CAPITOL LAND TRUST INSPIRING KIDS PRESERVE REASONABLE USE CRITICAL AREAS REPORT THURSTON COUNTY, WASHINGTON

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Prepared for:

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Title-page image: Wetland area, Capitol Land Trust Inspiring Kids Preserve

The information contained in this report is based on the application of technical guidelines currently accepted as the best available science and in conjunction with the manuals and criteria outlined in the methods section. All discussions, conclusions and recommendations reflect the best professional judgment of the author(s) and are based upon information available at the time the study was conducted. All work was completed within the constraints of budget, scope, and timing. The findings of this report are subject to verification and agreement by the appropriate local, state, and federal regulatory authorities. No other warranty, expressed or implied, is made.

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1 Introduction

This Critical Areas Report (CAR) has been prepared to document proper mitigation sequencing, no net loss of critical area and buffer functions, and the requirements for a Reasonable Use Exception (RUE) in accordance with Thurston County Code (TCC). This CAR is intended to support the construction of an entrance drive and parking area for the Capitol Land Trust Inspiring Kids Preserve along Henderson Inlet in unincorporated Thurston County. Due to the extent of wetlands and buffers throughout the eastern portion of the property, it is not feasible to construct these improvements under the strict application of the Thurston County Critical Areas Regulations. Therefore, the applicant is pursuing the RUE to achieve the project goals.

2 Existing Conditions

The study area for this project is depicted in Figure 1, below, and is defined as the area on parcels 11928230100, 11928230200, 11928320500, and 11928320000 between the existing north and south dirt access drives. The study area extends approximately 500 feet west from Johnson Point Road NE.

The subject properties are within the Woodland Creek-Frontal Henderson Inlet sub-basin (HUC 171100190502) of the Deschutes Water Resource Inventory Area (WRIA 13); Section 28 of Township 19 North, Range 01 West of the Public Land Survey System. The study area is located directly east of the southern end of Henderson Inlet. The site slopes gently down to the southwest towards Henderson Inlet. There is variable topography within the study area, and many depressions and swales are situated throughout the site.

The subject area is part of a large, undeveloped forested nature preserve. Prevalent native vegetation includes second-growth and third-growth western red cedar (*Thuja plicata*), Oregon ash (*Fraxinus latifolia*), bigleaf maple (*Acer circinatum*), and Douglas-fir (*Pseudotsuga menziesii*), with an understory of beaked hazelnut (*Corylus cornuta*), salmonberry (*Rubus spectabilis*), and sword fern (*Polystichum munitum*). Portions of the understory are also dominated by non-native Himalayan blackberry (*Rubus armeniacus*) and reed canarygrass (*Phalaris arundinacea*). Some areas within the preserve lack significant tree and shrub cover and are dominated by non-native, naturalized fescue (*Festuca* spp.) and bentgrass (*Agrostis* spp.).

A total of 15 wetlands and one stream were identified in the study area. Wetlands and streams are generally summarized in Table 1, below. Wetlands that are germane to the project, including those that may be impacted by the proposed development or may be used for compensatory mitigation (including their buffers), are summarized in further detail in Section

2.1 2.4. Wetlands were delineated in May, August, and September 2019. Delineated wetland boundaries within the specific project were verified and revised, where necessary, in February 2020.



Figure 1. Project Study Area - includes both outlined areas. Wetlands in the north area (orange polygon) were delineated in May 2019; wetlands in the south area (red polygon) were delineated in August and September 2019. Wetland boundaries in the vicinity of the proposed project location were verified and modified, as necessary, in February 2020.

Feature	Feature Category		Standard Buffer (ft.)	Туре
Wetland A	IV	6	220	Slope
Wetland B	III	6	220	Depressional

Table 1. Wetland and Streams Delineated within the Study Area

Wetland C		7	240	Depressional
Wetland D	IV	6	220	Slope
Wetland E	III	6	220	Slope
Wetland F	IV	6	220	Slope
Wetland G	IV	6	220	Slope
Wetland H		6	220	Depressional
Wetland I	III	7	240	Depressional
Wetland J	III	6	220	Slope
Wetland K	IV	6	220	Slope
Wetland L	IV	6	220	Slope
Wetland M		6	220	Slope
Wetland P		6	220	Depressional
Stream A	Ns	-	100	-

* Buffers are based on the requirements under TCC 24.30.045.

Project Area Wetlands and Streams

The wetlands described below are in or adjacent to the proposed project area. These wetlands and/or their regulatory buffers would be impacted or enhanced as part of the project construction and mitigation. All wetlands within the study area are considered isolated under the Clean Water Act, as there are no streams or tributaries connecting any of the wetlands to regulated waters of the state. A man-made stormwater conveyance ditch is present along the west side of Johnson Point Road NE that is partially connected to Wetland M, but no natural stream channels that flow permanently or seasonally are located in the project area. Stream A is an ephemeral stream channel that is the outlet for Wetland A outside of the project area. Stream

WATE COMP	THE WATERSHED WETLAND G – Assessment Summary COMPANY											
Location:	Sc	outheast qu	uadrant of st	udy area	•							
WRIA / Sub-basir	n: D	eschutes	(WRIA 13) /	WRIA 13) / Puget Sound sub-basin								
				12		2014 We Ecology	estern V Rating:	VA	Catego	ry IV		
					The second	Standard	d buffer	:	220 fee	t		
				代持		Wetland	Size:		Approx	imately	7,000 ft ²	
						Cowardi Classifica	n ation:		Palustri Palustri	ne scru ne eme	b-shrub, ergent	
中国历史和						HGM Cla	issificati	ion:	Slope			
						Wetland Data Sheet:			DP-13			
10 10 1						Upland Data Sheet:			DP-14			
		in the second				Flag Color:			Pink- ar	nd blacl	k-striped	
	N.P.		Kalu S	1 years		Flag Nun	nbers:		G-1 to 0	G-26		
	Tree str	atum:	Western re	Western red cedar, Sitka spruce, red alder								
Vegetation	Shrub st	ratum:	Himalayan	Himalayan blackberry								
	Herb str	atum:	Soft rush, reed canarygrass, creeping buttercup, fringed willowherb									
C - il-	Soil surv	ey:	Kapowsin silt loam, 3 to 15 percent slopes									
Solis	Field da	ta:	Depleted matrix (F3)									
l budue le en i	Source:		High groundwater table, hillslope runoff									
Hydrology	Field da	ta:	Geomorphic position (D2), FAC-Neutral Test (D5)									
			We	tland F	unctio	ons						
			Improving Water Qual	g ity		Hydrologi	с		Habitat	:		
Site Potential		н	М	L	н	M	L	н	М	L		
Landscape Poten	tial	н	Μ	L	н	М	L	H	Μ	L		
Value		<u><u> </u></u>	Μ	L	н	Μ	L	н	<u>M</u>	L	TOTAL	
Score Based on F	latings		5			4			6		15	
			Descrip	tion an	d Con	nments						
Wetland G is a bordered at its	swale loo downslo	ated nort pe bound	hwest of th ary by a gra	ne previo avel road	ously-e l.	existing ba	arn stru	ucture	e. The wo	etland	is	

Table 2.Wetland G assessment summary

Table 3. Wetland H assessment summary.

Wetland H is a slope and depressional wetland located in the southwest corner of the center of the study area. The wetland appears to continue to the west. Only the wetland boundaries within the study area were flagged and GPS-located.

WAT COM	F ershe d Mpany)		W	/ETLA	ND I – A	ssessi	ment	Summa	iry		
Location:				Sout	heast c	orner of s	tudy ar	rea.				
WRIA / Sub-bas	sin:		Desc	hutes (V	VRIA 1	3) / Puge	t Soun	ıd sub-	basin			
				2014 V Ecolo	Vestern gy Rati	n WA ng:	С	Category III				
						Stand	ard buf	fer:		240 fe	et	
						Wet	land Siz	ze:	Approx	imately	/ 0.9 acres	
A Lose A						Co Class	wardin sificatio	on:	Palustr Palus ⁻	ine scr trine ei	ub-shrub, mergent	
		1		See 1		HGM C	lassifica	ation:	Depr	essiona	al, Slope	
	A sub State					Wetland	d Data S	Sheet:		DP-1	7	
				Upland	Upland Data Sheet:			DP-1	8			
	ST.					Flag Color:			Pink- and black-striped			
	19 Asur	1 B				Flag Numbers:				l-1 to l-	-33	
	Tree stra	tum:	Red alder,	western i	red ced	lar, cascar	а					
Vegetation	Shrub stra	itum:	Himalayan blackberry, one-seed hawthorn, black twinberry									
	Herb stra	tum:	Soft rush, g	grasses, fi	ringed	willowher	b					
Soils	Soil surv	ey:	Kapowsin silt loam, 3 to 15 percent slopes; Skipopa silt loam, 3 to 15 percent slopes									
	Field da	ta:	Redox dark	surface	(F6)							
Hydrology	Source	e:	High groundwater table, hillslope runoff									
Tryurology	Field da	ta:	FAC-Neutra	al Test (D	5), Fros	st-Heave H	lummo	ocks				
			We	tland F	unctio	ons					_	
			Improving Water Quali	ity		Hydrologi	с		Habitat			
Site Poter	ntial	н	<u>M</u>	L	н	<u>M</u>	L	н	<u>M</u>	L		
Landscape Po	otential	н	M	L	н	<u>M</u>	L	H	Μ	L		
Value	!	<u>H</u>	М	L	н	М	L	н	<u>M</u>	L	TOTAL	
Score Based or	n Ratings		7			5			7		19	
	Description and Comments											
Wetland I is a slo Wetland I and it	ope and de s buffer are	pressio propo	onal wetland osed for ent	d locate	d in th ent as	e southe part of th	ast cor ne proj	ner of ect mi	the stu tigation	dy are	a.	

Table 4. Wetland I assessment summary.

WATE Comi	THE WATERSHED WETLAND J – Assessment Summary COMPANY											
Location:	Cent	ral stud	y area.									
WRIA / Sub-basi	n: Dese	hutes (WRIA 13) / Puget Sound sub-basin									
						2014 We Ecology F	stern W Rating:	Ά	Categor	y III		
						Standard	buffer:		220 fee ⁻	t		
				ALL ALL		Wetland	Size:		Approxi	mately	0.2 acres	
		an Albert				Cowardin Classification:			Palustri Palustri	ne scrul ne eme	o-shrub, rgent	
动脉治 了。			Same M			HGM Cla	ssificatio	on:	Slope			
						Wetland Data Sheet:		DP-19				
VILLES.			A CARLER !!			Upland Data Sheet:			DP-20			
						Flag Colo	or:		Pink- an	nd black	-striped	
			stor 1	1		Flag Num	nbers:		J-1 to J-	20		
	Tree stratu	m:	n: Red alder, Douglas-fir									
Vegetation	Shrub stra	um:	Himalayan blackberry, cluster rose									
	Herb strate	ım:	Soft rush, reed canarygrass, fringed willowherb, curlydock									
Colla	Soil survey	:	Skipopa silt loam, 3 to 15 percent slopes									
Solis	Field data:		Depleted matrix (F3), Redox Dark Surface (F6)									
	Source:		High groundwater table, hillslope runoff									
Hydrology	Field data:		Oxidized rl	nizosphe	res alo	ng living ro	oots (C3), FAC-	Neutral 1	Fest (D5)	
			W	etland I	Functi	ions						
			Improving Water Qual	g ity		Hydrologi	с		Habitat			
Site Potential		н	<u>M</u>	L	н	<u>M</u>	L	Н	М	L		
Landscape Poter	ntial	н	М	<u>L</u>	н	Μ	L	<u>H</u>	Μ	L		
Value		<u>H</u>	M	L	Н	M	L	Н	<u>M</u>	L	TOTAL	
Score Based on I	Ratings		6			4			6		16	
	Description and Comments											
Wetland J is a s	slope wetla	nd loca	ted near th	ie cente	r of th	e study a	rea.					

Table 5. Wetland J assessment summary.

THE Wate Comp	THE WATERSHED WETLAND K – Assessment Summary COMPANY												
Location:	Centra	al study	y area.										
WRIA / Sub-basir	n: Descl	nutes (WRIA 13) /	VRIA 13) / Puget Sound sub-basin									
						2014 Western WA Ecology Rating:			Catego	Category IV			
				Standard buffer:			220 fee	t					
	A the		Sec. 1			Wetland	Size:		Approx	imately	450 ft ²		
						Cowardir Classifica	n ition:		Palustri	ne eme	rgent		
And A .					Sale.	HGM Cla	ssificati	on:	Slope				
			1.25			Wetland Data She		eet:	DP-21				
Carles Carles			The Art States			Upland Data Sheet:		et:	DP-22				
		1 14				Flag Colo	or:		Pink- ar	nd black	-striped		
	Although a		a star			Flag Num	nbers:		K-1 to k	-6			
	Tree stratur	n:	N/A										
Vegetation	Shrub stratum:		Himalayan blackberry										
	Herb stratu	n:	Soft rush, i	reed cana	rygrass	s, fringed	willowh	erb, la	irgeleaf a	vens			
	Soil survey:		Alderwood gravelly sandy loam, 15 to 30 percent slopes										
Soils	Field data:		Redox Dark Surface (F6)										
	Source:		High grour	ndwater t	able, hi	llslope ru	noff						
Hydrology	Field data:		Oxidized rhizospheres along living roots (C3), FAC-Neutral Test (D5)										
			We	etland F	unctio	ons							
			Improving Water Qual	g ity		Hydrologi	с		Habitat	:			
Site Potential		Н	М	L	Н	М	L	Н	М	L			
Landscape Poten	tial	Н	М	L	н	М	L	H	Μ	L			
Value		<u>H</u>	М	L	н	М	L	Н	<u>M</u>	L	TOTAL		
Score Based on R	latings		5			3			6		14		
			Descrip	otion an	d Con	nments							
Wetland K is a s area of snowbe	small slope v rry.	vetlan	d north of	Wetland	J. The	two wet	lands a	ire sej	parated	by a de	ense		

Table 6.Wetland K assessment summary.

WATE: Comp	THE WATERSHED WETLAND M – Assessment Summary COMPANY VOLUME												
Location:	C	Centra	al study	v area; imm	ediately w	vest of	Johnson F	Point Ro	ad NE	•			
WRIA / Sub-basir	n: E	Desch	nutes (WRIA 13) ,	/ Puget S	ound	sub-basir	I					
					2014 We Ecology I	stern V Rating:	VA	Category III					
				Standard buffer:			220 fee	t					
				1	-		Wetland	Size:		14,761	ft²		
							Cowardiı Classifica	n ition:		Palustri	ne scru	b-shrub	
			- 16-				HGM Cla	ssificati	on:	Slope			
							Wetland	Data Sł	neet:	DP-25			
							Upland Data Sheet:			DP-26			
	- Print						Flag Color:			Pink- ar	nd blacl	k-striped	
							Flag Num	nbers:		M-1 to MM-31	M-7, M	M-1 to	
	Tree st	ratum	า:	Red alder,	Oregon a	sh							
Vegetation	Shrub s	stratu	m:	n: Black twinberry, snowberry, cluster rose									
	Herb st	tratun	n:	Soft rush, water parsley									
	Soil sur	vey:		Kapowsin silt loam, 3 to 15 percent slopes									
Solis	Field da	ata:		Redox Dar	k Surface	(F6)							
	Source	:		High grour	ndwater ta	able, h	illslope ru	noff					
Hydrology	Field da	ata:		Geomorph	ic Positio	n (D2),	FAC-Neut	ral Test	t (D5)				
				We	etland F	uncti	ons						
			,	Improvinរួ Water Qual	g ity		Hydrologi	с		Habitat			
Site Potential			Н	М	L	Н	<u>M</u>	L	Н	Μ	L		
Landscape Poten	tial		Н	<u>M</u>	L	Н	<u>M</u>	L	<u>H</u>	Μ	L		
Value			<u>H</u>	М	L	Н	Μ	L	Н	<u>M</u>	L	TOTAL	
Score Based on R	atings			6			5			6		17	
				Descrip	otion an	d Cor	nments						
Wetland M is a Point Road NE.	slope w A portic	vetlar on of	nd loca Wetla	ited near t nd M wou	he cente ld be fille	r of th ed to a	ne study a allow con	irea, in structio	nmedi on of t	ately we the new	est of J entry	ohnson drive.	

Table 7.Wetland M assessment summary.

WATE COM	RSHED Pany		WETI	LAND P	– Ass	essment	t Sumr	nary					
Location:	Centr	al stud	y area; imm	nediately	west o	of Johnson	Point R	oad NE					
WRIA / Sub-basi	n: Desc	hutes ((WRIA 13)	/ Puget	Sound	l sub-bas	in						
			E C		2014 Western WA Ecology Rating:			Categor	y III				
						Standard	buffer:		220 feet	t			
			NA SAN		C.F.	Wetland	Size:		Approxi	mately	400 ft ²		
						Cowardir Classifica		Palustrii	ne eme	rgent			
25		Je				HGM Cla	ssificatio	on:	Depress	ional			
	-	40		19 A		Wetland	Data Sh	eet:	DP-27				
			Upland Data Sheet: Flag Color:			Upland Data Sheet:			DP-28				
							Pink- an	d black	-striped				
						Flag Num	bers:		P-1 to P	-4			
	Tree stratu	m:	N/a										
Vegetation	Shrub strat	um:	Oregon ash, serviceberry										
	Herb stratu	ım:	Soft rush,	Soft rush, creeping buttercup									
C 11	Soil survey:		Kapowsin silt loam, 3 to 15 percent slopes										
Solis	Field data:		Depleted matrix (F3)										
	Source:		High groundwater table, stormwater runoff										
Hydrology	Field data:		Surface wa	ater (A1)	, algal r	nat (B4)							
			v	Vetland	Func	tions							
		<u>ا</u>	lmprovinរួ Nater Qual	g ity		Hydrologi	c		Habitat				
Site Potential		Н	<u>M</u>	L	Н	М	L	н	М	L			
Landscape Pote	ntial	н	<u>M</u>	L	н	<u>M</u>	L	H	Μ	L			
Value		<u>H</u>	М	L	Н	Μ	<u>L</u>	Н	<u>M</u>	L	TOTAL		
Score Based on	Ratings		7			4			6		17		
			Descr	iption	and C	omment	:s						
Wetland P is a of Johnson Poi drive.	small depre nt Road NE.	essiona A port	l wetland tion of We	located etland P	near t would	he cente be filled	r of the to allo	study w cons	area, im truction	media of the	tely west entry		

Table 8.Wetland P assessment summary.

3 Project Description

The proposed project includes the construction of a new access drive and parking lot that can accommodate buses. In addition to land preservation and restoration activities, the Inspiring Kids Preserve is intended to provide educational opportunities for children to learn about the preserve, its natural environment, role in the ecosystem, and restoration activities undertaken by the Capitol Land Trust. As such, the access drive and parking area must be of suitable size to allow access from multiple school buses, which may transport school classes and summer camps. In total, the proposed driveway and parking lot will be 39,717 square feet. An ADU-accessible loop trail is also proposed. The trail will account for 11,499 square feet of permanent buffer impacts. Since the entire eastern portion of the study area is encumbered by wetlands and buffers, all of the development will be considered a new, permanent impact. Grading activities necessary for construction will account for an additional 18,296 square feet of buffer impacts, which will be restored with a native pollinator seed mix. While the temporary buffer impacts will be restored to a vegetated condition, the impacts will represent a conversion of forest and shrub areas to a native herbaceous community. An additional 20,163 square feet of wetland will be indirectly impacted through this development due to the loss of buffer areas.

4 Passive Recreation Criteria

The project includes an 11,499-square-foot, six-foot-wide, crushed gravel, ADU-accessible trail. Given the existing wetland and buffer encumbrances, the entire trail will be located in wetland buffer. Trails and trail-related facilities may be allowed in wetland buffers under TCC 24.30.260.A:

- 1. Location
 - *a.* Trails and related facilities shall, to the extent feasible, be placed on existing levees, road grades, abandoned railroad lines, utility corridors, or other previously disturbed areas.

There are no existing levees, abandoned railroad lines, utility corridors, or other previously disturbed areas on which the trail can be constructed.

b. When trails cannot be located outside of the wetland buffers or on existing disturbed corridors within the buffers, they shall be located as far from the wetland as possible, except for access points for wildlife viewing, fishing, and recreational use authorized pursuant to this chapter.

The trail is located away from the wetland areas, except where necessary to avoid steeper grades, access the pavilion hub, and provide for the trail loop.

c. Trails and related facilities (e.g., viewing platforms and benches) allowed in wetland buffers shall be located, aligned and constructed to minimize disturbance to wetland functions, avoid the most sensitive and productive wildlife habitat (e.g., documented breeding, nesting, and rearing areas), and minimize removal of trees, shrubs, snags, and other significant wildlife habitat.

Trail-related facilities (viewing decks, bird blinds, etc.,) have been removed from the revised plans.

d. Parking areas and other facilities associated with these trails, not specifically provided for in this section and Table 24.30-4, shall be located outside of the wetland and/or wetland buffer.

The entire eastern half of the property is encumbered by wetlands and buffers. It is not feasible to construct the parking areas and other facilities outside the buffer areas.

2. Stair Tower, Stairway, and Mechanical Lift. See <u>Chapter 24.25</u> TCC, Fish and Wildlife Conservation Areas; and <u>Chapter 24.15</u> TCC, Geologic Hazards and the Shoreline Master Program, as amended.

There are no stairs or mechanical lift associated with the proposed trail.

3. Protect Water Quality. Trails and related facilities shall incorporate measures (e.g., check dams or devices to induce sheet flow of stormwater runoff) as needed to assure that runoff from such trails/facilities does not create channels in the buffer or directly discharge to wetlands or streams.

Grading of the site breaks up the runoff areas into multiple small areas to eliminate sizable, concentrated flow volumes, minimizing if not eliminating the possibility of erosion-causing volumes of stormwater. The Drainage Plan incorporates quarry spall splash pads and collects runoff into swales at culvert outfalls and areas where runoff cannot sheet flow off the impervious surface edge.

4. Trail Width. The width of trails extending through a wetland buffer shall be minimized consistent with any applicable state or federal standards. Access paths extending through the wetland buffer to the water's edge shall be no more than three feet in width unless they are designated for public access and designed to accommodate handicapped persons. In that case, the trail and associated clearing shall be the minimum width that complies with the Americans with Disabilities Act (ADA). Clearing shall be done with hand tools unless the approval authority determines that the scale of the project necessitates mechanized equipment, and its use will not harm the wetland or buffer beyond the trail corridor.

The proposed trail width is six feet. This is necessary to comply with ADA requirements.

5. Impervious Surfaces. Trails shall not be paved unless they are specifically designed to be accessible by handicapped persons. Trails shall be designed for nonmotorized use, with the exception of motorized wheelchairs. The approval authority may allow regional trails on former road or railroad beds to be paved when they extend through wetland buffers. Where impervious surfaces are used, they shall be minimized consistent with applicable standards (e.g., ADA and Washington Department of Transportation standards.)

The trail is not paved but is compact gravel, as necessary to provide ADA access. The trail is designed for pedestrian use only.

