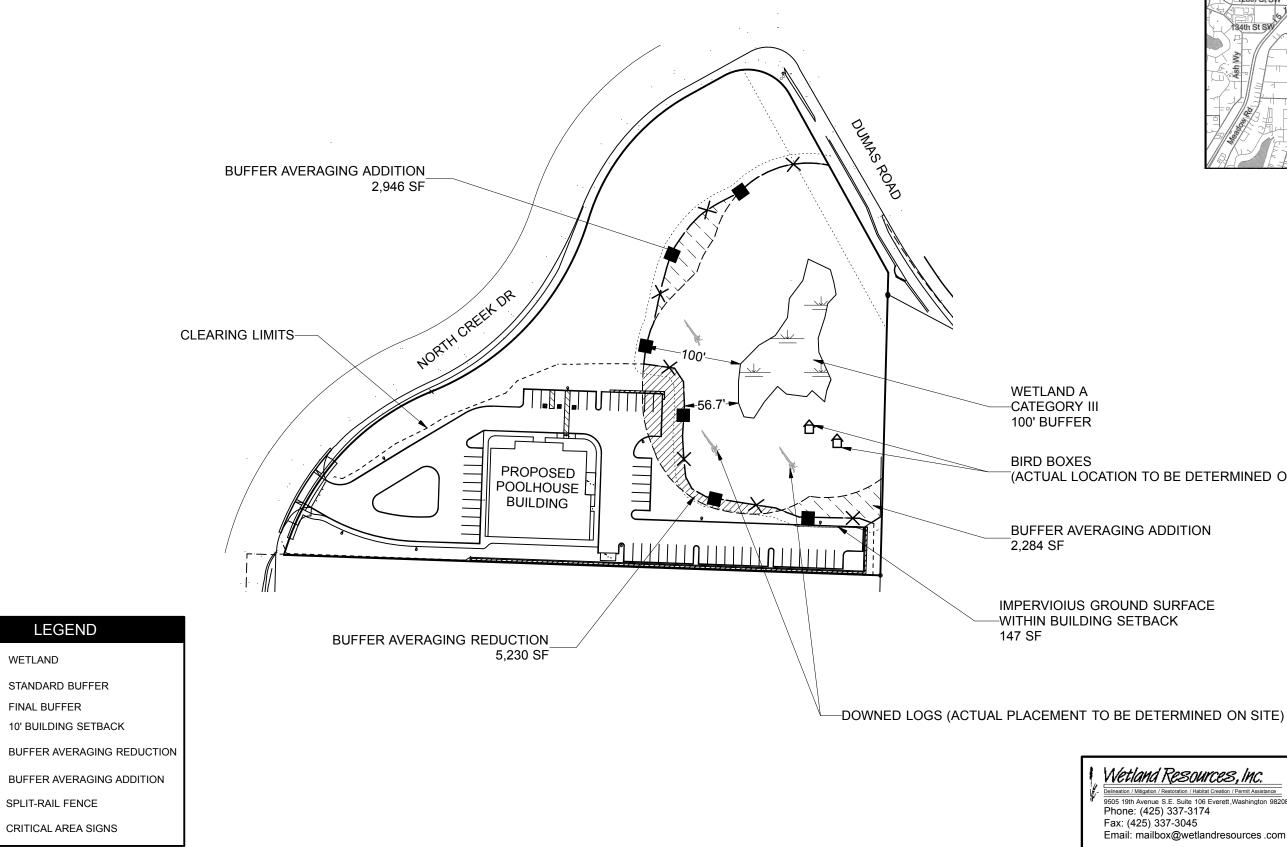
<b>SC 4.0 Forested Wetlands</b> <i>(see p. 90)</i> Does the wetland unit have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? If you answer yes you will still need to rate the wetland based on its functions.	
<ul> <li>Old-growth forests: (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more.</li> </ul>	
NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter.	
— Mature forests: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have average diameters (dbh) exceeding 21 inches (53cm); crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth.	
YES = Category I NO $\underline{\times}$ not a forested wetland with special characteristics	Cat. I
SC 5.0 Wetlands in Coastal Lagoons <i>(see p. 91)</i>	
<ul> <li>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</li> <li>— 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</li> <li>— The lagoon in which the wetland is located contains surface water that is saline or brackish (&gt; 0.5 ppt) during most of the year in at least a portion of the lagoon <i>(needs to be measured near the bottom)</i></li> <li>YES = Go to SC 5.1 NO (not a wetland in a coastal lagoon)</li> </ul>	
SC 5.1 Does the wetland meets all of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling,	
<ul> <li>cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).</li> <li>At least <sup>3</sup>/<sub>4</sub> of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.</li> <li>The wetland is larger than 1/10 acre (4350 square feet)</li> </ul>	Cat. I

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

APPENDIX C

# **BUFFER AVERAGING PLAN MAP** 7C'S POOLHOUSE

PORTION OF SECTION 31, TOWNSHIP 28N, RANGE 5E, W.M.



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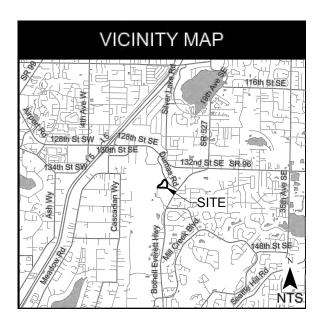
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. . . . . . . . . .

 $\times$ 

WETLAND

FINAL BUFFER



(ACTUAL LOCATION TO BE DETERMINED ON SITE)

Wetland Resources, Inc. lineation / Mitigation / Restoration / Habitat Creation / Permit Assistanc

9505 19th Avenue S.E. Suite 106 Everett Washington 98208 Phone: (425) 337-3174 Fax: (425) 337-3045

Email: mailbox@wetlandresources.com

Buffer Averaging Plan Map <u>7C's Poolhouse</u> Mill Creek, WA

Coast Construction Group, LLC Attn: Trevor Gaskin Sheet 1/ Project #: 19124 328 N Olympic Avenue Drawn by: JG Arlington, WA 98223 Revision 1: 11-11-201