5 Reasonable Use Criteria

Summary of Project Need

Capitol Land Trust and North Thurston Public Schools are in a growing partnership with the goal of having all 13 elementary schools (about 1,2000 third grade students) visit Inspiring Kids Preserve for outdoor learning. This field experience is part of a district-wide initiative to provide every student, pre-K- 8th grade, with an outdoor learning experience. The school district would like to provide this third-grade experience to all 1,200 students at Inspiring Kids Preserve as soon as possible but is limited by bus entrance, exit, and parking. Currently, third graders from three schools have visited the preserve and had to be dropped off and picked up on Johnson Point Road at an existing entrance that is below the crest of a hill with a speed limit of 50 miles per hour. This presents a high public safety hazard. With the proposed development, the new entrance will meet county site distance safety standards, students will be able to safely offload and load the bus and the bus will be able to remain on site.

Additionally, Capitol Land Trust has interviewed more than 20 community organizations that have expressed a high level of interest in using the preserve for their outdoor programming should the planned development be implemented. Organizations include Olympia Mountaineers, Arbutus Folk School, Exceptional Families Network, Wa-Ya Outdoor School, Black Hills Audubon Society, Puget Sound Estuarium, and school groups for other school districts. Over 700 youth have visited the preserve during the last five years despite the pandemic and site limitations. However, this is only a fraction of the number of students who would visit the preserve if there was safe access and adequate parking. With adequate facilities, the average number of youths served per year is expected to increase by 900 percent or more per year.

Enumerated Reasonable Use Criteria

Reasonable use review criteria are provided under TCC 24.45.030, including the following provisions:

1. No other reasonable use of the property as a whole is permitted by this title;

The general use of the property is as a preserve with passive recreation activities. However, given the intent for the preserve to also provide educational opportunities, safe access and parking for cars and buses is necessary. Under TCC 24.30.280.D, private access roads may be constructed in wetlands and/or buffers if the applicant can demonstrate that it is essential (e.g. to provide access to property where no other access is physically possible with less impact to the wetland); that no alternative location would have less impact on wetland and buffer functions; and that it meets the requirements for existing lots in TCC 24.30.260, passive recreation uses, including trails and trail-related passive recreation facilities, may be allowed if there is no alternative outside the wetland buffer. Trails and related facilities shall be located as far from the wetland as possible. However, parking areas and other facilities associated with these trails shall be located outside of the wetland buffer.

2. No reasonable use with less impact on the critical area or buffer is possible. At a minimum, the alternatives reviewed shall include a change in use, reduction in the size of the use, a change in the timing of the activity, a revision in the project design. This may include a variance for yard and setback standards required pursuant to Titles 20, 21, 22, and 23 TCC;

Nearly the entire study area is encumbered by critical areas and buffers. There is no feasible alternative location that can satisfy the required dimensions, sight lines, traffic flow, and private property screening that can accommodate the ingress/egress needs for school buses to access the parking area.

Alternative location options for the site entrance and hub area were considered at the north and south ends of the property. Neither of the two locations would have accommodated a hub facility without impacting wetland buffers, and the south location would put the development closer to wetlands in the area, including a Category III wetland.

The selected hub location is central to the property, thereby making it more suitable for its purpose as the trail network's hub. From this location, trails can radiate to various points of interest. Locating the hub at either the north or south end of the property would result in a half mile walk one way to get to some of the project's interest points. This could be problematic for many younger visitors.

A sight distance study determined an entrance location near the mid-point of the property line along Johnson Point Road NE would provide safer vehicle entry and exit than the north or south options. The south end option would require widening of an existing driveway which currently serves three residences. This driveway passes just 50 feet in front of the first house off Johnson Point Road NE. Also, the hub at the south option would be visible from two of the adjacent residences. The north end option would put the hub within 100 feet of the neighboring property to the north and would require a longer driveway from a safe access location on Johnson Point Road NE.

The plan strives to keep impacts as far as is reasonably possible from the major wetland to the north without placing the hub on topography that will require a greater area of disturbance. The entrance and hub area will be entirely within wetland buffers. Some wetland disturbance will occur where the driveway comes off Johnson Point Road. Because of a limited safe sight distance area along the road, there is little leeway for the entrance location, making some wetland disturbance in the ditch parallel to the road unavoidable.

The hub and driveway are designed to be compact, while also providing adequate, but not excessive vehicle and pedestrian space. The roadway at the hub area is designed with large turn radii and road widths that facilitate access by large vehicles such as buses and fire trucks as required by code. Parking spaces for two buses and sixteen standard vehicle parking stalls are provided. Closer to the project entrance, a lower parking area with eight stalls is provided from which users will walk along a gravel trail to the hub area. The roadway connecting the lower lot to the hub is reduced to a single 13-foot-wide lane with a seven-foot gravel passing shoulder. The roadway is reduced in length by 270 feet, or 40%, from an original plan which maintained a 24-foot-wide two-lane driveway all the way to the hub.

Additionally, in the proposed location, the hub will be completely screened from neighboring properties.

3. The requested use or activity will not result in any damage to other property and will not threaten the public health, safety, or welfare on or off the development proposal site, or increase public safety risks on or off the subject property;

The proposed activity will not result in damage to other properties or threaten public health, safety, or welfare. The project location has been selected specifically to minimize exposure and encroachment on neighboring properties, as well as provide safe ingress/egress off of Johnson Point Road NE, which often has vehicles traveling at high speeds with poor site lines.

4. The proposed reasonable use is limited to the minimum encroachment into the critical area and/or buffer necessary to prevent the denial of all reasonable use of the property;

The proposal is the minimum necessary to provide access suitable and safe for car and bus ingress/egress to the property. The parking area is intended to provide enough area to accommodate two buses and sixteen standard vehicles with suitable turnaround space. During the summer season, it is anticipated that this many buses may need to access the site simultaneously.

5. The proposed reasonable use shall result in minimal alteration of the critical area including but not limited to impacts on vegetation, fish and wildlife resources, hydrological conditions, and geologic conditions;

The proposed alteration has the minimum feasible alterations to critical areas and buffers. Since the site is entirely encumbered by buffers, there is no location that would have less buffer impact. Of the suitable locations that would allow for safe traffic sight lines, would not encroach onto neighboring private properties, and would not require excessive grading due to variable topography, the selected location is the only area that can avoid directly crossing the interior of Wetland M, which is a long, linear wetland that parallels Johnson Point Road NE for most of the study area. Most of the proposed access road will be in a narrow break between Wetland M and Wetland P, thus avoiding more substantial direct wetland impacts, and the parking area will be entirely outside of wetlands. However, grading activities for the road will fill all of Wetland P and a portion of the northern tip of Wetland M, for a combined permanent impact of 707 square feet. The Wetland M impact area is the least impactful location feasible, as it leaves the remainder of the wetland intact. Bisecting the feature farther south could potentially result in substantial hydrologic effects that could have unanticipated effects on other portions of the wetland.

6. A proposal for a reasonable use exception shall ensure no net loss of critical area functions and values. The proposal shall include a mitigation plan consistent with this title and best available science. Mitigation measures shall address unavoidable impacts and shall occur on-site first, or if necessary, off-site;

The project will ensure no net loss of wetland and buffer function (See Section 6). Project mitigation design has been prepared in accordance with the mitigation ratios under TCC 24.30.080 and the ratios and guidance provided in *Wetland Mitigation in Washington State Versions 1 and 2* (Ecology Publications #06-06-011a and 06-06-011b. 2006) (Ecology Mitigation Guidance). Direct impacts to Wetlands M and P will be mitigated through wetland enhancement at a ratio of 8:1. Permanent buffer impacts will be mitigated through buffer enhancement at a ratio of 1:1. Permanent buffer conversion impacts will be mitigated through buffer enhancement at a ratio 1:1.

Ecology Guidance recommends mitigating indirect wetland impacts at one-half the standard ratio (4:1 enhancement for Category III wetlands). The proposed mitigation has maximized all on-site wetland enhancement opportunities, and a wetland enhancement ratio of 3.65:1 will be achieved. To ensure no net loss of wetland functions, additional wetland buffer mitigation is proposed. A 22.8:1 ratio of buffer enhancement is proposed to make up for the remaining indirect wetland impacts that cannot be mitigated through wetland enhancement.

7. The reasonable use shall not result in the unmitigated adverse impacts to species of concern;

The project will not result in unmitigated adverse impact to species of concern. There are no state or federal endangered, threatened, or species of concern documented in the project area (PHS Data). The project will not impact any streams or old-growth/mature forests that could support listed fish or wildlife species. All potential project impacts will be mitigated on-site in otherwise degraded habitat areas.

8. The location and scale of existing development on surrounding properties shall not be the sole basis for granting or determining a reasonable use exception.

The existing development of the surrounding properties is not the basis for the reasonable use application. The subject property is unique from the surrounding properties, in that it is a land preserve that will preserve natural habitats in perpetuity and restore degraded areas over time. The surrounding land uses are mostly rural residential. The proposed development is necessary to allow access to cars and buses for educational opportunities, a condition not typical of the surrounding land uses.

6 Mitigation Sequencing

This section describes relevant avoidance, minimization, and mitigation sequencing in accordance with TCC 24.35.014:

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

The project has been designed to avoid direct wetland impacts to the greatest extent feasible by selecting an entrance location between two wetland units. By selecting the proposed access drive location, the project avoids bisecting a wetland, which could potentially lead to unanticipated hydrology impacts that might dewater wetland areas away from the proposed crossing. Buffer impacts have been avoided to the extent feasible by eliminating certain project elements that were previously proposed. These include removal of the proposed well, septic field, bird blind, viewing platforms, and the shed at the northern entrance. However, given the

extent of wetland and buffer encumbrance on the property, sight line limitations, and topography, it is not feasible to avoid all wetland and buffer impacts.

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

The location chosen for the access drive minimizes wetland impacts by crossing between two wetlands. Due to the required grading activities, direct wetland impacts are unavoidable. The proposed impacts will occur to a small, isolated Category III wetland, Wetland P, and a small portion of Wetland M, also a Category III wetland. There is no other feasible location for the access that could avoid wetland impacts while achieving the necessary dimensions and sight lines required for ingress/egress of buses. The chosen location avoids bisecting Wetland M, which could otherwise lead to unanticipated hydrology impacts. Buffer impacts have been minimized by removing the proposed well, septic field, bird blind, viewing platforms, and the shed at the northern entrance.

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

Project grading activities will result in permanent and temporary wetland buffer impacts. All buffer impacts from project grading will be restored in place, thus repairing and rehabilitating much of the project impacts. Additional compensatory mitigation for grading activities that result in a conversion of the buffer from forest and shrub communities to an herbaceous community will be provided through additional buffer enhancement at a ratio of 1:1. All permanent impacts will be mitigated through wetland/buffer enhancement.

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

Areas where temporary impacts will be restored shall be monitored for ten years to ensure successful establishment of the restoration plantings. Beyond the immediate project area, the site is a nature preserve that will be preserved in perpetuity. Future restoration of degraded habitats is likely to occur over time, although they are not part of the current proposal.

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

All unavoidable wetland and buffer impacts will be mitigated through enhancement of degraded wetland and buffer areas elsewhere on site, including Wetlands G, H, I, J, K and L and the associated buffers of Wetlands G, H, and I. Impacts to Wetlands M and P will be mitigated through enhancement of degraded wetland areas at a ratio of 8:1, in accordance with

the requirements of TCC 24.30.080. Indirect impacts on wetlands will be addressed by enhancing wetland areas at a 3.65:1 ratio, alongside buffer improvement at a 22.8:1 ratio. This aims to satisfy the required 4:1 wetland improvement ratio, which is infeasible based on the wetland area and quality of wetlands present on-site. Permanent impacts to buffer areas will be mitigated at a minimum ratio of 1:1. Per the recommendations in the Ecology Mitigation Guidance, conversion of a forested or shrub community to an herbaceous community should be mitigated at one-half the standard mitigation ratios. The temporary buffer impacts along the proposed roadway will be restored with a native pollinator mix that will represent a conversion of forested and shrub buffer to a native herbaceous buffer. While Ecology Guidance recommends mitigation for this kind of conversion at one-half the standard mitigation ratio, these impacts will be mitigated at the full 1:1 buffer enhancement ratio required by Thurston County for permanent buffer impacts.

F. Monitoring the impact and taking appropriate corrective measures.

Compensatory mitigation areas will be monitored for ten years or until performance standards are satisfied. The proposed mitigation plan includes a ten-year monitoring and maintenance plan and a contingency plan.

7 Proposed Mitigation Approach

The project will result in 707 square feet of direct impacts and 20,163 square feet of indirect impacts to Category III wetlands. Assuming the standard 8:1 ratio for direct impacts and a 4:1 ratio for indirect impacts, a total of 86,308 SF of wetland enhancement is required (5,656 SF for direct impacts and 80,652 SF for indirect impacts). Only 81,849 SF of wetland enhancement opportunity is available on-site, which accounts for approximately 95 percent of the required total enhancement area. The proposed wetland enhancement area will mitigate for all 707 SF of direct wetland impacts (5,656 SF of wetland enhancement). Once the mitigation area for direct wetland impacts is applied, 76,193 SF of available wetland enhancement area will remain (81,849 SF - 5,656 SF = 76,193 SF). The remaining 76,193 SF of wetland enhancement area is sufficient to mitigate 19,048 SF of indirect impacts at a 4:1 ratio, which leaves a shortfall of 1,115 SF of indirect impacts unaccounted for. Since there is no more suitable wetland enhancement area on-site, additional wetland buffer enhancement is proposed to ensure adequate mitigation for all indirect impacts unaccounted for through wetland enhancement. The project proposes 31,241 SF of wetland buffer mitigation as mitigation for the 1,115 SF of indirect wetland impacts not mitigated through wetland enhancement. This represents an approximately 28:1 mitigation ratio for wetland buffer enhancement to indirect wetland impacts. Since indirect wetland impacts occur as a result of buffer loss, the scale of the proposed buffer enhancement compared

to the area of indirect wetland impacts not mitigated through wetland enhancement will sufficiently mitigate for all project impacts.

All permanent buffer impacts and buffer conversion will be mitigated through 69,152 SF of buffer enhancement, a ratio of 1:1.

Impact Type	Impact Area	Required Mitigation Ratio (Enhancement)	Mitigation Ratio Applied
Direct Wetland	707 SF	8:1 Wetland (5,656 SF)	8:1 Wetland (5,656 SF)
Indirect Wetland	20,163 SF	4:1 Wetland (80,652 SF)	4:1 Wetland (76,193 SF mitigates for 19,048 SF of indirect wetland impacts)
			28:1 Buffer (31,241 SF mitigates for remaining 1,115 SF of indirect impacts) ¹
Direct Buffer	50,856 SF	1:1 Buffer (50,856 SF)	1:1 (50,856 SF mitigates for all direct buffer impacts)
Buffer Conversion	18,296 SF	1:1 Buffer (18,296 SF)	1:1 (18,296 SF mitigates for all buffer conversion)
Total	70,219	155,460 SF (86,308 wetland; 69,152 buffer)	182,424 SF (81,849 SF wetland; 100,393 SF buffer)

Table 9. Project impacts and proposed mitigation.

¹31,241 SF of buffer enhancement will be applied as mitigation for 1,115 SF of indirect wetland impacts that cannot be mitigated through wetland enhancement due to a lack of sufficient degraded wetland area on-site. This represents a ratio of 28:1 for buffer enhancement to indirect wetland impacts.

8 Impact Assessment

Project mitigation is designed to achieve no net loss of critical area and buffer functions. The project will result in the loss of 707 square feet of Category III wetland and 50,856 square feet of buffer (39,717 SF for driveway and parking lot; 11,499 SF for ADA trail). An additional 18,296 square feet of buffer will be converted from forest and shrub communities to a native herbaceous community. As mitigation for these impacts, the project will include 81,849 square feet of wetland mitigation and 100,393 square feet of buffer mitigation. This mitigation plan is providing significantly more enhancement than required and will ensure that the future condition will represent an overall improvement in ecological functions.

In general, the potential of the project area wetlands and buffers to provide water quality, hydrologic, and wildlife habitat functions is relatively low, primarily due to a lack of dense, woody vegetation and/or dense, native, woody vegetation. The project impacts will primarily

occur in areas dominated by shrub vegetation, including salmonberry, snowberry, and Himalayan blackberry.

Direct wetland impacts include the entirety of Wetland P and the northernmost tip of Wetland M. Wetland P is a small depressional wetland with no outlet, and is densely vegetated with trees and scrub-shrub strata. This wetland provides water retention and water quality functions, but only to a limited capacity due to its small size in relation to the overall contributing basin. Habitat structure and function is also provided in this wetland; however, these functions are also limited by its small size and location directly next to a busy road. The portion of Wetland M that will be lost is at the northernmost tip of the wetland. Wetland M is a slope wetland that slopes down to the south. Water quality and hydrologic functions provided by this wetland are moderate, and functions lost due to proposed impacts will not heavily impact the overall function of the wetland. Habitat structure in this portion of the wetland is dominated by Himalayan blackberry and does not provide a significant amount of cover from the busy road directly adjacent to the wetland. Therefore, function lost due to direct wetland impacts will be very limited and will include limited water retention, water quality, and limited habitat structure losses.

Indirect impacts to project area wetlands results from severing portions of the wetland buffers with the construction of the access road and bus parking area. Indirect impacts have been quantified by applying the standard wetland buffers from the edge of pavement. Areas within that area are considered indirect impacts, as these wetland areas will function, in part, as buffer for the remaining wetland areas. This is a conservative approach to present the maximum extent of potential indirect impacts and, accordingly, required mitigation. The effect of the access road and parking area on wetland functions is variable by location. Since the development is primarily for the use of buses for school and camp groups, vehicular traffic will be sporadic. The access road, in particular, will not function as a wildlife impassible feature that creates full habitat fragmentation in the buffers in ways that a commuter road would. Wildlife will be able to freely cross the access road, except during the rare times when a bus is actually entering or leaving the site. Hydrology effects will be realized as runoff from impervious areas will exceed the forested condition. Water quality functions may be affected through runoff, although the infrequent use of the area by vehicles will help to minimize that effect. Hydrology and water quality effects will not be realized in buffer areas on the opposite side of the access road from the respective wetlands, as these areas will remain fully forested. In summary, the indirect impacts are conservatively calculated as if the entirety of the buffer areas will be lost beyond the edge of proposed development, despite some buffer functions remaining on the opposite sides of the access road.

Project mitigation is targeted in those wetland and buffer areas in which native woody vegetation is lacking. By improving structural complexity and species diversity and improving the vertical structure near surface level, the proposed condition will improve the ability of the wetlands and buffers to trap and filter pollutants, slow runoff velocities, and increase forage and cover opportunities for area wildlife.

Table 10, below, summarizes how the proposed mitigation will achieve improved ecological functions on-site.

Critical Area Buffer Function	Existing Conditions	Proposed Conditions	Determination
Water Quality	The potential for project area critical area buffers to provide water quality functions is limited by sparsely vegetated buffer areas.	Vegetated buffer areas will be converted to pavement in the project area. Runoff from pollutant-generating impervious surfaces has the potential to degrade water quality. Vegetative density to be substantially increased in degraded critical area buffers through planting of native trees, shrubs, and groundcovers.	Increasing amount of dense, rigid vegetation to slow surface water flowing towards wetlands will help filter and capture nutrients and sediments that might otherwise enter the waterbody. The scale of proposed mitigation far exceeds the scale of the proposed impacts.
Hydrology	The current hydrologic function of the critical area buffers is limited by sparsely vegetated areas.	Vegetated buffer areas will be converted to pavement in the project area. Runoff from impervious surfaces will exceed runoff volumes from forested areas .Vegetative density to be substantially increased in critical area buffers through planting of native trees, shrubs, and groundcovers.	The addition of trees, shrubs, groundcover plants in degraded wetlands and buffers will help attenuate flood flows during heavy rain events. The scale of proposed mitigation far exceeds the scale of the proposed impacts.
Habitat	The function of the wetland/stream buffer is limited by a lack of structural diversity, prevalence of non-native plant species.	Vegetated buffer areas will be converted to pavement in the project area. This will partially fragment wildlife habitat and migration corridors, although the infrequent use of these areas will minimize this effect. Non-native plant species to be removed. Vegetative	Installation of a native plant community composed of trees, shrubs, and groundcovers will increase vegetative density and structural diversity, improving cover and forage opportunities for wildlife. Non-native plant species removed or significantly reduced. The scale of proposed mitigation far exceeds the scale of the proposed impacts.

Table 10. Summary of Project Impact Assessment

Critical Area Buffer Function	Existing Conditions	Proposed Conditions	Determination
		density to be substantially increased in wetland/stream buffer through planting of native trees, shrubs, and groundcovers.	
Overall	Moderate to low functioning critical area buffers in the Project area. Existing vegetated areas have significant amounts of non-native plant species and are characterized by relatively open or sparsely vegetated areas.	Removal of non-native plant species structures. Planting of trees, shrubs, and groundcovers in existing vegetated wetland/stream buffer areas.	The proposed Project is expected to improve ecological functions over existing conditions. This includes habitat, hydrology, and water quality functions of the critical area buffers. Overall, no net loss of functions is expected.

9 Mitigation Notes

9.1 Overview

A comprehensive ten-year maintenance and monitoring plan is included as part of the wetland/buffer enhancement. The plan details methods of invasive species removal, specifies appropriate species for planting and planting techniques, describes proper maintenance activities, and sets forth performance standards to be met yearly during monitoring. This will ensure that mitigation plantings will be maintained, monitored, and successfully established within the first ten years following implementation.

Proposed mitigation begins with removal of invasive weeds such as Himalayan blackberry, and reed canarygrass in the planting areas. This will be followed by installation of native tree, shrub, and groundcover species suitable to the site. Four native tree species, six native shrub species, and three native groundcover species are proposed in the planting area. Plant densities are recommended at nine feet on-center for trees, six feet on-center for shrubs, four feet on-center for live stakes, and three feet on-center for groundcover species. Native plantings are intended to increase native plant cover, improve native species diversity, increase vegetative structure, and provide food and other habitat resources for wildlife.

9.2 Goals

- 1. Improve wetland habitat functions.
 - a. Remove and control all invasive species in the restoration and mitigation areas including but not limited to Himalayan blackberry, Scotch broom, and reed canarygrass.
 - b. Establish dense and diverse native tree, shrub, and groundcover vegetation throughout planting areas.
- 2. Improve wetland buffer habitat and water quality functions.
 - a. Remove and control all invasive woody species in the restoration and mitigation areas including but not limited to Himalayan blackberry and reed canarygrass.
 - b. Establish dense and diverse native tree, shrub, and groundcover vegetation throughout the planting areas.

9.3 Performance Standards

The standards listed below will be used to judge the success of the plan over time. If the standards are met at the end of the ten-year monitoring period, the County shall issue release of the performance bond.

- 1. Survival:
 - a. 100% survival of all trees and shrubs at the end of Year-1. This standard may be met through establishment of installed plants or by replanting as necessary to achieve the required numbers. Native volunteers may count towards this standard.
 - b. 80% survival of all trees and shrubs at the end of Year-2. This standard may be met through establishment of installed plants or by replanting as necessary to achieve the required numbers. Native volunteers may count towards this standard.
 - c. Survival beyond Year-2 is difficult to track. Therefore, a diversity standard is proposed in place of survival for Years 5-10. Establish at least three native tree species, four native shrub species, and two native groundcover species throughout the wetland and buffer area by Year-5 and maintain throughout Year-10. Volunteer species may count towards this standard.

- 2. Native vegetation cover in planted areas:
 - a. Achieve at least 50% cover of native plants by the end of Year-5. Volunteer species may count towards this standard. Total native plant cover must include a minimum of 30% tree and shrub cover.
 - b. Achieve at least 70% cover of native plants by the end of Year-10. Volunteer species may count towards this standard. Total native plant cover must include a minimum of 50% tree and shrub cover.
 - c. Areas seeded with native pollinator mix will achieve 80% cover by the end of Year-1 and 90% cover in Years 3-10.
- 3. Species diversity in planted areas:
 - a. At least three native tree species shall be present in the planting areas at the end of Year-10. Native volunteers may count towards this standard.
 - b. At least six native shrub species shall be present in the planting area at the end of Year-10. Native volunteers may count towards this standard.
 - c. At least two native groundcover species shall be present in the planting area at the end of Year-10. Native volunteers may count towards this standard.

Species presence is defined as any species with at least five percent cover.

4. Invasive species standard: No more than 10% cover of invasive species in the planting area, in any monitoring year, with the exception of reed canarygrass. Reed canarygrass monocultures shall not be allowed to persist. A monoculture is defined as a reed canarygrass-dominated area greater than 100 square feet devoid of native woody vegetation. Invasive species are defined as any weed listed on Thurston County's noxious weed list, along with those listed under species of concern.

9.4 Monitoring Methods

This monitoring program is designed to track the success of the mitigation site over time by measuring the degree to which the performance standards listed above are being met. An asbuilt plan will be prepared within 30 days of substantially complete construction of the mitigation areas. The as-built plan will document conformance with these plans and will disclose any substitutions or other non-critical departures. The as-built plan will establish baseline plant installation quantities, photo-points, and monitoring transects to be used throughout the monitoring period to measure the performance standards. A minimum of four 100-foot transects will be established in the mitigation area. Established transects will be utilized both to estimate native and invasive cover using the point-intercept method, and overall survival using the belt transect method. The belt transect method involves counting all installed plants that are within five feet of the transect on either side. Monitoring will occur twice annually in Years 1, 2, 3, 5, 7, and 10 after installation. The first monitoring visit will take place in the spring. This visit will record necessary weeding, invasive control, and other maintenance needs. The **restoration specialist** will then notify the owner and/or maintenance crews of necessary early season maintenance. The late-season visit will occur in late summer or fall and will record the following and be submitted in an annual report to the City:

- 1. General summary of the spring visit.
- 2. First- and second-year counts of surviving and dead/dying plants by species within the transect area. A 10-foot belt monitoring method will be utilized.
- 3. Estimates of native species cover using the line-intercept method along the monitoring transects.
- 4. Estimates of invasive species cover using the line-intercept method along the monitoring transects.
- 5. Counts of established native species to determine species richness.
- 6. Photographic documentation at permanent photo-points.
- 7. Intrusions into the planting areas, erosion, vandalism, trash, and other actions detrimental to the overall health of the mitigation areas.
- 8. Recommendations for maintenance in the mitigation areas.
- 9. Recommendations for replacement of all dead or dying plant material with same or like species and number as on the approved plan.

9.5 Construction Notes and Specifications

Specifications for items in **bold** can be found under "Material Specifications and Definitions."

- 1. Clear the planting area of all invasive vegetation including but not limited to Himalayan blackberry, Scotch broom, and reed canarygrass.
- 2. Manually or mechanically grub all invasive vegetation from roots. If it is likely that hand removal will not be completely effective or will damage desirable species, then application of an herbicide approved for use in aquatic areas may be used. Herbicide applications must be conducted only by a state-licensed applicator with aquatic endorsement and in accordance with local regulations. Applications should be done between mid-spring and mid-summer to maximize uptake by plants. Application should be a targeted method such as spot spray or wick.
- 3. All plant installation will take place during the dormant season (October 15 to March 1).
- 4. Lay out vegetation to be installed per the planting plan and plant schedule.
- 5. Prepare a planting pit for each plant and install per the planting details.

- 6. Apply native pollinator seed mix to temporary buffer impact areas in accordance with the product label application rates.
- 7. Apply a blanket application of course **woodchip mulch** four inches thick to planting areas in the buffer only. Do not mulch in the wetlands or the native pollinator seed mix areas.
- 8. Broadcast spread river lupine (Lupinus rivularis) over mulched areas.

9.6 Maintenance

This site will be maintained for ten years following completion of the plant installation. Specifications in **bold** can be found under "Material Specifications and Definitions."

- 1. Replace each plant found dead in the summer monitoring visit during the upcoming fall dormant season (October 15 to March 1).
- 2. Follow the recommendations noted in the spring monitoring site visit.
- 3. Invasive species maintenance plan:
 - a) Himalayan blackberry, Scotch broom, reed canarygrass, and other invasive woody vegetation will be grubbed out by hand on an ongoing basis, with care taken to grub out roots except where such work will jeopardize the roots of installed or volunteer native plants.
 - b) If it is likely that hand removal will not be completely effective or will damage desirable species, then application of an herbicide approved for use in aquatic areas may be used. Herbicide applications must be conducted only by a state-licensed applicator with aquatic endorsement and in accordance with local regulations. Applications should be done between mid-spring and mid-summer to maximize uptake by plants. Application should be a targeted method such as spot spray or wick.
- 4. At least twice yearly, remove by hand all competing weeds and weed roots from beneath each installed plant and any desirable volunteer vegetation to a distance of 18 inches from the main plant stem. Weeding should occur as needed during the spring and summer. Frequent weeding will result in lower mortality and lower plant replacement costs.
- 5. Do not weed the area near the plant bases with string trimmer (weed whacker). Native plants are easily damaged or killed, and weeds easily recover after trimming.
- 6. Refresh **wood chip mulch** as necessary to maintain a minimum 4-inch-thick blanket application.

9.7 Plant Species, Densities, and Sizing

Wetland I Mitigation Area

- Tree species 9 feet on-center. Trees shall be minimum 1-gallon container plants or bare root.
 - Oregon ash (Fraxinus latifolia)
 - Sitka spruce (*Picea sitchensis*)
- Shrub species 6 feet on-center. Shrubs shall be 1-gallon container plants or bare root.
 - Black twinberry (*Lonicera involucrata*)
 - Douglas spirea (*Spiraea douglasii*)
 - Pacific ninebark (*Physocarpus capitatus*)
 - Nootka rose (*Rosa nutkana*)
- Live stakes 4 feet on-center
 - Sitka willow (Salix sitchensis)
 - Pacific willow (*Salix lucida*)

Buffer Mitigation Area

- Tree species 9 feet on-center. Trees shall be 1-gallon container plants or bare root.
 - Big leaf maple (*Acer macrophyllum*)
 - o Bitter cherry (Prunus emarginata)
- Shrub species 6 feet on-center. Shrubs shall be 1-gallon container plants or bare root.
 - Beaked hazelnut (Corylus cornuta)
 - Oceanspray (Holodiscus discolor)
 - Snowberry (*Symphoricarpos albus*)
 - Red-flowering currant (*Ribes sanguineum*)
 - Nootka rose (*Rosa nutkana*)
- Groundcover species 3 feet on-center. Groundcover plants shall be 4-inch pots or bare root.
 - Sword fern (*Polystichum munitum*)
 - Coast strawberry (*Fragaria chiloensis*)
 - Riverbank lupine (*Lupinus rivularis*) apply as seed mix 5oz/1,000 SF.

Material Specifications and Definitions

1. **Restoration specialist**: DCG/Watershed [(425) 822-5242] personnel or other person qualified to evaluate environmental restoration projects.

2. Wood chip mulch: Chipped woody material approximately one inch minimum to three inches in maximum dimension (not sawdust or coarse hog fuel). Mulch shall not contain appreciable quantities of garbage, plastic, metal, soil, and dimensional lumber or construction/ demolition debris. Pacific Topsoil sells suitable woodchip mulch called "Wood Chip Mulch" at many of their locations. Pacific Topsoil: (800) 884-7645. Note: Arborist woodchips generally contain weed seeds and are not a reliable alternative.

Contingency Plan

If all or portions of the mitigation area fail, a contingency plan will be implemented. Contingency measures may include plant species substitutions, soil amendments, herbicide applications, supplemental irrigation, and herbivore exclusion fencing.

Appendix A

MITIGATION PLAN












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PERMIT SET - NOT FOR CONSTRUCTION

PLANT INSTALLATION SPECIFICATIONS

GENERAL NOTES

QUALITY ASSURANCE

- 1. PLANTS SHALL MEET OR EXCEED THE SPECIFICATIONS OF FEDERAL, STATE, AND LOCAL LAWS REQUIRING INSPECTION FOR PLANT DISEASE AND INSECT CONTROL
- 2. PLANTS SHALL BE HEALTHY, VIGOROUS, AND WELL-FORMED, WITH WELL DEVELOPED, FIBROUS ROOT SYSTEMS, FREE FROM DEAD BRANCHES OR ROOTS. PLANTS SHALL BE FREE FROM DAMAGE CAUSED BY TEMPERATURE EXTREMES, LACK OR EXCESS OF MOISTURE, INSECTS, DISEASE, AND MECHANICAL INJURY. PLANTS IN LEAF SHALL BE WELL FOLIATED AND OF GOOD COLOR. PLANTS SHALL BE HABITUATED TO THE OUTDOOR ENVIRONMENTAL CONDITIONS INTO WHICH THEY WILL BE PLANTED (HARDENED-OFF).
- 3. TREES WITH DAMAGED, CROOKED, MULTIPLE OR BROKEN LEADERS WILL BE REJECTED. WOODY PLANTS WITH ABRASIONS OF THE BARK OR SUN SCALD WILL BE REJECTED.
- 4. NOMENCLATURE: PLANT NAMES SHALL CONFORM TO FLORA OF THE PACIFIC NORTHWEST BY HITCHCOCK AND CRONQUIST, UNIVERSITY OF WASHINGTON PRESS. 2018 AND/OR TO A FIELD GUIDE TO THE COMMON WETLAND PLANTS OF WESTERN WASHINGTON & NORTHWESTERN OREGON, ED. SARAH SPEAR COOKE, SEATTLE AUDUBON SOCIETY, 1997

DEFINITIONS

- 1. PLANTS/PLANT MATERIALS. PLANTS AND PLANT MATERIALS SHALL INCLUDE ANY LIVE PLANT MATERIAL USED ON THE PROJECT. THIS INCLUDES BUT IS NOT LIMITED TO CONTAINER GROWN, B&B OR BAREROOT PLANTS; LIVE STAKES AND FASCINES (WATTLES); TUBERS, CORMS, BULBS, ETC..; SPRIGS, PLUGS, AND LINERS.
- 2. CONTAINER GROWN. CONTAINER GROWN PLANTS ARE THOSE WHOSE ROOTBALLS ARE ENCLOSED IN A POT OR BAG IN WHICH THAT PLANT GREW.

SUBSTITUTIONS

- 1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN SPECIFIED MATERIALS IN ADVANCE IF SPECIAL GROWING, MARKETING OR OTHER ARRANGEMENTS MUST BE MADE IN ORDER TO SUPPLY SPECIFIED MATERIALS.
- 2. SUBSTITUTION OF PLANT MATERIALS NOT ON THE PROJECT LIST WILL NOT BE PERMITTED UNLESS AUTHORIZED IN WRITING BY THE RESTORATION CONSULTANT.
- 3. IF PROOF IS SUBMITTED THAT ANY PLANT MATERIAL SPECIFIED IS NOT OBTAINABLE, A PROPOSAL WILL BE CONSIDERED FOR USE OF THE NEAREST EQUIVALENT SIZE OR ALTERNATIVE SPECIES, WITH CORRESPONDING ADJUSTMENT OF CONTRACT PRICE.
- 4. SUCH PROOF WILL BE SUBSTANTIATED AND SUBMITTED IN WRITING TO THE CONSULTANT AT LEAST 30 DAYS PRIOR TO START OF WORK UNDER THIS SECTION.

INSPECTION

- 1. PLANTS SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE RESTORATION CONSULTANT FOR CONFORMANCE TO SPECIFICATIONS, EITHER AT TIME OF DELIVERY ON-SITE OR AT THE GROWER'S NURSERY. APPROVAL OF PLANT MATERIALS AT ANY TIME SHALL NOT IMPAIR THE SUBSEQUENT RIGHT OF INSPECTION AND REJECTION DURING PROGRESS OF THE WORK.
- 2. PLANTS INSPECTED ON SITE AND REJECTED FOR NOT MEETING SPECIFICATIONS MUST BE REMOVED IMMEDIATELY FROM SITE OR RED-TAGGED AND REMOVED AS SOON AS POSSIBLE
- 3. THE RESTORATION CONSULTANT MAY ELECT TO INSPECT PLANT MATERIALS AT THE PLACE OF GROWTH. AFTER INSPECTION AND ACCEPTANCE, THE RESTORATION CONSULTANT MAY REQUIRE THE INSPECTED PLANTS BE LABELED AND RESERVED FOR PROJECT. SUBSTITUTION OF THESE PLANTS WITH OTHER INDIVIDUALS, EVEN OF THE SAME SPECIES AND SIZE, IS UNACCEPTABLE.

MEASUREMENT OF PLANTS

- 1. PLANTS SHALL CONFORM TO SIZES SPECIFIED UNLESS SUBSTITUTIONS ARE MADE AS OUTLINED IN THIS CONTRACT.
- 2. HEIGHT AND SPREAD DIMENSIONS SPECIFIED REFER TO MAIN BODY OF PLANT AND NOT BRANCH OR ROOT TIP TO TIP. PLANT DIMENSIONS SHALL BE MEASURED WHEN THEIR BRANCHES OR ROOTS ARE IN THEIR NORMAL POSITION.
- 3. WHERE A RANGE OF SIZE IS GIVEN, NO PLANT SHALL BE LESS THAN THE MINIMUM SIZE AND AT LEAST 50% OF THE PLANTS SHALL BE AS LARGE AS THE MEDIAN OF THE SIZE RANGE. (EXAMPLE: IF THE SIZE RANGE IS 12" TO 18", AT LEAST 50% OF PLANTS MUST BE 15" TALL.).

SUBMITTALS

PROPOSED PLANT SOURCES

1. WITHIN 45 DAYS AFTER AWARD OF THE CONTRACT, SUBMIT A

COMPLETE LIST OF PLANT MATERIALS PROPOSED TO BE PROVIDED DEMONSTRATING CONFORMANCE WITH THE REQUIREMENTS SPECIFIED. INCLUDE THE NAMES AND ADDRESSES OF ALL GROWERS AND NURSERIES.

PRODUCT CERTIFICATES

- PLANT MATERIALS LIST SUBMIT DOCUMENTATION TO CONSULTANT AT LEAST 30 DAYS PRIOR TO START OF WORK UNDER THIS SECTION THAT PLANT MATERIALS HAVE BEEN ORDERED. ARRANGE PROCEDURE FOR INSPECTION OF PLANT MATERIAL WITH CONSULTANT AT TIME OF SUBMISSION
- HAVE COPIES OF VENDOR'S OR GROWERS' INVOICES OR 2. PACKING SLIPS FOR ALL PLANTS ON SITE DURING INSTALLATION. INVOICE OR PACKING SLIP SHOULD LIST SPECIES BY SCIENTIFIC NAME, QUANTITY, AND DATE DELIVERED (AND GENETIC ORIGIN IF THAT INFORMATION WAS PREVIOUSLY REQUESTED).

DELIVERY, HANDLING, & STORAGE

NOTIFICATION

CONTRACTOR MUST NOTIFY CONSULTANT 48 HOURS OR MORE IN ADVANCE OF DELIVERIES SO THAT CONSULTANT MAY ARRANGE FOR INSPECTION.

PLANT MATERIALS

- TRANSPORTATION DURING SHIPPING, PLANTS SHALL BE PACKED TO PROVIDE PROTECTION AGAINST CLIMATE EXTREMES, BREAKAGE AND DRYING. PROPER VENTILATION AND PREVENTION OF DAMAGE TO BARK, BRANCHES, AND ROOT SYSTEMS MUST BE ENSURED.
- SCHEDULING AND STORAGE PLANTS SHALL BE DELIVERED AS CLOSE TO PLANTING AS POSSIBLE. PLANTS IN STORAGE MUST BE PROTECTED AGAINST ANY CONDITION THAT IS DETRIMENTAL TO THEIR CONTINUED HEALTH AND VIGOR.
- HANDLING PLANT MATERIALS SHALL NOT BE HANDLED BY THE TRUNK, LIMBS, OR FOLIAGE BUT ONLY BY THE CONTAINER, BALL BOX, OR OTHER PROTECTIVE STRUCTURE, EXCEPT BAREROOT PLANTS SHALL BE KEPT IN BUNDLES UNTIL PLANTING AND THEN HANDLED CAREFULLY BY THE TRUNK OR STEM.
- 4. LABELS PLANTS SHALL HAVE DURABLE, LEGIBLE LABELS STATING CORRECT SCIENTIFIC NAME AND SIZE. TEN PERCENT OF CONTAINER GROWN PLANTS IN INDIVIDUAL POTS SHALL BE LABELED. PLANTS SUPPLIED IN FLATS, RACKS, BOXES, BAGS, OR BUNDLES SHALL HAVE ONE LABEL PER GROUP.

WARRANTY

PLANT WARRANTY

PLANTS MUST BE GUARANTEED TO BE TRUE TO SCIENTIFIC NAME AND SPECIFIED SIZE, AND TO BE HEALTHY AND CAPABLE OF VIGOROUS GROWTH.

REPLACEMENT

- PLANTS NOT FOUND MEETING ALL OF THE REQUIRED CONDITIONS AT THE CONSULTANT'S DISCRETION MUST BE REMOVED FROM SITE AND REPLACED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
- 2. PLANTS NOT SURVIVING AFTER ONE YEAR TO BE REPLACED AT THE CONTRACTOR'S EXPENSE.

PLANT MATERIAL

GENERAL

- 1. PLANTS SHALL BE NURSERY GROWN IN ACCORDANCE WITH GOOD HORTICULTURAL PRACTICES UNDER CLIMATIC CONDITIONS SIMILAR TO OR MORE SEVERE THAN THOSE OF THE PROJECT SITE.
- PLANTS SHALL BE TRUE TO SPECIES AND VARIETY OR 2. SUBSPECIES. NO CULTIVARS OR NAMED VARIETIES SHALL BE USED UNLESS SPECIFIED AS SUCH.

QUANTITIES

SEE PLANT LIST ON ACCOMPANYING PLANS AND PLANT SCHEDULES.

ROOT TREATMENT

- CONTAINER GROWN PLANTS (INCLUDES PLUGS): PLANT ROOT BALLS MUST HOLD TOGETHER WHEN THE PLANT IS REMOVED FROM THE POT, EXCEPT THAT A SMALL AMOUNT OF LOOSE SOIL MAY BE ON THE TOP OF THE ROOTBALL
- 2. PLANTS MUST NOT BE ROOT-BOUND; THERE MUST BE NO CIRCLING ROOTS PRESENT IN ANY PLANT INSPECTED.
- 3. ROOTBALLS THAT HAVE CRACKED OR BROKEN WHEN REMOVED FROM THE CONTAINER SHALL BE REJECTED.

PLANT INSTALLATION DETAILS AND NOTES SCALE AS NOTED





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	 SPECIFIED MULCH LAYER FINISH GRADE SOIL AMENDMENTS AS SPECIFIED FORM PILOT HOLE W/ ROCK BAR, REBAR OR OTHER PLANTING TOOL. <u>DO NOT</u> HAMMER OR POUND IN CUTTINGS UNLESS APPROVED BY RESTORATION SPECIALIST. ANGLE CUT AT BASE 	ESERVE N 0500, -320000 ST
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MITIGATION PLAN NOTES

THE INSPIRING YOUTH PRESERVE IS PROPOSED NOT ONLY TO PRESERVE LAND AND OFFER RESTORATION OPPORTUNITIES, BUT ALSO TO PROVIDE VALUABLE EDUCATIONAL OPPORTUNITIES FOR CHILDREN TO LEARN ABOUT THE PRESERVE, ITS NATURAL ENVIRONMENT, ROLE IN THE ECOSYSTEM, AND RESTORATION ACTIVITIES UNDERTAKEN BY THE CAPITOL LAND TRUST. THE PROPOSED PROJECT INCLUDES THE CONSTRUCTION OF A NEW ACCESS DRIVE AND PARKING LOT THAT CAN ACCOMMODATE BUSES, A CENTRAL ACCESS HUB, AND SOME TRAILS. THE STUDY AREA FOR THIS IS DEFINED AS THE AREA ON PARCELS 11928230100, 11928230200, 11928320500, AND 11928320000 BETWEEN THE EXISTING NORTH AND SOUTH DIRT ACCESS DRIVES. THE STUDY AREA EXTENDS APPROXIMATELY 500 FEET WEST FROM JOHNSON POINT ROAD NE. MANY WETLANDS WERE IDENTIFIED AND DELINEATED WITHIN THE SUBJECT AREA, AND AS SUCH THE ENTIRE PROPERTY IS ENCUMBERED BY WETLANDS AND THEIR BUFFERS.

OVERVIEW

A COMPREHENSIVE TEN-YEAR MAINTENANCE AND MONITORING PLAN IS INCLUDED AS PART OF THE WETLAND/BUFFER ENHANCEMENT. THE PLAN DETAILS METHODS OF INVASIVE SPECIES REMOVAL, SPECIFIES APPROPRIATE SPECIES FOR PLANTING AND PLANTING TECHNIQUES, DESCRIBES PROPER MAINTENANCE ACTIVITIES, AND SETS FORTH PERFORMANCE STANDARDS TO BE MET YEARLY DURING MONITORING. THIS WILL ENSURE THAT MITIGATION PLANTINGS WILL BE MAINTAINED, MONITORED, AND SUCCESSFULLY ESTABLISHED WITHIN THE FIRST TEN YEARS FOLLOWING IMPLEMENTATION.

PROPOSED MITIGATION BEGINS WITH REMOVAL OF INVASIVE WEEDS SUCH AS HIMALAYAN BLACKBERRY, AND REED CANARYGRASS IN THE PLANTING AREAS. THIS WILL BE FOLLOWED BY INSTALLATION OF NATIVE TREE, SHRUB, AND GROUNDCOVER SPECIES SUITABLE TO THE SITE. FOUR NATIVE TREE SPECIES, EIGHT NATIVE SHRUB SPECIES, AND TWO NATIVE GROUNDCOVER SPECIES ARE PROPOSED IN THE PLANTING AREA. PLANT DENSITIES ARE RECOMMENDED AT NINE FEET ON-CENTER FOR TREES, SIX FEET ON-CENTER FOR SHRUBS, AND THIRTY INCHES ON-CENTER FOR GROUNDCOVER SPECIES. NATIVE PLANTINGS AND ARE INTENDED TO INCREASE NATIVE PLANT COVER, IMPROVE NATIVE SPECIES DIVERSITY, INCREASE VEGETATIVE STRUCTURE AND PROVIDE FOOD AND OTHER HABITAT RESOURCES FOR WILDLIFE.

<u>GOALS</u>

1. IMPROVE WETLAND HABITAT FUNCTIONS.

- a. REMOVE AND CONTROL ALL INVASIVE SPECIES IN THE RESTORATION AND MITIGATION AREAS INCLUDING BUT NOT LIMITED TO HIMALAYAN BLACKBERRY, SCOTCH BROOM, AND REED CANARYGRASS.
- b. ESTABLISH DENSE AND DIVERSE NATIVE TREE, SHRUB, AND GROUNDCOVER VEGETATION THROUGHOUT PLANTING AREAS.
- 2. IMPROVE WETLAND BUFFER HABITAT AND WATER QUALITY FUNCTIONS.
- a. REMOVE AND CONTROL ALL INVASIVE WOODY SPECIES IN THE RESTORATION AND MITIGATION AREAS INCLUDING BUT NOT LIMITED TO HIMALAYAN BLACKBERRY AND REED CANARYGRASS. b. ESTABLISH DENSE AND DIVERSE NATIVE TREE, SHRUB, AND GROUNDCOVER VEGETATION
- THROUGHOUT THE PLANTING AREAS.

PERFORMANCE STANDARDS

THE STANDARDS LISTED BELOW WILL BE USED TO JUDGE THE SUCCESS OF THE PLAN OVER TIME. IF THE STANDARDS ARE MET AT THE END OF THE TEN-YEAR MONITORING PERIOD, THE COUNTY SHALL ISSUE RELEASE OF THE PERFORMANCE BOND.

- 1. SURVIVAL:
 - a. 100% SURVIVAL OF ALL TREES AND SHRUBS AT THE END OF YEAR-1. THIS STANDARD MAY BE MET THROUGH ESTABLISHMENT OF INSTALLED PLANTS OR BY REPLANTING AS NECESSARY TO ACHIEVE THE REQUIRED NUMBERS. NATIVE VOLUNTEERS MAY COUNT TOWARDS THIS STANDARD.
 - b. 80% SURVIVAL OF ALL TREES AND SHRUBS AT THE END OF YEAR-2. THIS STANDARD MAY BE MET THROUGH ESTABLISHMENT OF INSTALLED PLANTS OR BY REPLANTING AS NECESSARY TO ACHIEVE THE REQUIRED NUMBERS. NATIVE VOLUNTEERS MAY COUNT TOWARDS THIS STANDARD.
 - c. SURVIVAL BEYOND YEAR-2 IS DIFFICULT TO TRACK. THEREFORE, A DIVERSITY STANDARD IS PROPOSED IN PLACE OF SURVIVAL FOR YEARS 5-10. ESTABLISH AT LEAST THREE NATIVE TREE SPECIES, FOUR NATIVE SHRUB SPECIES, AND TWO NATIVE GROUNDCOVER SPECIES THROUGHOUT THE WETLAND AND BUFFER AREA BY YEAR-10. VOLUNTEER SPECIES MAY COUNT TOWARDS THIS STANDARD.

2. NATIVE VEGETATION COVER IN PLANTED AREAS:

- a. ACHIEVE AT LEAST 50% COVER OF NATIVE PLANTS BY THE END OF YEAR-5. VOLUNTEER SPECIES MAY COUNT TOWARDS THIS STANDARD. TOTAL NATIVE PLANT COVER MUST INCLUDE A MINIMUM OF 30% TREE AND SHRUB COVER.
- b. ACHIEVE AT LEAST 70% COVER OF NATIVE PLANTS BY THE END OF YEAR-10. VOLUNTEER SPECIES MAY COUNT TOWARDS THIS STANDARD. TOTAL NATIVE PLANT COVER MUST INCLUDE A MINIMUM OF 50% TREE AND SHRUB COVER.
- c. AREAS SEEDED WITH NATIVE POLLINATOR MIX WILL ACHIEVE 80% COVER BY THE END OF YEAR-1 AND 90% COVER IN YEARS 3-10.
- 3. SPECIES DIVERSITY IN PLANTED AREAS:
 - a. AT LEAST THREE NATIVE TREE SPECIES SHALL BE PRESENT IN THE PLANTING AREAS AT THE END OF YEAR-10. NATIVE VOLUNTEERS MAY COUNT TOWARDS THIS STANDARD.
 - b. AT LEAST SIX NATIVE SHRUB SPECIES SHALL BE PRESENT IN THE PLANTING AREA AT THE END OF YEAR-10. NATIVE VOLUNTEERS MAY COUNT TOWARDS THIS STANDARD.
 - c. AT LEAST TWO NATIVE GROUNDCOVER SPECIES SHALL BE PRESENT IN THE PLANTING AREA AT THE END OF YEAR-10. NATIVE VOLUNTEERS MAY COUNT TOWARDS THIS STANDARD.
- SPECIES PRESENCE IS DEFINED AS ANY SPECIES WITH AT LEAST FIVE PERCENT COVER 4. INVASIVE SPECIES STANDARD: NO MORE THAN 10% COVER OF INVASIVE SPECIES IN THE PLANTING AREA, IN ANY MONITORING YEAR, WITH THE EXCEPTION OF REED CANARYGRASS. REED CANARYGRASS MONOCULTURES SHALL NOT BE ALLOWED TO PERSIST. A MONOCULTURE IS DEFINED AS A REED CANARYGRASS-DOMINATED AREA GREATER THAN 100 SQUARE FEET DEVOID OF NATIVE WOODY VEGETATION. INVASIVE SPECIES ARE DEFINED AS ANY WEED LISTED ON THURSTON COUNTY'S NOXIOUS WEED LIST, ALONG WITH THOSE LISTED UNDER SPECIES OF CONCERN.

MITIGATION PLAN NOTES

THIS MONITORING PROGRAM IS DESIGNED TO TRACK THE SUCCESS OF THE MITIGATION SITE OVER TIME BY MEASURING THE DEGREE TO WHICH THE PERFORMANCE STANDARDS LISTED ABOVE ARE BEING MET. AN AS-BUILT PLAN WILL BE PREPARED WITHIN 30 DAYS OF SUBSTANTIALLY COMPLETE CONSTRUCTION OF THE MITIGATION AREAS. THE AS-BUILT PLAN WILL DOCUMENT CONFORMANCE WITH THESE PLANS AND WILL DISCLOSE ANY SUBSTITUTIONS OR OTHER NON-CRITICAL DEPARTURES. THE AS-BUILT PLAN WILL ESTABLISH BASELINE PLANT INSTALLATION QUANTITIES, PHOTO-POINTS, AND MONITORING TRANSECTS TO BE USED THROUGHOUT THE MONITORING PERIOD TO MEASURE THE PERFORMANCE STANDARDS. A MINIMUM OF FOUR 100-FOOT TRANSECTS WILL BE ESTABLISHED IN THE MITIGATION AREA. ESTABLISHED TRANSECTS WILL BE UTILIZED BOTH TO ESTIMATE NATIVE AND INVASIVE COVER USING THE POINT-INTERCEPT METHOD, AND OVERALL SURVIVAL USING THE BELT TRANSECT METHOD. THE BELT TRANSECT METHOD INVOLVES COUNTING ALL INSTALLED PLANTS THAT ARE WITHIN FIVE FEET OF THE TRANSECT ON EITHER SIDE

MONITORING WILL OCCUR TWICE ANNUALLY IN YEARS 1, 2, 3, 5, 7 AND 10. THE FIRST MONITORING VISIT WILL TAKE PLACE IN THE SPRING. THIS VISIT WILL RECORD NECESSARY WEEDING, INVASIVE CONTROL, AND OTHER MAINTENANCE NEEDS. THE RESTORATION SPECIALIST WILL THEN NOTIFY THE OWNER AND/OR MAINTENANCE CREWS OF NECESSARY EARLY SEASON MAINTENANCE. THE LATE-SEASON VISIT WILL OCCUR IN LATE SUMMER OR FALL AND WILL RECORD THE FOLLOWING AND BE SUBMITTED IN AN ANNUAL REPORT TO THE CITY: 1. GENERAL SUMMARY OF THE SPRING VISIT.

2. FIRST- AND SECOND-YEAR COUNTS OF SURVIVING AND DEAD/DYING PLANTS BY SPECIES IN WITHIN THE TRANSECT AREA. A 10-FOOT BELT MONITORING METHOD WILL BE UTILIZED. 3. ESTIMATES OF NATIVE SPECIES COVER USING THE LINE-INTERCEPT METHOD ALONG THE MONITORING TRANSECTS. 4. ESTIMATES OF INVASIVE SPECIES COVER USING THE LINE-INTERCEPT METHOD ALONG THE MONITORING TRANSECTS. 5. COUNTS OF ESTABLISHED NATIVE SPECIES TO DETERMINE SPECIES RICHNESS.

6. PHOTOGRAPHIC DOCUMENTATION AT PERMANENT PHOTO-POINTS. 7. INTRUSIONS INTO THE PLANTING AREAS, EROSION, VANDALISM, TRASH, AND OTHER ACTIONS DETRIMENTAL TO THE OVERALL HEALTH OF THE MITIGATION AREAS.

9. RECOMMENDATIONS FOR REPLACEMENT OF ALL DEAD OR DYING PLANT MATERIAL WITH SAME OR LIKE SPECIES AND NUMBER AS ON THE APPROVED PLAN.

CONSTRUCTION NOTES AND SPECIFICATIONS

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	5.	PR
	6	AΡ

REPARE A PLANTING PIT FOR EACH PLANT AND INSTALL PER THE PLANTING DETAILS. 6. APPLY NATIVE POLLINATOR SEED MIX TO TEMPORARY BUFFER IMPACT AREAS IN ACCORDANCE WITH THE PRODUCT LABEL APPLICATION RATES. 7. APPLY A BLANKET APPLICATION OF COURSE WOODCHIP MULCH FOUR INCHES THICK TO PLANTING

MAINTENANCE

THIS SITE WILL BE MAINTAINED FOR TEN YEARS FOLLOWING COMPLETION OF THE PLANT INSTALLATION SPECIFICATIONS IN BOLD CAN BE FOUND UNDER "MATERIAL SPECIFICATIONS AND DEFINITIONS." 1. REPLACE EACH PLANT FOUND DEAD IN THE SUMMER MONITORING VISIT DURING THE UPCOMING FALL DORMANT SEASON (OCTOBER 15 TO MARCH 1). 2. FOLLOW THE RECOMMENDATIONS NOTED IN THE SPRING MONITORING SITE VISIT. 3. INVASIVE SPECIES MAINTENANCE PLAN:

b) IF IT IS LIKELY THAT HAND REMOVAL WILL NOT BE COMPLETELY EFFECTIVE OR WILL DAMAGE DESIRABLE SPECIES, THEN APPLICATION OF AN HERBICIDE APPROVED FOR USE IN AQUATIC AREAS MAY BE USED. HERBICIDE APPLICATIONS MUST BE CONDUCTED ONLY BY A STATE-LICENSED APPLICATOR AND IN ACCORDANCE WITH LOCAL REGULATIONS. APPLICATIONS SHOULD BE DONE BETWEEN MID-SPRING AND MID-SUMMER TO MAXIMIZE UPTAKE BY PLANTS. APPLICATION SHOULD BE A TARGETED METHOD SUCH AS SPOT SPRAY OR WICK.

4. AT LEAST TWICE YEARLY, REMOVE BY HAND ALL COMPETING WEEDS AND WEED ROOTS FROM BENEATH EACH INSTALLED PLANT AND ANY DESIRABLE VOLUNTEER VEGETATION TO A DISTANCE OF 18 INCHES FROM THE MAIN PLANT STEM. WEEDING SHOULD OCCUR AS NEEDED DURING THE SPRING AND SUMMER. FREQUENT WEEDING WILL RESULT IN LOWER MORTALITY AND LOWER PLANT REPLACEMENT COSTS. 5. DO NOT WEED THE AREA NEAR THE PLANT BASES WITH STRING TRIMMER (WEED WHACKER). NATIVE PLANTS ARE EASILY DAMAGED OR KILLED, AND WEEDS EASILY RECOVER AFTER TRIMMING. 6. REFRESH WOOD CHIP MULCH AS NECESSARY TO MAINTAIN A MINIMUM 4-INCH-THICK BLANKET APPLICATION.

MONITORING METHODS

8. RECOMMENDATIONS FOR MAINTENANCE IN THE MITIGATION AREAS.

CATIONS FOR ITEMS IN **BOLD** CAN BE FOUND UNDER "MATERIAL SPECIFICATIONS AND DEFINITIONS." LEAR THE PLANTING AREA OF ALL INVASIVE WOODY VEGETATION INCLUDING BUT NOT LIMITED TO IMALAYAN BLACKBERRY, SCOTCH BROOM, AND REED CANARYGRASS.

ANUALLY OR MECHANICALLY REMOVE ALL INVASIVE VEGETATION FROM ROOTS

LL PLANT INSTALLATION WILL TAKE PLACE DURING THE DORMANT SEASON (OCTOBER 15 TO MARCH 1). AY OUT VEGETATION TO BE INSTALLED PER THE PLANTING PLAN AND PLANT SCHEDULE.

AREAS IN THE BUFFER ONLY. DO NOT MULCH IN WETLANDS OR THE NATIVE POLLINATOR SEED MIX AREAS.

8. BROADCAST SPREAD RIVER LUPINE (LUPINUS RIVULARIS) OVER MULCHED AREAS.

a) HIMALAYAN BLACKBERRY, SCOTCH BROOM, REED CANARYGRASS, AND OTHER INVASIVE WOODY VEGETATION WILL BE GRUBBED OUT BY HAND ON AN ONGOING BASIS. WITH CARE TAKEN TO GRUB OUT ROOTS EXCEPT WHERE SUCH WORK WILL JEOPARDIZE THE ROOTS OF INSTALLED OR VOLUNTEER NATIVE PLANTS.

PLANT SPECIES, DENSITIES, AND SIZING

WETLAND I MITIGATION AREA

- OREGON ASH (FRAXINUS LATIFOLIA)
- SITKA SPRUCE (*PICEA SITCHENSIS*)
- BLACK TWINBERRY (LONICERA INVOLUCRATA) • DOUGLAS SPIREA (SPIRAEA DOUGLASII)
- PACIFIC NINEBARK (PHYSOCARPUS CAPITATUS)
- NOOTKA ROSE (*ROSA NUTKANA*)

BUFFER MITIGATION AREA

- BIG LEAF MAPLE (ACER MACROPHYLLUM)
- BITTER CHERRY (*PRUNUS EMARGINATA*)
- BEAKED HAZELNUT (CORYLUS CORNUTA) • OCEANSPRAY (HOLODISCUS DISCOLOR)
- SNOWBERRY (SYMPHORICARPOS ALBUS)
- RED-FLOWERING CURRANT (RIBES SANGUINEUM)
- NOOTKA ROSE (*ROSA NUTKANA*)
- ROOT.
- SWORD FERN (POLYSTICHUM MUNITUM)
- COAST STRAWBERRY (FRAGARIA CHILOENSIS)

MATERIAL SPECIFICATIONS AND DEFINITIONS

- QUALIFIED TO EVALUATE ENVIRONMENTAL RESTORATION PROJECTS.

CONTINGENCY PLAN

IF ALL OR PORTIONS OF THE MITIGATION AREA FAIL, A CONTINGENCY PLAN WILL BE IMPLEMENTED. CONTINGENCY MEASURES MAY INCLUDE PLANT SPECIES SUBSTITUTIONS, SOIL AMENDMENTS, HERBICIDE APPLICATIONS, SUPPLEMENTAL IRRIGATION, AND HERBIVORE EXCLUSION FENCING.

• TREE SPECIES - 9 FEET ON-CENTER. TREES SHALL BE MINIMUM 1-GALLON CONTAINER PLANTS OR BARE

SHRUB SPECIES - 6 FEET ON-CENTER. SHRUBS SHALL BE 1-GALLON CONTAINER PLANTS OR BARE ROOT.

TREE SPECIES - 9 FEET ON-CENTER. TREES SHALL BE 1-GALLON CONTAINER PLANTS OR BARE ROOT

SHRUB SPECIES - 6 FEET ON-CENTER. SHRUBS SHALL BE 1-GALLON CONTAINER PLANTS OR BARE ROOT.

GROUNDCOVER SPECIES - 3 FEET ON-CENTER, GROUNDCOVER PLANTS SHALL BE 4-INCH POTS OR BARE

1. RESTORATION SPECIALIST: THE WATERSHED COMPANY [(425) 822-5242] PERSONNEL OR OTHER PERSON

2. WOOD CHIP MULCH: CHIPPED WOODY MATERIAL APPROXIMATELY ONE INCH MINIMUM TO THREE INCHES IN MAXIMUM DIMENSION (NOT SAWDUST OR COARSE HOG FUEL). MULCH SHALL NOT CONTAIN APPRECIABLE QUANTITIES OF GARBAGE, PLASTIC, METAL, SOIL, AND DIMENSIONAL LUMBER OR CONSTRUCTION/ DEMOLITION DEBRIS. PACIFIC TOPSOIL SELLS SUITABLE WOODCHIP MULCH CALLED "WOOD CHIP MULCH" AT MANY OF THEIR LOCATIONS. PACIFIC TOPSOIL: (800) 884-7645. NOTE: ARBORIST WOODCHIPS GENERALLY CONTAIN WEED SEEDS AND ARE NOT A RELIABLE ALTERNATIVE.

	THE WATERSHED COMPANY 750 Sixth Street South Kirkland WA 98033 p 425.822.5242 www.watershedco.com Science & Design	
JCTION	INSPIRING KIDS PRESERVE MITIGATION PLAN PARCEL # 11928230200, -320500, -320000 CAPITOL LAND TRUST OLYMPIA, WA	
STRU	BY RH/FH FH	
L - NOT FOR CON	SUBMITTALS & REVISIONSNO.DATEDESCRIPTION108/22/20PERMIT SET205/05/23REVISED IMPACTS / SITE PLAN UPDATE38/18/2023RESPONSE TO COMMENTS111111111205/05/23REVISED IMPACTS / SITE PLAN UPDATE38/18/2023RESPONSE TO COMMENTS111	
SET	SHEET SIZE: ORIGINAL PLAN IS 22" x 34". SCALE ACCORDINGLY.	
ERMIT	PROJECT MANAGER: RK DESIGNED: LV, AK DRAFTED: AK CHECKED: LV/RH JOB NUMBER: 180842 SHEET NUMBER:	

Appendix B

WETLAND RATING FORMS

RATING SUMMARY – Western Washington

Name of wetland (or ID #):Wetland GDate of site visit: 9/3/2019Rated by:L. Dougherty, G. BrennanTrained by Ecology? $\boxtimes Y \square N$ Date of training: 10/2018

HGM Class used for rating: <u>Slope</u> Wetland has multiple HGM classes? \Box Y \boxtimes N

NOTE: Form is not complete without the figures requested (figures can be combined). Source of base aerial photo/map: <u>Google Earth</u>

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

1. Category of wetland based on FUNCTIONS

- **Category I** Total score = 23 27
- **Category II** Total score = 20 22
- **Category III** Total score = 16 19
- Category IV Total score = 9 15

FUNCTION	In Wat	nprov ter Q	/ing uality	Η	ydrolo	ogic		Habita	at	
					Circle	the ap	oropri	iate rai	tings	
Site Potential	Н	М	(L)	Н	(M)	L	Н	М		
Landscape Potential	н	М	\bigcirc	н	M	\bigcirc	H	М	L	
Value	H	Μ	L	н	М	\bigcirc	Н	M	L	ΤΟΤΑΙ
Score Based on Ratings		5			4			6		15

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	I				
Coastal Lagoon	Ι	II			
Interdunal	I II	III IV			
None of the above		\boxtimes			

Maps and figures required to answer questions correctly for Western Washington

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	1
Hydroperiods	H 1.2	1
Plant cover of dense trees, shrubs, and herbaceous plants	S 1.3	3
Plant cover of dense, rigid trees, shrubs, and herbaceous plants	S 4.1	2
(can be added to figure above)		5
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	2
1 km Polygon: Area that extends 1 km from entire wetland edge - including	H 2.1, H 2.2, H 2.3	Δ
polygons for accessible habitat and undisturbed habitat		4
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	5
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	6

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?

 \boxtimes 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.

YES – The wetland class is **Flats** \boxtimes NO – go to 3 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; \Box At least 30% of the open water area is deeper than 6.6 ft (2 m).

 \boxtimes 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?
 - \boxtimes 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**.

 \Box 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

□ 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.*

 \Box 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.

 \Box 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 being rated	HGM class to
	Pivorino
Slope + Riverine	Kiverine
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.

SLOPE WETLANDS Water Quality Functions - Indicators that the site functions to improve water quality	
S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: (a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance) □ Slope is 1% or less points = 3 □ Slope is > 1%-2% points = 2 □ Slope is > 2%-5% points = 1 ⊠ Slope is greater than 5% points = 0	0
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions): Yes = 3 No = 0	0
 S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in. □ Dense, uncut, herbaceous plants > 90% of the wetland area □ Dense, uncut, herbaceous plants > ½ of area □ Dense, woody, plants > ½ of area □ Dense, uncut, herbaceous plants > ¼ of area □ Dense, uncut, herbaceous plants > ¼ of area □ Dense, uncut, herbaceous plants > ¼ of area □ Does not meet any of the criteria above for plants 	3
Total for S 1 Add the points in the boxes above	3

Rating of Site Potential If score is: \Box **12** = H \Box **6-11** = M \boxtimes **0-5** = L

Record the rating on the first page

S 2.0. Does the landscape have the potential to support the water	quality function of the site?		
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland	in land uses that generate pollutants?	ierate pollutants?	
	□Yes = 1 ⊠ No = 0	0	
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1?		0	
Other sources	□Yes = 1 ⊠ No = 0	0	
Total for S 2	Add the points in the boxes above	0	

Rating of Landscape Potential If score is: \Box **1-2 = M** \boxtimes **0 = L**

Record the rating on the first page

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 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?	0
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? At least one aquatic resource in the basin is on the 303(d) list.	1
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? Answer YES if there is a TMDL for the basin in which unit is found. Xes = 2 No = 0	2
Total for S 3Add the points in the boxes above	3

Rating of Value If score is: $\square 2-4 = H \square 1 = M \square 0 = L$

Record the rating on the first page

SLOPE WETLANDS	
Hydrologic Functions - Indicators that the site functions to reduce flooding and stream eros	ion
S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. Stems of plants should be thick enough (usually >1/8, in), or dense enough, to remain erect during surface flows.	1
Dense, uncut, rigid plants cover > 90% of the area of the wetland points = 1	
\Box All other conditions points = 0	
Rating of Site Potential If score is: $\square 1 = \mathbf{M} \square 0 = \mathbf{L}$ Record the rating on	the first page

 S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?

 S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff?

 □ Yes = 1
 ☑ No = 0

Rating of Landscape Potential If score is: $\Box \mathbf{1} = \mathbf{M} \otimes \mathbf{0} = \mathbf{L}$

Record the rating on the first page

0

S 6.0. Are the hydrologic functions provided by the site valuable to society?	
 S 6.1. Distance to the nearest areas downstream that have flooding problems: □ The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) □ Surface flooding problems are in a sub-basin farther down-gradient □ No flooding problems anywhere downstream 	0
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	
Total for S 6Add the points in the boxes above	0

Rating of Value If score is: $\Box 2-4 = H \quad \Box 1 = M \quad \boxtimes 0 = L$

Record the rating on the first page

NOTES and FIELD OBSERVATIONS:

These questions apply to wetlands of all HGM classes.	
HABITAT FUNCTIONS - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
 H 1.1. Structure of plant community: Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be 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. Add the number of structures checked. □ Aquatic bed △ Aquatic bed △ Structures or more: points = 4 ○ Scrub-shrub (areas where shrubs have > 30% cover) □ Forested (areas where trees have > 30% cover) □ I structure: points = 0 □ If the unit has a Forested class, check if: □ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon 	1
H 1.2. Hydroperiods	
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (see text for descriptions of hydroperiods). Permanently flooded or inundated 4 or more types present: points = 3 Seasonally flooded or inundated 3 types present: points = 2 Occasionally flooded or inundated 2 types present: points = 1 Saturated only 1 type present: points = 0 Permanently flowing stream or river in, or adjacent to, the wetland 2 points Seasonally flowing stream in, or adjacent to, the wetland 2 points Image: transmitted transmitted transmitted to the wetland 2 points	0
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft ² . Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle If you counted: > 19 species ∅ 5 - 19 species ∅ < 5 species	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. <i>If you have four or more plant classes or three classes and open water, the rating is always high.</i> None = 0 points Low = 1 point All three diagrams in this row are HIGH = 3points	2

Wetland name or number: Wetland G

H 1.5. Special habitat features:	
Check the habitat features that are present in the wetland. The number of checks is the number of points.	
Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).	
\Box Standing snags (dbh > 4 in) within the wetland.	
Undercut banks are present for at least 6.6 ft (2 m) AND/OR 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).	1
□ 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).	1
At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (structures for egg-laying by amphibians).	
Invasive plants cover less than 25% of the wetland area in every stratum of plants (see H 1.1 for list of strata).	
Total for H 1Add the points in the boxes above	5

Rating of Site Potential If score is: \Box **15-18 = H** \Box **7-14 = M** \boxtimes **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 s	ite?	
H 2.1. Accessible habitat (include only habitat that directly abuts wetland unit). Calculate: $\%$ undisturbed babitat + [($\%$ moderate and low intensity land uses)/2] = 37.29	× + (14 3%/2) - 44 4%	
If total accessible habitat is:		
☑ > 1/3 (33.3%) of 1 km Polygon	points = 3	3
20-33% of 1 km Polygon	points = 2	
10-19% of 1 km Polygon	points = 1	
\Box < 10% of 1 km Polygon	points = 0	
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.		
<i>Calculate:</i> % undisturbed habitat + [(%moderate and low intensity land uses)/2 = 56.8%	+ (46.2%/2) = 79.9%	
Undisturbed habitat > 50% of Polygon	points = 3	2
\Box Undisturbed habitat 10-50% and in 1-3 patches	points = 2	5
\Box Undisturbed habitat 10-50% and > 3 patches	points = 1	
Undisturbed habitat < 10% of 1 km Polygon	points = 0	
H 2.3. Land use intensity in 1 km Polygon: If		
\Box > 50% of 1 km Polygon is high intensity land use	points = (- 2)	0
$\boxtimes \leq$ 50% of 1 km Polygon is high intensity	points = 0	
Total for H 2 Add the po	ints in the boxes above	6
Rating of Landscape Potential If score is: $\square 4-6 = H \square 1-3 = M \square < 1 = L$	Record the rating on the	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 1 □ 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 = 1 □ Site does not meet any of the criteria above points = 0

Rating of Value If score is: $\Box 2 = H \boxtimes 1 = M \Box 0 = L$ Wetland Rating System for Western WA: 2014 Update Rating Form – Effective January 1, 2015 Record the rating on the first page

Wetland name or number: Wetland G

WDFW Priority Habitats

<u>Priority habitats listed by WDFW</u> (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. <u>http://wdfw.wa.gov/publications/00165/wdfw00165.pdf</u> or access the list from here: <u>http://wdfw.wa.gov/conservation/phs/list/</u>)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE:** This question is independent of the land use between the wetland unit and the priority habitat.

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

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

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

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

□ **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

□ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

□ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

□ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

□ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

□ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

□ **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

□ **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number: Wetland G

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.	
SC 1.0. Estuarine wetlands	
Does the wetland meet the following criteria for Estuarine wetlands?	
\Box The dominant water regime is tidal,	
□ Vegetated, and	
□ With a salinity greater than 0.5 ppt □ Yes –Go to SC 1.1 ⊠ No= Not an estuarine wetland	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area	
Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?	Cat. I
\Box Yes = Category I \Box No - Go to SC 1.2	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?	
\Box The wetland is relatively undisturbed (has no diking ditching filling cultivation grazing and has	Cat. I
less than 10% cover of non-native plant species. (If non-native species are <i>Sparting</i> , see page 25)	
\square At least 3/ of the landward edge of the wetland has a 100 ft buffer of shrub forest or un-grazed or	
un- mowed grassland.	Cat. II
☐ The wetland has at least two of the following features: tidal channels, depressions with open water.	
or contiguous freshwater wetlands.	
SC 2.0. Wetlands of High Conservation Value (WHCV)	
SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High	
Conservation Value? \Box Yes – Go to SC 2.2 \Box No – Go to SC 2.3	
SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?	
http://www.dnr.wa.gov/NHPwetlandviewer	Cat. I
SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?	
http://file.dnr.wa.gov/publications/amp_nh_wetlands_trs.pdf	
\Box Yes - Contact WNHP/WDNR and go to SC 2.4 \Box NO = Not a WHCV SC 2.4. Has W/DNP identified the wetland within the S/T/P as a Wetland of High Conservation Value and listed it on	
their website?	
SC 3.0. Bogs	
Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? Use the key	
below. If you answer YES you will still need to rate the wetland based on its functions.	
SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or	
more of the first 32 in of the soil profile? \Box Yes – Go to SC 3.3 \boxtimes No – Go to SC 3.2	
SC 3.2. Does an area within the wetland unit have organic soils, either peaks or mucks, that are less than 16 in deep	
point: \Box Tes = 60 to 5C 5.5 \Box NO = 15 not a bog	Cat I
source of plant species listed in Table 42	cat. I
NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by	
measuring the nH of the water that seens into a hole dug at least 16 in deen. If the nH is less than 5.0 and the	
plant species in Table 4 are present, the wetland is a bog.	
SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar.	
western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine. AND any of the	
species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy?	
□Yes = Is a Category I bog □No = Is not a bog	

SC 4.0. Forested Wetlands	
 Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i> 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/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). 	Cat. I
□Yes = Category I ⊠No = Not a forested wetland for this section	
SC 5.0. Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? □ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks □ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (needs to be measured near the bottom)	Cat. I
SC 5.1. Does the wetland meet all of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un- mowed grassland. ☐ The wetland is larger than ¹ / ₁₀ ac (4350 ft ²) ☐ Yes = Category I ☐ No = Category II	Cat. II
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? If you answer yes you will still need to rate the wetland based on its habitat functions. In practical terms that means the following geographic areas: Long Beach Peninsula: Lands west of SR 103 Gravland Westpart: Lands west of SR 105	Cat I
□ Grayiand-Westport. Lands west of SR 105 □ Ocean Shores-Copalis: Lands west of SR 115 and SR 109 □ Yes – Go to SC 6.1 \square No = not an interdunal wetland for rating	Cat. II
SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? SC 6.2 Let be wetland 4 as an larger angle it is a magninic function of the tild it is the second score of th	Cat. III
SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? \Box Yes = Category II \Box No – Go to SC 6.3 SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? \Box Yes = Category III \Box No = Category IV	Cat. IV
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	NA

Wetland name or number: <u>Wetland G</u>

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RATING SUMMARY – Western Washington

Name of wetland (or ID #):Wetland HDate of site visit: 5/30/19, 8/29/19Rated by:L. Dougherty, G. BrennanTrained by Ecology?Y INDate of training: 10/2018

HGM Class used for rating: Depressional

Wetland has multiple HGM classes? \boxtimes Y $\ \Box$ N

NOTE: Form is not complete without the figures requested (figures can be combined). Source of base aerial photo/map: Google Earth

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

1. Category of wetland based on FUNCTIONS

- **Category I** Total score = 23 27
- Category II Total score = 20 22
- Category III Total score = 16 19
- **Category IV** Total score = 9 15

FUNCTION	In Wat	nprov ter Qi	'ing uality	H	ydrologic	I	Habitat	
		_			Circle the ap	oropri	iate ratings	
Site Potential	Н	(M)	L	Н	M) L	Н	M (L)	
Landscape Potential	Н	M	L	Н	M L	H	ML	
Value	H	Μ	L	Н	ML	Н	M L	TOT
Score Based on Ratings		7			5		6	18

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		Ι
Old Growth Forest		Ι
Coastal Lagoon	Ι	II
Interdunal	III	III IV
None of the above		\boxtimes

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	2
Location of outlet (can be added to map of hydroperiods)	D 1.1, D 4.1	2
Boundary of area within 150 ft of the wetland (can be added to another figure)	D 2.2, D 5.2	2
Map of the contributing basin	D 4.3, D 5.3	8
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	4
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	5
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	6

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?

 \boxtimes NO – go to 2

- \Box **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.

 \boxtimes NO – go to 3 \square 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?
 - \Box 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**.

 \boxtimes 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.

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.*

 \boxtimes 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.

 \Box 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 water quality		
D 1.0. Does the site have the potential to improve water quality?		
 D 1.1. <u>Characteristics of surface water outflows from the wetland</u>: ☑ Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 ☑ Wetland has an intermittently flowing stream or ditch. OR highly constricted permanently flowing outlet 		
 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing. points = 1 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. 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). \Box Yes = 4 \boxtimes No = 0	0	
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): ☑ Wetland has persistent, ungrazed, plants > 95% of area points = 5 ☑ Wetland has persistent, ungrazed, plants > 1/2 of area points = 3 ☑ Wetland has persistent, ungrazed plants > 1/10 of area points = 1 ☑ Wetland has persistent, ungrazed plants < 1/10 of area	5	
This is the area that is ponded for at least 2 months. See description in manual.	0	
Total for D 1 Add the points in the boxes above	8	
Rating of Site PotentialIf score is: \Box 12-16 = H \boxtimes 6-11 = M \Box 0-5 = LRecord the rating on the factors	irst 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? \Box Yes = 1 \boxtimes No = 0	0	
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? \square Yes = 1 \square No = 0	1	
D 2.3. Are there septic systems within 250 ft of the wetland? \Box Yes = 1 \Box 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? Source: <u>Click here to enter text.</u> □Yes = 1 ⊠ No = 0	0	

Total for D 2

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

Add the points in the boxes above

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	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? \square Yes = 1 \square No = 0	1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (answer YES if there is a TMDL for the basin in which the unit is found)? \square Yes = 2 \square No = 0	2
Total for D 3Add the points in the boxes above	3

Rating of Value If score is: $\square 2-4 = H \square 1 = M \square 0 = L$

Record the rating on the first page

1

Wetland name or number: Wetland H

DEPRESSIONAL AND FLATS WETLANDS		
Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradatio	n	
D 4.0. Does the site have the potential to reduce flooding and erosion?		
 D 4.1. <u>Characteristics of surface water outflows from the wetland</u>: ✓ Wetland is a depression or flat depression with no surface water leaving it (no outlet). ✓ Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. ✓ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. 	4	
U Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing. points = 0		
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 outlet. points = 7 □ Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet.	0	
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	З	
Total for D 4 Add the points in the boxes above	7	
Rating of Site Potential If score is: \Box 12-16 = H \boxtimes 6-11 = M \Box 0-5 = LRecord the rating on the fi	irst 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? \Box Yes = 1 \boxtimes 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 = 1 ⊠ No = 0	0	
Total for D.C. Add the points in the boyes above		
Add the points in the boxes above	1	
Rating of Landscape Potential If score is: $\Box 3 = H \ \boxtimes 1 \text{ or } 2 = M \ \Box 0 = L$ Add the points in the boxes above	1 irst page	
Rating of Landscape Potential If score is: $\Box 3 = H$ $\Box 1 \text{ or } 2 = M$ $\Box 0 = L$ Record the rating on the fi D 6.0. Are the hydrologic functions provided by the site valuable to society?	1 ïrst page	
Total for D S Add the points in the boxes above Add the points in the boxes above Rating of Landscape Potential If score is: □3 = H ⊠1 or 2 = M □0 = L Record the rating on the fi D 6.0. Are the hydrologic functions provided by the site valuable to society? D 6.1. The unit is in a landscape that has flooding problems. Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met. 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): □ Flooding occurs in a sub-basin that is immediately down-gradient of unit. □ Surface flooding problems are in a sub-basin farther down-gradient. □ points = 1 □ Flooding from groundwater is an issue in the sub-basin. □ The existing or potential outflow from the wetland is so constrained by human or natural conditions that 	1 irst page	
Add the points in the boxes above Add the points in the boxes above Rating of Landscape Potential If score is: $\Box 3 = H$ $\boxtimes 1$ or $2 = M$ $\Box 0 = L$ Record the rating on the fi D 6.0. Are the hydrologic functions provided by the site valuable to society? D 6.1. The unit is in a landscape that has flooding problems. Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met. 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): \Box Flooding occurs in a sub-basin that is immediately down-gradient of unit. \Box points = 2 \Box Surface flooding problems are in a sub-basin farther down-gradient. \Box points = 1 \Box Flooding from groundwater is an issue in the sub-basin. \Box 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. $Explain why: _$ \Box points = 0 	1 irst page	
Total for D S Add the points in the boxes above Add the points in the boxes above Rating of Landscape Potential If score is: □3 = H □1 or 2 = M □0 = L Record the rating on the fi D 6.0. Are the hydrologic functions provided by the site valuable to society? D 6.1. The unit is in a landscape that has flooding problems. Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met. 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): • □ Flooding occurs in a sub-basin that is immediately down-gradient of unit. points = 2 • • □ Flooding problems are in a sub-basin farther down-gradient. points = 1 □ □ Flooding from groundwater is an issue in the sub-basin. points = 1 □ □ 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. Explain why: points = 0 □ There are no problems with flooding downstream of the wetland. points = 0	1 irst page 0	
Rating of Landscape Potential If score is: □ 3 = H □ 1 or 2 = M □ 0 = L Record the rating on the fi D 6.0. Are the hydrologic functions provided by the site valuable to society? D 6.1. The unit is in a landscape that has flooding problems. Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met. 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): • □ Flooding occurs in a sub-basin that is immediately down-gradient of unit. points = 2 • □ Surface flooding problems are in a sub-basin farther down-gradient. points = 1 □ □ Flooding from groundwater is an issue in the sub-basin. points = 1 □ □ 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. Explain why: points = 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	1 irst page 0	

Rating of Value If score is: $\Box 2-4 = H$ $\Box 1 = M$ $\boxtimes 0 = L$

These questions apply to wetlands of all HGM classes.	
HABITAT FUNCTIONS - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
 H 1.1. Structure of plant community: Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be 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. Add the number of structures checked. □ Aquatic bed △ 4 structures or more: points = 4 ○ Emergent ○ Scrub-shrub (areas where shrubs have > 30% cover) ○ I structure: points = 1 ○ Forested (areas where trees have > 30% cover) ○ I structure: points = 0 ○ If the unit has a Forested class, check if: ○ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon 	1
H 1.2. Hydroperiods	
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (see text for descriptions of hydroperiods). Permanently flooded or inundated 4 or more types present: points = 3 Seasonally flooded or inundated 3 types present: points = 2 Occasionally flooded or inundated 2 types present: points = 1 Saturated only 1 type present: points = 0 Permanently flowing stream or river in, or adjacent to, the wetland 2 points Lake Fringe wetland 2 points Freshwater tidal wetland 2 points	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft ² . Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle If you counted: > 19 species ∅ 5 - 19 species ∅ < 5 species	1
 H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. <i>If you have four or more plant classes or three classes and open water, the rating is always high.</i> □ None = 0 points △ Low = 1 point ○ Moderate = 2 points All three diagrams in this row are □ HIGH = 3points 	1

H 1.5. Special habitat features:	
Check the habitat features that are present in the wetland. The number of checks is the number of points.	
\Box Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).	
\boxtimes Standing snags (dbh > 4 in) within the wetland.	
Undercut banks are present for at least 6.6 ft (2 m) AND/OR 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).	
\square Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree	2
slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered</i> 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 (structures for egg-laying by amphibians).	
☑ Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>).	
Total for H 1Add the points in the boxes above	6
Rating of Site Potential If score is: \Box 15-18 = H \Box 7-14 = M \boxtimes 0-6 = LRecord the rating on a second the rating on a second secon	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).	
Calculate: % undisturbed habitat + [(%moderate and low intensity land uses)/2] = 37.2% + (14.3%/2) = 44.4%	
If total accessible habitat is:	
☑ > 1/3 (33.3%) of 1 km Polygon points = 3	3
20-33% of 1 km Polygon points = 2	
10-19% of 1 km Polygon	
\Box < 10% of 1 km Polygon points = 0	
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.	
Calculate: % undisturbed habitat + [(%moderate and low intensity land uses)/2 = 56.8% + (46.2%/2) = 79.9%	
Undisturbed habitat > 50% of Polygon	2
\Box Undisturbed habitat 10-50% and in 1-3 patches points = 2	3
\Box Undisturbed habitat 10-50% and > 3 natches points = 1	

□ Undisturbed habitat < 10% of 1 km Polygon points = 0 H 2.3. Land use intensity in 1 km Polygon: If 0 \square > 50% of 1 km Polygon is high intensity land use points = (-2) $\boxtimes \leq 50\%$ of 1 km Polygon is high intensity points = 0 Total for H 2 Add the points in the boxes above 6

Rating of Landscape Potential If score is: \square **4-6 = H** \square **1-3 = M** \square **< 1 = L**

Record the rating on the 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 on	ly 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)		
\square It provides habitat for Threatened or Endangered species (any plant or animal on the second sec	ne state or federal lists)	
It is mapped as a location for an individual WDFW priority species		1
$\square~$ It is a Wetland of High Conservation Value as determined by the Department of Na	tural Resources	
$\square\;$ It has been categorized as an important habitat site in a local or regional comprehe	ensive 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 = 1	
\Box Site does not meet any of the criteria above	points = 0	
Deting of Value If approximation $\square 2 = 11$ $\square 1 = 14$ $\square 0 = 1$	Desard the rating on th	a first page

Rating of Value If score is: $\Box 2 = H \boxtimes 1 = M \Box 0 = L$

Record the rating on the first page

WDFW Priority Habitats

<u>Priority habitats listed by WDFW</u> (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. <u>http://wdfw.wa.gov/publications/00165/wdfw00165.pdf</u> or access the list from here: <u>http://wdfw.wa.gov/conservation/phs/list/</u>)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE:** This question is independent of the land use between the wetland unit and the priority habitat.

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

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

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

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

□ **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

□ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

□ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

□ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

□ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).

□ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

□ **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

□ **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.	
SC 1.0. Estuarine wetlands	
Does the wetland meet the following criteria for Estuarine wetlands?	
□ The dominant water regime is tidal,	
Vegetated, and	
□ With a salinity greater than 0.5 ppt □Yes –Go to SC 1.1 ⊠No= Not an estuarine wetland	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area	
Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?	Cat. I
\Box Yes = Category I \Box No - Go to SC 1.2	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?	
☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has	Cat. I
less than 10% cover of non-native plant species. (If non-native species are Spartina, see page 25)	
\Box At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or	
un- mowed grassland.	Cat. II
\Box The wetland has at least two of the following features: tidal channels, depressions with open water,	
or contiguous freshwater wetlands.	
SC 2.0 Wetlands of High Conservation Value (WHCV)	
SC 2.1. Has the WA Department of Natural Resources undated their website to include the list of Wetlands of High	
Conservation Value? \square \square Yes – Go to SC 2.2 \square No – Go to SC 2.3	
SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?	
http://www.dnr.wa.gov/NHPwetlandviewer	
SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?	Cat. I
http://file.dnr.wa.gov/publications/amp_nh_wetlands_trs.pdf	
□Yes – Contact WNHP/WDNR and go to SC 2.4 □No = Not a WHCV	
SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on	
their website?	
SC 3.0. Bogs	
Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? Use the key	
below. If you answer YES you will still need to rate the wetland based on its functions.	
SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or	
more of the first 32 in of the soil profile? \Box Yes – Go to SC 3.3 \boxtimes No – Go to SC 3.2	
SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep	
over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or	
pond? \Box Yes – Go to SC 3.3 \boxtimes No = Is not a bog	.
SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30%	Cat. I
cover of plant species listed in Table 4? \Box Yes = Is a Category I bog \Box No – Go to SC 3.4	
NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by	
nieasuring the prior the water that seeps into a noie dug at least 16 in deep. If the prior is less than 5.0 and the	
SC = 3.4 Is an area with neats or mucks forested (> 30% cover) with Sitka shruce subalning fir western red codar	
western hemlock, lodgepole pine, quaking aspen. Engelmann spruce, or western white nine AND any of the	
species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy?	
□Yes = Is a Category I bog □No = Is not a	

SC 4.0. Forested Wetlands	
 Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i> 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/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). 	
SC 5.0. Wetlands in Coastal Lagoons	
Sc 5.0. Wethands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? □ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks □ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (needs to be measured near the bottom) □ Yes – Go to SC 5.1 ⊠ No = Not a wetland in a coastal lagoon SC 5.1. Does the wetland meet all of the following three conditions? □ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). □ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un- mowed grassland. □ The wetland is larger than ¹ / ₁₀ ac (4350 ft ²)	Cat. I Cat. II
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? If you answer yes you will still need to rate the wetland based on its habitat functions. In practical terms that means the following geographic areas: Long Beach Peninsula: Lands west of SR 103	Cat I
Grayland-Westport: Lands west of SR 105 Ocean Shores-Copalis: Lands west of SR 115 and SR 109 Pyes − Go to SC 6.1 ⊠No = not an interdunal wetland for rating SC 6.1 to the wetland 1 as an leaven and essential as a factor of the hebitate functions on the form (rates HULL or	Cat. II
SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? □Yes = Category I □No – Go to SC 6.2 SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? □	Cat. III
□ Yes = Category II □ No – Go to SC 6.3 SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? □ Yes = Category III □ No = Category IV	Cat. IV
Category of wetland based on Special Characteristics	NA
IT you answered No for all types, enter "Not Applicable" on Summary Form	

Wetland name or number: Wetland H

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RATING SUMMARY – Western Washington

Name of wetland (or ID #):Wetland IDate of site visit: 5/30/19, 8/29/19Rated by:L. Dougherty, G. BrennanTrained by Ecology?Y \Box NDate of training: 10/2018

HGM Class used for rating: Depressional

Wetland has multiple HGM classes? \boxtimes Y \Box N

NOTE: Form is not complete without the figures requested (figures can be combined). Source of base aerial photo/map: Google Earth

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

1. Category of wetland based on FUNCTIONS

- **Category I** Total score = 23 27
- Category II Total score = 20 22
- Category III Total score = 16 19
- **Category IV** Total score = 9 15

FUNCTION	Improving Water Quality		H	ydrologic		Habitat			
	Circle the appropriate ratings								
Site Potential	Н	(M)	L	Н	(M) L	Н	(M)	L	
Landscape Potential	Н	M	L	Н	M L	(H)	М	L	
Value	H	Μ	L	Н	ML	Н	M	L	TOT
Score Based on Ratings		7			5		7		19

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	I II	III IV		
None of the above		\boxtimes		

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	2
Location of outlet (can be added to map of hydroperiods)	D 1.1, D 4.1	2
Boundary of area within 150 ft of the wetland (can be added to another figure)	D 2.2, D 5.2	2
Map of the contributing basin	D 4.3, D 5.3	8
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	4
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	5
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	6
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?

 \boxtimes NO – go to 2

- \Box **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.

 \boxtimes NO – go to 3 \square 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?
 - \Box 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**.

 \boxtimes 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.

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.*

 \boxtimes 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.

 \Box 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 imp	prove water quality	
D 1.0. Does the site have the potential to improve water quality?		
 D 1.1. <u>Characteristics of surface water outflows from the wetland</u>: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface wate Wetland has an intermittently flowing stream or ditch, OR highly constricted perman Wetland has an unconstricted, or slightly constricted, surface outlet that is permanent Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flow 	er leaving it (no outlet). points = 3 nently flowing outlet. points = 2 ntly flowing. points = 1 wing ditch. points = 1	3
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS defined	<i>itions).</i> \Box Yes = 4 \boxtimes No = 0	0
 D 1.3. <u>Characteristics and distribution of persistent plants</u> (Emergent, Scrub-shrub, and/or Fore ☑ Wetland has persistent, ungrazed, plants > 95% of area □ Wetland has persistent, ungrazed, plants > 1/2 of area □ Wetland has persistent, ungrazed plants > 1/10 of area □ Wetland has persistent, ungrazed plants < 1/10 of area □ Wetland has persistent, ungrazed plants < 1/10 of area □ Wetland has persistent, ungrazed plants < 1/10 of area □ Wetland has persistent, ungrazed plants < 1/10 of area □ D 1.4. <u>Characteristics of seasonal ponding or inundation</u>: <i>This is the area that is ponded for at least 2 months. See description in manual.</i> □ 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 	sted Cowardin classes): points = 5 points = 3 points = 1 points = 0 points = 4 points = 2 points = 0	5
Total for D 1 Add the poir	nts in the boxes above	8
Rating of Site Potential If score is: \Box 12-16 = H \boxtimes 6-11 = M \Box 0-5 = L	Record the rating on the fi	rst 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?	\Box Yes = 1 \boxtimes No = 0	0
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	\boxtimes Yes = 1 \square No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland?	\Box Yes = 1 \boxtimes 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? Source: <u>Click here to enter text</u> .	□Yes = 1 ⊠ No = 0	0
Total for D 2 Add the point	nts in the boxes above	1

Rating of Landscape Potential If score is: \Box **3 or 4 = H** \boxtimes **1 or 2 = M** \Box **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
 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 (answer YES if there is a TMDL for the basin in which the unit is found)?
 ☑Yes = 2 □ No = 0
 2

 Total for D 3
 Add the points in the boxes above
 3

Rating of Value If score is: $\square 2-4 = H \square 1 = M \square 0 = L$

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation D 4.0. Does the site have the potential to reduce flooding and erosion? D 4.1. Characteristics of surface water cullbows from the wetland:	DEPRESSIONAL AND FLATS WETLANDS		
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 dipression of 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 outlet. Points = 1 Vetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 0 D 4.2. Depth of storage during way tendogs. Stimute 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 port. Marks of ponding are 3 ft or more above the surface or bottom of outlet. Points = 3 Wetland is flat but has small depressions on the surface that trap water. Marks of ponding are 3 ft from surface or bottom of outlet. Points = 3 Wetland is flat but has small depressions on the surface that trap water. Marks of ponding subwer than 0.5 ft (in). D 4.3. Contribution of the wetland to the area of the wetland unit itself. The area of the basin is 10 to 100 times the area of the unit. Points = 5 D 4.2. Beth of storage unit water wetland to the area of the unit. Points = 5 D 4.3. Contribution of the wetland to the area of the unit. Points = 5 D 4.3. Contribution since than 100 times the area of the unit. Points = 5 D 4.4. Contribution since than 100 times the area of the unit. Points = 5 D 5.0. Does the landscape have the potential to support hydrologic functions of the size? D 5.1. Does the landscape have the potential to support hydrologic functions of the size? D 5.0. Does the landscape have the potential to support hydrologic functions of the size above 1.3. Add the points in the boxes above 1.3. Add the points in the boxes above 1.3. Add the points in the boxes above 1.3. Since than 25% of the core is: I 2-16 = H I ≤ 0 = L Record the rating on the first poge D 5.0. Does the landscape have the potential to support hydrologic functions of the size is an	Hydrologic Functions - Indicators that the site functions to reduce flooding a	nd stream degradation	on
0-4.1. Characteristics of surface water evaluation is a depression of flat depression with no surface water leaving it (no outlet). points = 4 □ Wetland has an intermittently flowing stream or dick1, 0R highly constricted permanently flowing. points = 1 □ Wetland has an intermittently flowing stream or dick1, 0R highly constricted permanently flowing. points = 1 □ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing. points = 0 0 D.4.2. Depth of storage during wet periods: (stimote the hight of ponding above the bottom of the utilet. For wetlands with no outlet, measure from the surface or potontom of outlet. points = 7 □ Marks of ponding are 3 ft or more above the surface or bottom of outlet. points = 3 □ The wetland is flat but has small depressions on the surface that trap water. points = 3 □ Marks of ponding leave than 0.5 ft (6 in). points = 5 0 A.3. Contribution of the wetland to the area of the unit. points = 5 □ The area of the basin is less than 100 times the area of the unit. points = 5 □ The area of the basin is 10 to 100 times the area of the unit. points = 5 □ The area of the basin is 10 to 100 times the area of the unit. points = 5 □ The area of the basin is 10 to 100 times the area	D 4.0. Does the site have the potential to reduce flooding and erosion?		
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. points = 7 Marks of ponding as 1 ft or orce above the surface or bottom of outlet. points = 7 Marks of ponding as 1 ft or orce above the surface or bottom of outlet. points = 3 O Wetland is fit but has small depressions on the surface that trap water. points = 1 Marks of ponding less than 0.5 ft (6 in). points = 0 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 watin. points = 5 The area of the basin is less than 100 times the area of the unit. points = 5 Total for D 4 Add the points in the boxes above 7 Rating of Site Potential I fscore is: 12.16 = H ⊠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? 0 0 D 5.1. Is nore than 25% of the contributing basin of the wetland covered with intensive human land uses (reidential at >1 residence/ac, urban, commercial, agriculture, etc.)? Add the points in the boxes above 1 D 5.2. Is sorte the hydrologic functions provided by the sits valuable to society? 0 <t< td=""><td> D 4.1. <u>Characteristics of surface water outflows from the wetland</u>: Wetland is a depression or flat depression with no surface water leaving it (no outlet). Wetland has an intermittently flowing stream or ditch, OR highly constricted permanent flowing outlet. Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently </td><td>points = 4 ty g ditch. points = 1 flowing. points = 0</td><td>4</td></t<>	 D 4.1. <u>Characteristics of surface water outflows from the wetland</u>: Wetland is a depression or flat depression with no surface water leaving it (no outlet). Wetland has an intermittently flowing stream or ditch, OR highly constricted permanent flowing outlet. Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently 	points = 4 ty g ditch. points = 1 flowing. points = 0	4
D.4.3. Contribution of the wetland to storage in the watershed; Estimate the ratio of the area of upstream basin	 D 4.2. Depth of storage during wet periods: Estimate the height of ponding above the bottom of the 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 outlet. Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet. Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet. The wetland is a "headwater" wetland. Wetland is flat but has small depressions on the surface that trap water. Marks of ponding less than 0.5 ft (6 in). 	e outlet. For wetlands points = 7 points = 5 points = 3 points = 3 points = 1 points = 0	0
Total for D 4 Add the points in the boxes above 7 Rating of Site Potential If score is: □ 21-16 = H ○ 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? 0 0 D 5.1. Does the wetland receive stormwater discharges? □ Yes = 1 ○ No = 0 1 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 = 1 ○ No = 0 1 Total for D 5 Add the points in the boxes above 1 1 Rating of Landscape Potential If score is: □ 3 = H ○ 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. The unit is in a landscape that has flooding problems. Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the description that best matches conditions around the wetland captures surface water that would otherwise flow down-gradient of unit. points = 2 • □ Flooding problems are in a sub-basin farther down-gradient of unit. points = 1 0 • □ Flooding from groundwater is an iss	 D 4.3. Contribution of the wetland to storage in the watershed: Estimate the ratio of the area of up 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. ∞ The area of the basin is 10 to 100 times the area of the unit. □ The area of the basin is more than 100 times the area of the unit. □ The area of the basin is more than 100 times the area of the unit. □ The area of the basin is more than 100 times the area of the unit. □ The area of the basin is more than 100 times the area of the unit. □ The area of the basin is more than 100 times the area of the unit. □ The area of the basin is more than 100 times the area of the unit. □ Entire wetland is in the Flats class.	stream basin points = 5 points = 3 points = 0 points = 5	3
Rating of Site Potential If score is: □12-16 = H □6-5 = L Record the rating on the first page D 5.0. Does the landscape have the potential to support hydrologic functions of the site? □ 0 D 5.1. Does the wetland receive stormwater discharges? □Yes = 1 ○ No = 0 1 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 = 1 ○ No = 0 0 Total for D 5 Add the points in the boxes above 1 1 Rating of Landscape Potential If score is: □3 = H □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. The unit is in a landscape that has flooding problems. Choose the description that best matches conditions around 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): • □ Flooding occurs in a sub-basin that is immediately down-gradient of unit. points = 2 0 • □ Surface flooding problems are in a sub-basin. points = 1 0 □ The existing or potential o	Total for D 4 Add the points in	n the boxes above	7
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Total for D 5 Add the points in the boxes above 1 Rating of Landscape Potential If score is: I a = H I or 2 = M I or 3 = M	D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human lan >1 residence/ac, urban, commercial, agriculture, etc.)?	nd uses (residential at □Yes = 1 ⊠ No = 0	0
Rating of Landscape Potential If score is: □3 = H ⊠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. The unit is in a landscape that has flooding problems. Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met. 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): □ Flooding problems are in a sub-basin that is immediately down-gradient of unit. points = 2 □ Surface flooding problems are in a sub-basin. points = 1 □ Flooding from groundwater is an issue in the sub-basin. points = 1 □ 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. Explain why: points = 0 □ There are no problems with flooding downstream of the wetland. points = 0 D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Total for D 5Add the points in	n the boxes above	1
D 6.0. Are the hydrologic functions provided by the site valuable to society? D 6.1. The unit is in a landscape that has flooding problems. Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met. 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): □ Flooding occurs in a sub-basin that is immediately down-gradient of unit. □ Surface flooding problems are in a sub-basin farther down-gradient. □ Flooding from groundwater is an issue in the sub-basin. □ 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. Explain why: points = 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 □ Total for D 6 Add the points in the boxes above 0 	Rating of Landscape Potential If score is: $\Box 3 = H \boxtimes 1 \text{ or } 2 = M \square 0 = L$	Record the rating on the j	first page
D 6.1. The unit is in a landscape that has flooding problems. Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met. 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): □ Flooding occurs in a sub-basin that is immediately down-gradient of unit. □ Surface flooding problems are in a sub-basin farther down-gradient. □ Flooding from groundwater is an issue in the sub-basin. □ 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. Explain why: points = 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 □ Total for D 6 Add the points in the boxes above 0 O add the points in the boxes above	D 6.0. Are the hydrologic functions provided by the site valuable to society?		
Explain why:	 D 6.1. <u>The unit is in a landscape that has flooding problems</u>. Choose the description that best matches the wetland unit being rated. Do not add points. <u>Choose the highest score if more than one of</u> The wetland captures surface water that would otherwise flow down-gradient into areas who damaged human or natural resources (e.g., houses or salmon redds): □ Flooding occurs in a sub-basin that is immediately down-gradient of unit. □ Surface flooding problems are in a sub-basin farther down-gradient. □ Flooding from groundwater is an issue in the sub-basin. □ The existing or potential outflow from the wetland is so constrained by human or natura the water stored by the wetland sannet reach areas that flood 	thes conditions around condition is met. here flooding has points = 2 points = 1 points = 1 l conditions that	0
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? $\Box Yes = 2 \boxtimes No = 0$ Total for D 6 Add the points in the boxes above 0	The water stored by the wetland cannot reach areas that flood. Explain why:	points = 0 points = 0	
Total for D 6 Add the points in the boxes above 0	D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional	flood control plan?	0

Rating of Value If score is: $\Box 2-4 = H$ $\Box 1 = M$ $\boxtimes 0 = L$

These questions apply to wetlands of all HGM classes.	
HABITAT FUNCTIONS - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
H 1.1. Structure of plant community: Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be 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. Add the number of structures checked. □ Aquatic bed 4 structures or more: points = 4 ⊠ Emergent 3 structures: points = 2 ⊠ Scrub-shrub (areas where shrubs have > 30% cover) 2 structures: points = 1 □ Forested (areas where trees have > 30% cover) 1 structure: points = 0 If the unit has a Forested class, check if: □ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon 1	1
H 1.2. Hydroperiods	
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (see text for descriptions of hydroperiods). Permanently flooded or inundated 4 or more types present: points = 3 Seasonally flooded or inundated 3 types present: points = 2 Occasionally flooded or inundated 2 types present: points = 1 Saturated only 1 type present: points = 0 Permanently flowing stream or river in, or adjacent to, the wetland 2 points Seasonally flowing stream in, or adjacent to, the wetland 2 points Freshwater tidal wetland 2 points	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft ² . Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle If you counted: ≥ 19 species □ 5 - 19 species □ < 5 species	2
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. <i>If you have four or more plant classes or three classes and open water, the rating is always high.</i> None = 0 points Low = 1 point All three diagrams in this row are HIGH = 3points	2

H 1.5. Special habitat features:		
Check the habitat features that are present in the wetland. The number of checks is the	e number of points.	
\boxtimes Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).		
\Box Standing snags (dbh > 4 in) within the wetland.		
Undercut banks are present for at least 6.6 ft (2 m) AND/OR overhanging plants exion over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m).	tends at least 3.3 ft (1 m)	
\square Stable steep banks of fine material that might be used by beaver or muskrat for d	lenning (> 30 degree	1
slope) OR signs of recent beaver activity are present (cut shrubs or trees that have where wood is exposed).	ve not yet weathered	
At least ¼ ac of thin-stemmed persistent plants or woody branches are present in a permanently or seasonally inundated (structures for equilibrium by amphibians)	reas that are	
\square Invasive plants cover less than 25% of the wetland area in every stratum of plants (see H 1 1 for list of	
strata).	see 11 1.1 joi 11st 0j	
Total for H 1 Add the po	oints in the boxes above	7
Rating of Site Potential If score is: \Box 15-18 = H \boxtimes 7-14 = M \Box 0-6 = L	Record the rating on t	the first page
H 2.0. Does the landscape have the potential to support the habitat functions of the	site?	
H 2.0. Does the landscape have the potential to support the habitat functions of the H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>).	site?	
 H 2.0. Does the landscape have the potential to support the habitat functions of the H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>). <i>Calculate:</i> % undisturbed habitat + [(%moderate and low intensity land uses)/2] = 37.2 	site? 2% + (14.3%/2) = 44.4%	
 H 2.0. Does the landscape have the potential to support the habitat functions of the and the support the habitat functions of the support functions of the supervise of the supervise of the supervise of the support functions of the supervise of the	site? 2% + (14.3%/2) = 44.4%	
 H 2.0. Does the landscape have the potential to support the habitat functions of the 1 H 2.1. Accessible habitat (include only habitat that directly abuts wetland unit). Calculate: % undisturbed habitat + [(%moderate and low intensity land uses)/2] = 37.2 If total accessible habitat is: ≥ 1/3 (33.3%) of 1 km Polygon 	site? 2% + (14.3%/2) = 44.4% points = 3	3
 H 2.0. Does the landscape have the potential to support the habitat functions of the analysis of the second sec	site? 2% + (14.3%/2) = 44.4% points = 3 points = 2	3
 H 2.0. Does the landscape have the potential to support the habitat functions of the analysis of the second sec	site? 2% + (14.3%/2) = 44.4% points = 3 points = 2 points = 1	3
 H 2.0. Does the landscape have the potential to support the habitat functions of the analysis of the second sec	site? 2% + (14.3%/2) = 44.4% points = 3 points = 2 points = 1 points = 0	3
 H 2.0. Does the landscape have the potential to support the habitat functions of the H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>). <i>Calculate:</i> % undisturbed habitat + [(%moderate and low intensity land uses)/2] = 37.3 If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon	site? 2% + (14.3%/2) = 44.4% points = 3 points = 2 points = 1 points = 0	3
 H 2.0. Does the landscape have the potential to support the habitat functions of the analysis of the second sec	site? 2% + (14.3%/2) = 44.4% points = 3 points = 2 points = 1 points = 0 % + (46.2%/2) = 79.9%	3
 H 2.0. Does the landscape have the potential to support the habitat functions of the H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>). <i>Calculate:</i> % undisturbed habitat + [(%moderate and low intensity land uses)/2] = 37.3 If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon	site? 2% + (14.3%/2) = 44.4% points = 3 points = 2 points = 1 points = 0 % + (46.2%/2) = 79.9% points = 3	3
 H 2.0. Does the landscape have the potential to support the habitat functions of the H 2.1. Accessible habitat (include only habitat that directly abuts wetland unit). Calculate: % undisturbed habitat + [(%moderate and low intensity land uses)/2] = 37.3 If total accessible habitat is: Solve > 1/3 (33.3%) of 1 km Polygon 20-33% of 1 km Polygon 10-19% of 1 km Polygon + 10% of 1 km Polygon + 2.2. Undisturbed habitat in 1 km Polygon around the wetland. Calculate: % undisturbed habitat + [(%moderate and low intensity land uses)/2 = 56.8% Undisturbed habitat > 50% of Polygon Undisturbed habitat 10-50% and in 1-3 patches 	site? 2% + (14.3%/2) = 44.4% points = 3 points = 2 points = 1 points = 0 % + (46.2%/2) = 79.9% points = 3 points = 2	3
 H 2.0. Does the landscape have the potential to support the habitat functions of the analysis of the second sec	site? 2% + (14.3%/2) = 44.4% points = 3 points = 1 points = 0 % + (46.2%/2) = 79.9% points = 3 points = 2 points = 1	3
 H 2.0. Does the landscape have the potential to support the habitat functions of the first of the support the habitat functions of the first of the support the habitat functions of the first of the support of the support the habitat functions of the first of the support of the support of the support of the first of the support of the first of the support of the first of the support o	site? 2% + (14.3%/2) = 44.4% points = 3 points = 2 points = 1 points = 0 % + (46.2%/2) = 79.9% points = 3 points = 2 points = 1 points = 0	3

Total for H 2

Rating of Landscape Potential If score is: \square **4-6 = H** \square **1-3 = M** \square **< 1 = L**

 \square > 50% of 1 km Polygon is high intensity land use

 $\boxtimes \leq 50\%$ of 1 km Polygon is high intensity

Record the rating on the first page

0

6

points = (-2)

points = 0

Add the points in the boxes above

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	e highest score	
that applies to the wetland being rated.		
Site meets ANY of the following criteria:	points = 2	
\Box It has 3 or more priority habitats within 100 m (see next page)		
\square It provides habitat for Threatened or Endangered species (any plant or animal on the sta	ate or federal lists)	
It is mapped as a location for an individual WDFW priority species		1
\square It is a Wetland of High Conservation Value as determined by the Department of Natural	Resources	
\square It has been categorized as an important habitat site in a local or regional comprehensive	e 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 = 1	
\Box Site does not meet any of the criteria above	points = 0	

Rating of Value If score is: $\Box 2 = H \boxtimes 1 = M \Box 0 = L$

Wetland Rating System for Western WA: 2014 Update Rating Form – Effective January 1, 2015

WDFW Priority Habitats

<u>Priority habitats listed by WDFW</u> (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. <u>http://wdfw.wa.gov/publications/00165/wdfw00165.pdf</u> or access the list from here: <u>http://wdfw.wa.gov/conservation/phs/list/</u>)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE:** This question is independent of the land use between the wetland unit and the priority habitat.

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

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

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

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

□ **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

□ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

□ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

□ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

□ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).

□ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

□ **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

□ **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.	
SC 1.0. Estuarine wetlands	
Does the wetland meet the following criteria for Estuarine wetlands?	
□ The dominant water regime is tidal,	
U Vegetated, and	
☐ With a salinity greater than 0.5 ppt ☐ Yes –Go to SC 1.1 ⊠No= Not an estuarine wetland	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?	Cat. I
$\Box Yes = Category I \Box NO - GO to SC 1.2$	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?	Cat I
L The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has	cut. I
\square At least 3 of the landward edge of the wetland has a 100 ft huffer of shrub forest or un-grazed or	
un- mowed grassland.	Cat. II
The wetland has at least two of the following features: tidal channels, depressions with open water,	
or contiguous freshwater wetlands. Yes = Category I No= Category II	
SC 2.0. Wetlands of High Conservation Value (WHCV)	
SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High	
Conservation Value? \Box Yes – Go to SC 2.2 \Box No – Go to SC 2.3	
SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?	
http://www.dnr.wa.gov/NHPwetlandviewer	Cat I
SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?	Cutt
http://file.dnr.wa.gov/publications/amp_nh_wetlands_trs.pdf	
\Box Yes – Contact WNHP/WDNR and go to SC 2.4 \Box NO = Not a WHCV SC 2.4 Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on	
their website?	
Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? Use the key	
below. If you answer YES you will still need to rate the wetland based on its functions.	
SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or	
more of the first 32 in of the soil profile? \Box Yes – Go to SC 3.3 \boxtimes No – Go to SC 3.2	
SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep	
over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or	
pond? \Box Yes – Go to SC 3.3 \boxtimes No = Is not a bog	
SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30%	Cat. I
cover of plant species listed in Table 4? \Box Yes = Is a Category I bog \Box No – Go to SC 3.4	
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 in deep. If the pH is less than 5.0 and the	
SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce subalnine fir western red cedar	
western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine. AND any of the	
species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy?	
□Yes = Is a Category I bog □No = Is not a	

SC 4.0. Forested Wetlands	
 Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i> 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/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). 	Cat. I
\Box Yes = Category I \Box No = Not a forested wetland for this section	
SC 5.0. Wetlands in Coastal Lagoons	
Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?	
The wetland lies in a depression adjacent to marine waters that is whelly or partially separated	
from marine waters by candbanks, gravel banks, shingle, or loss frequently rocks	
The less an in which the wetland is less to desute in a non-ded wetset that is called an here list (). O 5	
□ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5	
ppt) during most of the year in at least a portion of the lagoon (needs to be measured hear the	Cat. I
bottom)	
\Box Yes – Go to SC 5.1 \Box No = Not a wetland in a coastal lagoon	
SC 5.1. Does the wetland meet all of the following three conditions?	
\Box The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has	Cat. II
less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).	
\square At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or	
un- mowed grassland.	
\Box The wetland is larger than $1/_{10}$ ac (4350 ft ²)	
□Yes = Category I □No = Category II	
SC 6.0. Interdunal Wetlands	
Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? If	
you answer yes you will still need to rate the wetland based on its habitat functions.	
In practical terms that means the following geographic areas:	
\Box Long Beach Peninsula: Lands west of SR 103	
\square Gravland-Westnort: Lands west of SR 105	
\Box Ocean Shores Condic: Lands west of SP 115 and SP 100	
\Box Ocean Shores-Copans. Lands west of SK 113 and SK 105	Cat. II
$\Box 165 - 60 \text{ to } 50 \text{ to } 5$	
SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M	
for the three aspects of function)? \Box Yes = Category I \Box No – Go to SC 6.2	Cat. III
SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?	
□Yes = Category II □No – Go to SC 6.3	
SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?	Cat. IV
□Yes = Category III □No = Category IV	
Category of wetland based on Special Characteristics	
If you answered No for all types, enter "Not Applicable" on Summary Form	NA
in you answered no for an types, enter inot Applicable off Suffittery Form	

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RATING SUMMARY – Western Washington

Name of wetland (or ID #):Wetland JDate of site visit: 9/3/2019Rated by: L. Dougherty, G. BrennanTrained by Ecology? $\boxtimes Y \square N$ Date of training: 10/2018

HGM Class used for rating: <u>Slope</u> Wetland has multiple HGM classes? \Box Y \boxtimes N

NOTE: Form is not complete without the figures requested (figures can be combined). Source of base aerial photo/map: <u>Google Earth</u>

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

1. Category of wetland based on FUNCTIONS

- **Category I** Total score = 23 27
- **Category II** Total score = 20 22
- Category III Total score = 16 19
- **Category IV** Total score = 9 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
		Circle the ap	propriate ratings	
Site Potential	H (M) L	H (M) L	H M L	
Landscape Potential	H M L	HML	H M L	
Value	H M L	H M L	H M L	ΤΟΤΑΙ
Score Based on Ratings	6	4	6	16

Score for each function based on three ratings (order of ratings is not important) 9 = H,H,H

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	CATE	GORY
Estuarine	Ι	II
Wetland of High Conservation Value		Ι
Bog		Ι
Mature Forest		Ι
Old Growth Forest		Ι
Coastal Lagoon	Ι	II
Interdunal	I II	III IV
None of the above		\boxtimes

Maps and figures required to answer questions correctly for Western Washington

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	1
Hydroperiods	H 1.2	1
Plant cover of dense trees, shrubs, and herbaceous plants	S 1.3	3
Plant cover of dense, rigid trees, shrubs, and herbaceous plants	S 4.1	2
(can be added to figure above)		5
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	2
1 km Polygon: Area that extends 1 km from entire wetland edge - including	H 2.1, H 2.2, H 2.3	Δ
polygons for accessible habitat and undisturbed habitat		4
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	5
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	6

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?

 \boxtimes 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.

YES – The wetland class is **Flats** \boxtimes NO – go to 3 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; \Box At least 30% of the open water area is deeper than 6.6 ft (2 m).

 \boxtimes 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?
 - \boxtimes 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**.

 \Box 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

□ 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.*

 \Box 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.

 \Box 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 being rated	HGM class to 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.

SLOPE WETLANDS Water Quality Functions - Indicators that the site functions to improve water quality					
S 1.0. Does the site have the potential to improve water quality?					
S 1.1. Characteristics of the average slope of the wetland: (a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance) □ Slope is 1% or less points = 3 □ Slope is > 1%-2% points = 2 ⊠ Slope is > 2%-5% points = 1 □ Slope is greater than 5% points = 0	1				
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions): Yes = 3 No = 0	0				
 S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in. ☑ Dense, uncut, herbaceous plants > 90% of the wetland area □ Dense, uncut, herbaceous plants > ½ of area □ Dense, woody, plants > ½ of area □ Dense, uncut, herbaceous plants > ¼ of area □ Dense, uncut, herbaceous plants > ¼ of area □ Dense, uncut, herbaceous plants > ¼ of area 	6				
 Does not meet any of the criteria above for plants points = 0 					
Total for S 1 Add the points in the boxes above					

Rating of Site Potential If score is: \Box **12 = H** \boxtimes **6-11 = M** \Box **0-5 = L**

Record the rating on the first page

S 2.0. Does the landscape have the potential to support the water quality function of the site?					
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants?					
\Box Yes = 1 \boxtimes No = 0					
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1?					
Other sources	□Yes = 1 ⊠ No = 0	U			
Total for S 2	Add the points in the boxes above	0			

Rating of Landscape Potential If score is: \Box **1-2 = M** \boxtimes **0 = L**

Record the rating on the first page

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 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?	0
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? At least one aquatic resource in the basin is on the 303(d) list.	1
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? Answer YES if there is a TMDL for the basin in which unit is found. Xes = 2 No = 0	2
Total for S 3Add the points in the boxes above	3

Rating of Value If score is: $\square 2-4 = H \square 1 = M \square 0 = L$

SLOPE WETLANDS	
Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosi	on
S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
 S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. Stems of plants should be thick enough (usually >1/8₈ in), or dense enough, to remain erect during surface flows. ☑ Dense, uncut, rigid plants cover > 90% of the area of the wetland 	1
\square All other conditions points = 0	
Rating of Site Potential If score is: $\square 1 = \mathbf{M} \square 0 = \mathbf{L}$ Record the rating on the second the second	he first page

S 5.0. Does the landscape have the potential to support the hydrologic funct	ons of the site?			
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or o runoff?	over that generate excess surface	0		
Rating of Landscape Potential If score is: $\Box 1 = \mathbf{M} \ \boxtimes 0 = \mathbf{L}$ Record the rating on the first pa				

S 6.0. Are the hydrologic functions provided by the site valuable to society?				
 S 6.1. Distance to the nearest areas downstream that have flooding problems: □ The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) □ Surface flooding problems are in a sub-basin farther down-gradient □ No flooding problems anywhere downstream 				
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?				
Total for S 6Add the points in the boxes above	0			

Rating of Value If score is: $\Box 2-4 = H$ $\Box 1 = M$ $\boxtimes 0 = L$

Record the rating on the first page

NOTES and FIELD OBSERVATIONS:

These questions apply to wetlands of all HGM classes.	
HABITAT FUNCTIONS - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
 H 1.1. Structure of plant community: Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be 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. Add the number of structures checked. □ Aquatic bed △ Aquatic bed △ Structures or more: points = 4 ○ Emergent ○ Scrub-shrub (areas where shrubs have > 30% cover) ○ I structure: points = 1 ○ Forested (areas where trees have > 30% cover) ○ I structure: points = 0 ○ If the unit has a Forested class, check if: ○ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) ○ that each cover 20% within the Forested polygon 	1
H 1.2. Hydroperiods	
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (see text for descriptions of hydroperiods). Permanently flooded or inundated 4 or more types present: points = 3 Seasonally flooded or inundated 3 types present: points = 2 Occasionally flooded or inundated 2 types present: points = 1 Saturated only 1 type present: points = 0 Permanently flowing stream or river in, or adjacent to, the wetland 2 points Seasonally flowing stream in, or adjacent to, the wetland 2 points Image: transmitted transmitted transmitted to the wetland 2 points	0
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft ² . Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle If you counted: > 19 species ∅ 5 - 19 species ∅ < 5 species	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. <i>If you have four or more plant classes or three classes and open water, the rating is always high.</i> None = 0 points Low = 1 point All three diagrams in this row are HIGH = 3points	1

Wetland name or number: Wetland J H 1.5. Special habitat features: Check the habitat features that are present in the wetland. The number of checks is the number of points. ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). \Box Standing snags (dbh > 4 in) within the wetland. Undercut banks are present for at least 6.6 ft (2 m) AND/OR 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). 1 □ 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 (structures for egg-laying by amphibians). □ Invasive plants cover less than 25% of the wetland area in every stratum of plants (see H 1.1 for list of strata). Total for H 1 Add the points in the boxes above 4

Rating of Site Potential If score is: \Box **15-18 = H** \Box **7-14 = M** \boxtimes **0-6 = L**

Record the rating on the first page

H 2.0. Does the landscape have the potential to support the habitat function	ns of the site?				
H 2.1. Accessible habitat (include only habitat that directly abuts wetland unit).					
Calculate: % undisturbed habitat + [(%moderate and low intensity land uses)/2] = 37.2% + (14.3%/2) = 44.4%				
If total accessible habitat is:					
☑ > 1/3 (33.3%) of 1 km Polygon	points = 3	3			
20-33% of 1 km Polygon	points = 2				
10-19% of 1 km Polygon	points = 1				
\Box < 10% of 1 km Polygon	points = 0				
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.					
Calculate: % undisturbed habitat + [(%moderate and low intensity land uses)/2 = 56.8% + (46.2%/2) = 79.9%					
Undisturbed habitat > 50% of Polygon	points = 3	С			
Undisturbed habitat 10-50% and in 1-3 patches	points = 2	5			
Undisturbed habitat 10-50% and > 3 patches	points = 1				
Undisturbed habitat < 10% of 1 km Polygon	points = 0				
H 2.3. Land use intensity in 1 km Polygon: If					
\square > 50% of 1 km Polygon is high intensity land use	points = (- 2)	0			
⊠ ≤ 50% of 1 km Polygon is high intensity	points = 0				
Total for H 2 Add the points in the boxes above					
Rating of Landscape Potential If score is: \square 4-6 = H \square 1-3 = M \square < 1 = L	Record the rating on th	e first naae			

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 lis □ 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 □ Site does not meet any of the criteria above	:s) 1

Rating of Value If score is: $\Box 2 = H \boxtimes 1 = M \square 0 = L$ Wetland Rating System for Western WA: 2014 Update Rating Form – Effective January 1, 2015

WDFW Priority Habitats

<u>Priority habitats listed by WDFW</u> (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. <u>http://wdfw.wa.gov/publications/00165/wdfw00165.pdf</u> or access the list from here: <u>http://wdfw.wa.gov/conservation/phs/list/</u>)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE:** This question is independent of the land use between the wetland unit and the priority habitat.

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

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

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

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

□ **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

□ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

□ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

□ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

□ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).

□ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

□ **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

□ **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.	
SC 1.0. Estuarine wetlands	
Does the wetland meet the following criteria for Estuarine wetlands?	
The dominant water regime is tidal,	
Vegetated, and	
□ With a salinity greater than 0.5 ppt □ Yes –Go to SC 1.1 ⊠ No= Not an estuarine wetland	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area	
Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?	Cat. I
□Yes = Category I □No - Go to SC 1.2	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?	
\Box The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has	Cat. I
less than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i> , see page 25)	
\Box At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or	Cot II
un- mowed grassland.	
☐ The wetland has at least two of the following features: tidal channels, depressions with open water,	
or contiguous freshwater wetlands.	
SC 2.0. Wetlands of High Conservation Value (WHCV)	1
SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High	
Conservation Value? \square Yes – Go to SC 2.2 \square No – Go to SC 2.3	
SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?	
http://www.dnr.wa.gov/NHPwetlandviewer	C -1 1
SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?	Cat. I
http://file.dnr.wa.gov/publications/amp_nh_wetlands_trs.pdf	
□Yes – Contact WNHP/WDNR and go to SC 2.4 □No = Not a WHCV	
SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on	
their website?	
SC 3.0. Bogs	
Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? Use the key	
below. If you answer YES you will still need to rate the wetland based on its functions.	
SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or	
more of the first 32 in of the soil profile? \Box Yes – Go to SC 3.3 \boxtimes No – Go to SC 3.2	
SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep	
over bedrock, or an impermeable nardpan such as clay or voicanic ash, or that are floating on top of a lake or	
point: \Box Yes – Go to SC 3.3 \Box NO = IS not a bog	Cat I
source of plant species listed in Table 42	Cat. 1
NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by	
measuring the nH of the water that seens into a hole dug at least 16 in deen. If the nH is less than 5.0 and the	
plant species in Table 4 are present, the wetland is a bog.	
SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar.	
western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the	
species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy?	
□Yes = Is a Category I bog □No = Is not a bog	

SC 4.0. Forested Wetlands		
 Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i> 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/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). 		
□Yes = Category I ⊠No = Not a forested wetland for this section		
SC 5.0. Wetlands in Coastal Lagoons		
Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?		
□ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated		
from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks		
□ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5		
ppt) during most of the year in at least a portion of the lagoon (needs to be measured near the	Cat. I	
\Box Yes – Go to SC 5.1 \Box No = Not a wetland in a coastal lagoon		
SC 5.1. Does the wetland meet all of the following three conditions?		
The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has	Cat. II	
less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).	catin	
\Box At least $\frac{3}{4}$ of the landward edge of the wetland has a 100 ft buffer of shrub. forest, or un-grazed or		
un- mowed grassland.		
\Box The wetland is larger than $^{1}/_{10}$ ac (4350 ft ²)		
□Yes = Category I □No = Category II		
SC 6.0. Interdunal Wetlands		
Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? If		
you answer yes you will still need to rate the wetland based on its habitat functions.	Catl	
In practical terms that means the following geographic areas:	cuti	
Long Beach Peninsula: Lands west of SR 103		
Grayland-Westport: Lands west of SR 105		
□ Ocean Shores-Copalis: Lands west of SR 115 and SR 109	Cat. II	
\Box Yes – Go to SC 6.1 \Box No = not an interdunal wetland for rating		
SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H H H or H H M		
for the three aspects of function)? \Box Yes = Category I \Box No – Go to SC 6.2	Cat. III	
SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?		
$\Box Yes = Category II \Box No - Go to SC 6.3$	Cat IV	
SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?	Cat. IV	
□Yes = Category III □No = Category IV		
Category of wetland based on Special Characteristics	NA	
If you answered No for all types, enter "Not Applicable" on Summary Form		

Wetland name or number: <u>Wetland J</u>

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RATING SUMMARY – Western Washington

Name of wetland (or ID #):Wetland KDate of site visit: 9/3/2019Rated by: L. Dougherty, G. BrennanTrained by Ecology? $\boxtimes Y \square N$ Date of training: 10/2018

HGM Class used for rating: <u>Slope</u> Wetland has multiple HGM classes? \Box Y \boxtimes N

NOTE: Form is not complete without the figures requested (figures can be combined). Source of base aerial photo/map: <u>Google Earth</u>

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

1. Category of wetland based on FUNCTIONS

- **Category I** Total score = 23 27
- **Category II** Total score = 20 22
- **Category III** Total score = 16 19
- Category IV Total score = 9 15

FUNCTION	Improving Water Quality			Hydrologic			Habitat			
		Circle the appropriate ratings								
Site Potential	Н	Μ	(l)	Н	Μ		Н	М	(L)	
Landscape Potential	Н	Μ		Н	М		H	М	L	
Value	H	Μ	L	Н	Μ		Н	M	L	ΤΟΤΑΙ
Score Based on Ratings		5			3			6		14

Score for each function based on three ratings (order of ratings is not important) 9 = H,H,H 8 = H H M

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	CATE	GORY
Estuarine	Ι	II
Wetland of High Conservation Value		Ι
Bog		Ι
Mature Forest		Ι
Old Growth Forest		Ι
Coastal Lagoon	Ι	II
Interdunal	I II	III IV
None of the above		\boxtimes

Maps and figures required to answer questions correctly for Western Washington

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	1
Hydroperiods	H 1.2	1
Plant cover of dense trees, shrubs, and herbaceous plants	S 1.3	3
Plant cover of dense, rigid trees, shrubs, and herbaceous plants	S 4.1	2
(can be added to figure above)		5
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	2
1 km Polygon: Area that extends 1 km from entire wetland edge - including	H 2.1, H 2.2, H 2.3	Δ
polygons for accessible habitat and undisturbed habitat		4
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	5
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	6

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?

 \boxtimes 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.

YES – The wetland class is **Flats** \boxtimes NO – go to 3 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; \Box At least 30% of the open water area is deeper than 6.6 ft (2 m).

 \boxtimes 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?
 - \boxtimes 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**.

 \Box 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

□ 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.*

 \Box 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.

 \Box 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.

SLOPE WETLANDS Water Quality Functions - Indicators that the site functions to improve water quality	
S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: (a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance) □ Slope is 1% or less □ Slope is > 1%-2% ☑ Slope is > 2%-5% □ Slope is greater than 5%	1
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions): Yes = 3 No = 0	0
 S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in. Dense, uncut, herbaceous plants > 90% of the wetland area 	3
□ Dense, uncut, herbaceous plants > ½ of area points = 0 □ Dense, woody, plants > ½ of area points = 2 □ Dense, uncut, herbaceous plants > ¼ of area points = 1 □ Does not meet any of the criteria above for plants points = 0	5
Total for S 1Add the points in the boxes above	4

Rating of Site Potential If score is: \Box **12 = H** \Box **6-11 = M** \boxtimes **0-5 = L**

Record the rating on the first page

S 2.0. Does the landscape have the potential to support the water quality function of the site?		
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants?	0	
\Box Yes = 1 \boxtimes No = 0	0	
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1?	0	
Other sources \Box Yes = 1 \boxtimes No = 0	0	
Total for S 2Add the points in the boxes above	0	

Rating of Landscape Potential If score is: \Box **1-2 = M** \boxtimes **0 = L**

Record the rating on the first page

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 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?	0
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? At least one aquatic resource in the basin is on the 303(d) list. Xes = 1 No = 0	1
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? Answer YES if there is a TMDL for the basin in which unit is found.	2
Total for S 3Add the points in the boxes above	3

Rating of Value If score is: $\square 2-4 = H \square 1 = M \square 0 = L$

SLOPE WETLANDS	
Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosi	on
S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
 S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. Stems of plants should be thick enough (usually >1/8_g in), or dense enough, to remain erect during surface flows. □ Dense, uncut, rigid plants cover > 90% of the area of the wetland 	0
\boxtimes All other conditions points = 0	
Rating of Site Potential If score is: $\Box 1 = \mathbf{M} \ \boxtimes 0 = \mathbf{L}$ Record the rating on the second se	he first page

S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?	
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface	0
runoff? \Box Yes = 1 \boxtimes No = 0	0

Rating of Landscape Potential If score is: $\Box \mathbf{1} = \mathbf{M} \otimes \mathbf{0} = \mathbf{L}$

Record the rating on the first page

S 6.0. Are the hydrologic functions provided by the site valuable to society?	
 S 6.1. Distance to the nearest areas downstream that have flooding problems: □ The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) □ Surface flooding problems are in a sub-basin farther down-gradient □ No flooding problems anywhere downstream 	0
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	0
Total for S 6Add the points in the boxes above	0

Rating of Value If score is: $\Box 2-4 = H \Box 1 = M \boxtimes 0 = L$

Record the rating on the first page

NOTES and FIELD OBSERVATIONS:

These questions apply to wetlands of all HGM classes.	
HABITAT FUNCTIONS - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
 H 1.1. Structure of plant community: Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be 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. Add the number of structures checked. □ Aquatic bed □ Aquatic bed □ Scrub-shrub (areas where shrubs have > 30% cover) □ Forested (areas where trees have > 30% cover) □ Istructure: points = 0 □ If the unit has a Forested class, check if: □ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon 	0
H 1.2. Hydroperiods	
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (see text for descriptions of hydroperiods). Permanently flooded or inundated 4 or more types present: points = 3 Seasonally flooded or inundated 3 types present: points = 2 Occasionally flooded or inundated 2 types present: points = 1 Saturated only 1 type present: points = 0 Permanently flowing stream or river in, or adjacent to, the wetland 2 points Seasonally flowing stream in, or adjacent to, the wetland 2 points Image: the type of the wetland 2 points	0
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft ² . Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle If you counted: > 19 species ∅ 5 - 19 species ∅ < 5 species	1
 H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. <i>If you have four or more plant classes or three classes and open water, the rating is always high.</i> ✓ None = 0 points ✓ Low = 1 point ✓ Moderate = 2 points All three diagrams in this row are HIGH = 3points 	0

H 1.5. Special habitat features:	
Check the habitat features that are present in the wetland. The number of checks is the number of points.	
Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).	
\Box Standing snags (dbh > 4 in) within the wetland.	
Undercut banks are present for at least 6.6 ft (2 m) AND/OR 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).	0
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).	0
At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (structures for egg-laying by amphibians).	
Invasive plants cover less than 25% of the wetland area in every stratum of plants (see H 1.1 for list of strata).	
Total for H 1Add the points in the boxes above	1

Rating of Site Potential If score is: \Box **15-18 = H** \Box **7-14 = M** \boxtimes **0-6 = L**

H 2.0. Does the landscape have the potential to support the habitat functions of the s	iite?	
H 2.1. Accessible habitat (include only habitat that directly abuts wetland unit).		
Calculate: % undisturbed habitat + [(%moderate and low intensity land uses)/2] = 37.2	% + (14.3%/2) = 44.4%	
If total accessible habitat is:		
☑ > 1/3 (33.3%) of 1 km Polygon	points = 3	3
20-33% of 1 km Polygon	points = 2	
10-19% of 1 km Polygon	points = 1	
< 10% of 1 km Polygon	points = 0	
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.		
<i>Calculate:</i> % undisturbed habitat + [(%moderate and low intensity land uses)/2 = 56.8%	+ (46.2%/2) = 79.9%	
Undisturbed habitat > 50% of Polygon	points = 3	2
\Box Undisturbed habitat 10-50% and in 1-3 patches	points = 2	5
\Box Undisturbed habitat 10-50% and > 3 patches	points = 1	
Undisturbed habitat < 10% of 1 km Polygon	points = 0	
H 2.3. Land use intensity in 1 km Polygon: If		
\Box > 50% of 1 km Polygon is high intensity land use	points = (- 2)	0
\boxtimes \leq 50% of 1 km Polygon is high intensity	points = 0	
Total for H 2 Add the po	ints in the boxes above	6
Rating of Landscape Potential If score is: \square 4-6 = H \square 1-3 = M \square < 1 = L Record the rating on the second sec		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? <i>Choose only a that applies to the wetland being rated.</i>	the highest score	
 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 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 Natu It has been categorized as an important habitat site in a local or regional comprehens in a Shoreline Master Plan, or in a watershed plan 	state or federal lists) ral Resources sive plan,	1
Site has 1 or 2 priority habitats (listed on next page) within 100 mSite does not meet any of the criteria above	points = 1 points = 0	
Rating of Value If score is: $\Box 2 = H \boxtimes 1 = M \Box 0 = L$	Record the rating on t	the first page

WDFW Priority Habitats

<u>Priority habitats listed by WDFW</u> (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. <u>http://wdfw.wa.gov/publications/00165/wdfw00165.pdf</u> or access the list from here: <u>http://wdfw.wa.gov/conservation/phs/list/</u>)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE:** This question is independent of the land use between the wetland unit and the priority habitat.

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

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

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

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

□ **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

□ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

□ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

□ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

□ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

□ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

□ **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

□ **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category	
Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.		
SC 1.0. Estuarine wetlands		
Does the wetland meet the following criteria for Estuarine wetlands?		
The dominant water regime is tidal,		
Vegetated, and		
□ With a salinity greater than 0.5 ppt □ Yes –Go to SC 1.1 ⊠No= Not an estuarine wetland		
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area		
Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?	Cat. I	
Yes = Category I		
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?		
\Box The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has	Cat. I	
less than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i> , see page 25)		
\square At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or	Cot II	
un- mowed grassland.	Cat. II	
□ The wetland has at least two of the following features: tidal channels, depressions with open water,		
or contiguous freshwater wetlands. \Box Yes = Category I \Box No= Category II		
SC 2.0. Wetlands of High Conservation Value (WHCV)	í	
SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High		
Conservation Value? \square Yes – Go to SC 2.2 \square No – Go to SC 2.3		
SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?		
http://www.dnr.wa.gov/NHPwetlandviewer	Cat I	
SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?	Cat. I	
http://file.dnr.wa.gov/publications/amp_nh_wetlands_trs.pdf		
□Yes – Contact WNHP/WDNR and go to SC 2.4 □No = Not a WHCV		
SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on		
their website?		
SC 3.0. Bogs		
Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? Use the key		
below. If you answer YES you will still need to rate the wetland based on its functions.		
SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or		
more of the first 32 in of the soil profile? \Box Yes – Go to SC 3.3 \boxtimes No – Go to SC 3.2		
SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep		
over bedrock, or an impermeable nardpan such as clay or voicanic ash, or that are hoating on top of a lake or		
point: \Box Yes – Go to SC 3.3 \Box No = is not a bog	Cat I	
source of plant species listed in Table 42	Cat. 1	
NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by		
measuring the nH of the water that seens into a hole dug at least 16 in deen. If the nH is less than 5.0 and the		
plant species in Table 4 are present, the wetland is a bog.		
SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar.		
western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the		
species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy?		
□Yes = Is a Category I bog □No = Is not a bog		

SC 4.0. Forested Wetlands	
 Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i> 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/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). 	
□Yes = Category I ⊠No = Not a forested wetland for this section	
 SC 5.0. Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? □ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks □ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (needs to be measured near the bottom) □ Yos = Go to SC 5.1 ○ Yos = Not a wetland in a coastal lagoon 	Cat. I
SC 5.1. Does the wetland meet all of the following three conditions? □ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). □ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un- mowed grassland. □ The wetland is larger than ¹ / ₁₀ ac (4350 ft ²) □ Yes = Category I □ No = Category II	Cat. II
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? If you answer yes you will still need to rate the wetland based on its habitat functions. In practical terms that means the following geographic areas: Long Beach Peninsula: Lands west of SR 103 Gravland Westport: Lands west of SR 105	Cat I
□ Grayiand-Westport. Lands west of SR 105 □ Ocean Shores-Copalis: Lands west of SR 115 and SR 109 □ Yes – Go to SC 6.1 \square No = not an interdunal wetland for rating	Cat. II
SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? SC 6.2 Is the wetland 1 as an larger again it is a massis of wetlands that is 1 as an larger 1 SC 6.2 is the wetland 1 as an larger again it is a massis of wetlands that is 1 as an larger 2	Cat. III
SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? \Box Yes = Category II \Box No – Go to SC 6.3 SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? \Box Yes = Category III \Box No = Category IV	Cat. IV
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	NA

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RATING SUMMARY – Western Washington

Name of wetland (or ID #): <u>Wetland M</u> Date of site visit: <u>8/27/2019</u> Rated by: <u>L. Dougherty, G. Brennan</u> Trained by Ecology? XY IN Date of training: <u>10/2018</u>

HGM Class used for rating: Slope Wetland has multiple HGM classes? \Box Y \boxtimes N

NOTE: Form is not complete without the figures requested (figures can be combined). Source of base aerial photo/map: <u>Google Earth</u>

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

1. Category of wetland based on FUNCTIONS

- Category I Total score = 23 27
- **Category II** Total score = 20 22
- Category III Total score = 16 19
- **Category IV** Total score = 9 15

FUNCTION	lı Wa	mprov Iter Q	ving uality	Hydrologic			Habitat			
		Circle the appropriate ratings								
Site Potential	Н	М	(L)	Н	M) L	Н	Μ	(L)	
Landscape Potential	Н	M	Ľ	н	M) L	H	М	Ľ	
Value	(H)	Μ	L	н	Μ		Н	M	L	ΤΟΤΑΙ
Score Based on Ratings		6			5			6		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	I		
Bog	Ι		
Mature Forest	I		
Old Growth Forest	I		
Coastal Lagoon	Ι	II	
Interdunal	I II	III IV	
None of the above		\boxtimes	

Maps and figures required to answer questions correctly for Western Washington

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	2
Hydroperiods	H 1.2	4
Plant cover of dense trees, shrubs, and herbaceous plants	S 1.3	6
Plant cover of dense, rigid trees, shrubs, and herbaceous plants	S 4.1	6
(can be added to figure above)		0
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	4
1 km Polygon: Area that extends 1 km from entire wetland edge - including	H 2.1, H 2.2, H 2.3	7
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	8
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	9
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?

 \boxtimes NO – go to 2

- \Box **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.

 \boxtimes NO – go to 3 \square 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).

 \square NO – go to 4 \square YES – The wetland class is Lake Fringe (Lacustrine Fringe)

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

 \Box 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.

□ 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.*

 \Box 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.

 \Box 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 being rated	HGM class to 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.

SLOPE WETLANDS	
Water Quality Functions - Indicators that the site functions to improve water qualit	/
S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: (a 1% slope has a 1 ft vertical drop in elevation for every	
100 ft of horizontal distance)	
□ Slope is 1% or less points = 3	1
□ Slope is > 1%-2% points = 2	1
Slope is > 2%-5% points = 1	
\Box Slope is greater than 5% points = 0	
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions): Yes = 3 No = 0	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants:	
Choose the points appropriate for the description that best fits the plants in the wetland. Dense means you	
have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher	
than 6 in.	
\Box Dense, uncut, herbaceous plants > 90% of the wetland area points = 6	2
Dense, uncut, herbaceous plants > ½ of area points = 3	
☑ Dense, woody, plants > ½ of area points = 2	
Dense, uncut, herbaceous plants > ¼ of area points = 1	
\Box Does not meet any of the criteria above for plants points = 0	
Total for S 1Add the points in the boxes above	3

Rating of Site Potential If score is: \Box **12** = H \Box **6-11** = M \boxtimes **0-5** = L

Record the rating on the first page

S 2.0. Does the landscape have the potential to support the water	quality function of the site?	
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland	in land uses that generate pollutants?	1
	imes Yes = 1 $ imes$ No = 0	
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1?		0
Other sources	□ Yes = 1 ⊠ No = 0	0
Total for S 2	Add the points in the boxes above	1

Rating of Landscape Potential If score is: $\square 1-2 = M \square 0 = L$

Record the rating on the first page

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 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?	0
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? At least one aquatic resource in the basin is on the 303(d) list.	1
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? Answer YES if there is a TMDL for the basin in which unit is found.	2
Total for S 3Add the points in the boxes above	3

Rating of Value If score is: $\square 2-4 = H \square 1 = M \square 0 = L$

Record the rating on the first page

SLOPE WETLANDS	
Hydrologic Functions - Indicators that the site functions to reduce flooding and stream eros	ion
S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. Stems of plants should be thick enough (usually >1/8, in), or dense enough, to remain erect during surface flows.	1
Dense, uncut, rigid plants cover > 90% of the area of the wetland points = 1	
\Box All other conditions points = 0	
Rating of Site Potential If score is: $\square 1 = \mathbf{M}$ $\square 0 = \mathbf{L}$ Record the rating on	the first page

 S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?

 S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff?

 ⊠ Yes = 1
 □ No = 0

Rating of Landscape Potential If score is: $\square \mathbf{1} = \mathbf{M}$ $\square \mathbf{0} = \mathbf{L}$

Record the rating on the first page

1

S 6.0. Are the hydrologic functions provided by the site valuable to society?	
 S 6.1. Distance to the nearest areas downstream that have flooding problems: □ The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) □ Surface flooding problems are in a sub-basin farther down-gradient □ No flooding problems anywhere downstream 	0
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	0
Total for S 6Add the points in the boxes above	0

Rating of Value If score is: $\Box 2-4 = H \quad \Box 1 = M \quad \boxtimes 0 = L$

Record the rating on the first page

NOTES and FIELD OBSERVATIONS:

These questions apply to wetlands of all HGM classes.	
HABITAT FUNCTIONS - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
H 1.1. Structure of plant community: Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be 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. Add the number of structures checked. □ Aquatic bed 4 structures or more: points = 4 □ Emergent 3 structures: points = 2 ☑ Scrub-shrub (areas where shrubs have > 30% cover) 2 structures: points = 1 □ Forested (areas where trees have > 30% cover) 1 structure: points = 0 If the unit has a Forested class, check if: □ □ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	0
H 1.2. Hydroperiods	
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (see text for descriptions of hydroperiods). Permanently flooded or inundated 4 or more types present: points = 3 Seasonally flooded or inundated 3 types present: points = 2 Occasionally flooded or inundated 2 types present: points = 1 Saturated only 1 type present: points = 0 Permanently flowing stream or river in, or adjacent to, the wetland 2 points Lake Fringe wetland 2 points Freshwater tidal wetland 2 points	0
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft ² . Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle If you counted: > 19 species ∅ 5 - 19 species ∅ < 5 species	1
 H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. <i>If you have four or more plant classes or three classes and open water, the rating is always high.</i> ✓ None = 0 points ✓ Low = 1 point ✓ Moderate = 2 points All three diagrams in this row are ☐ HIGH = 3points 	0

H 1.5. Special habitat features:	
Check the habitat features that are present in the wetland. The number of checks is the number of points.	
Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).	
\Box Standing snags (dbh > 4 in) within the wetland.	
Undercut banks are present for at least 6.6 ft (2 m) AND/OR 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).	2
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).	2
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>	
☑ Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>).	
Total for H 1Add the points in the boxes above	3
Rating of Site Potential If score is: \Box 15-18 = H \Box 7-14 = M \boxtimes 0-6 = L Record the rating on	the first page

H 2.1. Accessible habitat (include only habitat that directly abuts wetland unit). Calculate: % undisturbed habitat + [(%moderate and low intensity land uses)/2] = 37.2% + (14.3%/2) = 44.4% If total accessible habitat is: points = 3 > 1/3 (33.3%) of 1 km Polygon points = 3 10-19% of 1 km Polygon points = 1 < 10% of 1 km Polygon points = 0 H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. calculate: % undisturbed habitat + [(%moderate and low intensity land uses)/2 = 56.8% + (46.2%/2) = 79.9% M 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 Undisturbed habitat 10-50% and > 3 patches points = 1 Undisturbed habitat 10-50% and > 1 km Polygon points = 1
Calculate: % undisturbed habitat + [(%moderate and low intensity land uses)/2] = 37.2% + (14.3%/2) = 44.4% If total accessible habitat is: $\boxtimes > 1/3 (33.3\%)$ of 1 km Polygonpoints = 3 $20-33\%$ of 1 km Polygonpoints = 2 $10-19\%$ of 1 km Polygonpoints = 1 $< 10\%$ of 1 km Polygonpoints = 0H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. Calculate: % undisturbed habitat + [(%moderate and low intensity land uses)/2 = 56.8% + (46.2%/2) = 79.9% \boxtimes Undisturbed habitat > 50% of Polygonpoints = 3 \square Undisturbed habitat 10-50% and in 1-3 patchespoints = 2 \square Undisturbed habitat 10-50% and > 3 patchespoints = 1 \square Undisturbed habitat 10-50% and > 3 patchespoints = 1 \square Undisturbed habitat 10-50% of 1 km Polygonpoints = 1 \square Undisturbed habitat 10-50% of 1 km Polygonpoints = 1 \square Undisturbed habitat 10-50% of 1 km Polygonpoints = 1
If total accessible habitat is: points = 3 3 □ > 1/3 (33.3%) of 1 km Polygon points = 3 3 □ 20-33% of 1 km Polygon points = 2 points = 2 □ 10-19% of 1 km Polygon points = 1 points = 1 □ < 10% of 1 km Polygon around the wetland.
⊠ > 1/3 (33.3%) of 1 km Polygonpoints = 33□ 20-33% of 1 km Polygonpoints = 2□ 10-19% of 1 km Polygonpoints = 1□ < 10% of 1 km Polygon
□ 20-33% of 1 km Polygon points = 2 □ 10-19% of 1 km Polygon points = 1 □ < 10% of 1 km Polygon
□ 10-19% of 1 km Polygon points = 1 □ < 10% of 1 km Polygon
□ < 10% of 1 km Polygon
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. <i>Calculate:</i> % undisturbed habitat + [(%moderate and low intensity land uses)/2 = 56.8% + (46.2%/2) = 79.9% ⊠ 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 □ Undisturbed habitat < 10% of 1 km Polygon points = 0
Calculate: % undisturbed habitat + [(%moderate and low intensity land uses)/2 = 56.8% + (46.2%/2) = 79.9% ☑ 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 □ Undisturbed habitat < 10% of 1 km Polygon
☑ Undisturbed habitat > 50% of Polygon points = 3 3 ☑ Undisturbed habitat 10-50% and in 1-3 patches points = 2 3 ☑ Undisturbed habitat 10-50% and > 3 patches points = 1 5 ☑ Undisturbed habitat < 10% of 1 km Polygon
□ Undisturbed habitat 10-50% and in 1-3 patches points = 2 □ Undisturbed habitat 10-50% and > 3 patches points = 1 □ Undisturbed habitat < 10% of 1 km Polygon
 □ Undisturbed habitat 10-50% and > 3 patches □ Undisturbed habitat < 10% of 1 km Polygon □ points = 0
\Box Undisturbed habitat < 10% of 1 km Polygon points = 0
H 2.3. Land use intensity in 1 km Polygon: If
\Box > 50% of 1 km Polygon is high intensity land use points = (- 2) 0
$\boxtimes \le 50\%$ of 1 km Polygon is high intensity points = 0
Total for H 2Add the points in the boxes above6

Rating of Landscape Potential If score is: \square **4-6 = H** \square **1-3 = M** \square **< 1 = L**

Record the rating on the 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? <i>Choose o that applies to the wetland being rated.</i>	nly the highest score	
Site meets ANY of the following criteria:	points = 2	
\Box It has 3 or more priority habitats within 100 m (see next page)		
\square 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		1
\square It is a Wetland of High Conservation Value as determined by the Department of N	latural 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 = 1	
Site does not meet any of the criteria above	points = 0	
Pating of Value If score ic: $\Box 2 = H$ $\Box 1 = M$ $\Box 0 = I$	Pecord the rating on	the first page

WDFW Priority Habitats

<u>Priority habitats listed by WDFW</u> (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. <u>http://wdfw.wa.gov/publications/00165/wdfw00165.pdf</u> or access the list from here: <u>http://wdfw.wa.gov/conservation/phs/list/</u>)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE:** This question is independent of the land use between the wetland unit and the priority habitat.

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

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

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

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

□ **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

□ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

□ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

□ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

□ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).

□ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

□ **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

□ **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.	
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? The dominant water regime is tidal, Vegetated, and	
□ With a salinity greater than 0.5 ppt □ Yes –Go to SC 1.1 ⊠No= Not an estuarine wetland	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?	Cat. I
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i> , see page 25)	Cat. I
 At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un- mowed grassland. The wetland has at least two of the following features: tidal channels, depressions with open water 	Cat. II
or contiguous freshwater wetlands. \Box Yes = Category I \Box No= Category II	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? http://www.dnr.wa.gov/NHPwetlandviewer SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://file.dnr.wa.gov/publications/amp_nh_wetlands_trs.pdf SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website?	Cat. I
 SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? Use the key below. If you answer YES you will still need to rate the wetland based on its functions. SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 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 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? Yes = Is a Category I bog □ No = Is not a bog 	Cat. I

SC 4.0. Forested Wetlands	
 Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i> 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/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). 	
□Yes = Category I ⊠No = Not a forested wetland for this section	
SC 5.0. Wetlands in Coastal Lagoons	
Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?	
\square The wetland lies in a depression adjacent to marine waters that is wholly or partially separated	
from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks	
☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5	
ppt) during most of the year in at least a portion of the lagoon (needs to be measured near the	Cat. I
\square Vec. Co to SC F 1. \square Not a watland in a coastal larger	
\Box res = 60 to SC 5.1 \Box NO = Not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions?	
The wetland is relatively undisturbed (bas no diking ditching filling cultivation grazing) and has	Cat II
less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100)	Cat. II
\square At least % of the landward edge of the wetland has a 100 ft huffer of shrub forest or un-grazed or	
un- mowed grassland.	
\Box The wetland is larger than $1/_{10}$ ac (4350 ft ²)	
□Yes = Category I □No = Category II	
SC 6.0. Interdunal Wetlands	
Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? If	
you answer yes you will still need to rate the wetland based on its habitat functions.	Catl
In practical terms that means the following geographic areas:	Cati
Long Beach Peninsula: Lands west of SR 103	
Grayland-Westport: Lands west of SR 105	
Ocean Shores-Copalis: Lands west of SR 115 and SR 109	Cat. II
\Box Yes – Go to SC 6.1 \Box No = not an interdunal wetland for rating	
SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the babitat functions on the form (rates H H H or H H M	
for the three aspects of function)? \Box Yes = Category I \Box No – Go to SC 6.2	Cat. III
SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?	
$\Box Yes = Category II \Box No - Go to SC 6.3$	6 -1 1 /
SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?	Cat. IV
□Yes = Category III □No = Category IV	
Category of wetland based on Special Characteristics	NΔ
If you answered No for all types, enter "Not Applicable" on Summary Form	

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

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RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland P Date of site visit: 02/26/2020

Rated by: <u>S. Payne, G. Brennan</u> Trained by Ecology? X IN Date of training: <u>6/2017, 10/2019</u>

HGM Class used for rating: Depressional Wetland has multiple HGM classes? $\Box Y \boxtimes N$

NOTE: Form is not complete without the figures requested (figures can be combined). Source of base aerial photo/map: Google Earth

OVERALL WETLAND CATEGORY: III (based on functions \boxtimes or special characteristics \square)

1. Category of wetland based on FUNCTIONS

- **Category I** Total score = 23 27
- **Category II** Total score = 20 22
- Category III Total score = 16 19
- **Category IV** Total score = 9 15

FUNCTION	lı Wa	mprov Iter Q	/ing uality	H	ydrolo	ogic		Habita	at	
					Circle	the ap	propr	iate ra	tings	
Site Potential	Н	M	L	Н	М	L	Н	Μ	L	
Landscape Potential	Н	<u>M</u>	L	Н	<u>M</u>	L	H	Μ	L	
Value	H	Μ	L	Н	Μ	L	Н	M	L	TOTAL
Score Based on Ratings		7			4			6		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	САТ	EGORY
Estuarine	Ι	II
Wetland of High Conservation Value		Ι
Bog		Ι
Mature Forest		Ι
Old Growth Forest		Ι
Coastal Lagoon	Ι	II
Interdunal	I II	III IV
None of the above		\boxtimes

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	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (can be added to map of hydroperiods)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (can be added to another figure)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
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)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 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?

 \boxtimes NO – go to 2

 \Box **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.

 \boxtimes NO – go to 3 \square 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).

 \boxtimes NO – go to 4 \square **YES** – The wetland class is **Lake Fringe** (Lacustrine Fringe)

- 4. Does the entire wetland unit **meet all** of the following criteria?
 - \boxtimes 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,

 \boxtimes The water leaves the wetland without being impounded.

⊠N0 – 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.

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.*

 \Box 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.

 \Box 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 water 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 (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing. points = 1 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. 	2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions). 🗆 Yes = 4 🛛 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): □ Wetland has persistent, ungrazed, plants > 95% of area points = 5 □ Wetland has persistent, ungrazed, plants > 1/2 of area points = 3 □ Wetland has persistent, ungrazed plants > 1/10 of area points = 1 □ Wetland has persistent, ungrazed plants < 1/10 of area	1
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 > ½ total area of wetland □ Area seasonally ponded is > ½ total area of wetland □ Area seasonally ponded is < ¼ total area of wetland	4
Total for D 1 Add the points in the boxes above	7
Rating of Site PotentialIf score is: \Box 12-16 = H \boxtimes 6-11 = M \Box 0-5 = LRecord 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?	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? \square Yes = 1 \square No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland? \Box Yes = 1 \boxtimes 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? Source: <u>Click here to enter text.</u> □Yes = 1 ⊠ No = 0	0
Total for D 2Add the points in the boxes above	2
Rating of Landscape Potential If score is: \Box 3 or 4 = H \boxtimes 1 or 2 = M \Box 0 = L <i>Record the rating on the fu</i>	rst 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	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? \square Yes = 1 \square No = 0	1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (answer YES if there is a TMDL for the basin in which the unit is found)? Solution Sector 2 In the sector 2 In t	2
Total for D 3 Add the points in the boxes above	3
Rating of ValueIf score is: $\square 2-4 = H$ $\square 1 = M$ $\square 0 = L$ Record the rating on the	first page

Wetland name or number: Wetland P

DEPRESSIONAL AND FLATS WETLANDS	
Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation	on
D 4.0. Does the site have the potential to reduce flooding and erosion?	
 D 4.1. <u>Characteristics of surface water outflows from the wetland</u>: □ 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 outlet. □ 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. 	2
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 outlet. points = 7 □ Marks 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. □ The area of the basin is 10 to 100 times the area of the unit. □ The area of the basin is more than 100 times the area of the unit. □ The area of the basin is more than 100 times the area of the unit. □ Entire wetland is in the Flats class. 	0
Total for D 4 Add the points in the boxes above	5
Rating of Site Potential If score is: \Box 12-16 = H \Box 6-11 = M \boxtimes 0-5 = LRecord 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? \square Yes = 1 \square No = 0	1
D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff? \square Yes = 1 \square 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 = 1 ⊠ No = 0	0
Total for D 5Add the points in the boxes above	2
Rating of Landscape Potential If score is: $\Box 3 = H$ $\Box 1 \text{ or } 2 = M$ $\Box 0 = L$ 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.</i> Do not add points. <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): ■ Flooding occurs in a sub-basin that is immediately down-gradient of unit. ■ Surface flooding problems are in a sub-basin farther down-gradient. ■ Flooding from groundwater is an issue in the sub-basin. ■ 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>	0
D 6.2. Has the site been identified as important for flood storage or flood convevance in a regional flood control plan?	
$\Box Yes = 2 \boxtimes \text{ No} = 0$	0
Total for D 6Add the points in the boxes above	0

Rating of Value If score is: $\Box 2-4 = H$ $\Box 1 = M$ $\boxtimes 0 = L$

These questions apply to wetlands of all HGM classes.	
HABITAT FUNCTIONS - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
 H 1.1. Structure of plant community: Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be 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. Add the number of structures checked. □ Aquatic bed 4 structures or more: points = 4 □ Emergent 3 structures: points = 2 □ Scrub-shrub (areas where shrubs have > 30% cover) 2 structures: points = 1 □ Forested (areas where trees have > 30% cover) 1 structure: points = 0 If the unit has a Forested class, check if: □ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon 	0
H 1.2. Hydroperiods	
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (see text for descriptions of hydroperiods). Permanently flooded or inundated 4 or more types present: points = 3 Seasonally flooded or inundated 3 types present: points = 2 Occasionally flooded or inundated 2 types present: points = 1 Saturated only 1 type present: points = 0 Permanently flowing stream or river in, or adjacent to, the wetland 2 points Seasonally flowing stream in, or adjacent to, the wetland 2 points Freshwater tidal wetland 2 points	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft ² . Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle If you counted: > 19 species ∅ 5 - 19 species □ < 5 species	1
 H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. <i>If you have four or more plant classes or three classes and open water, the rating is always high.</i> ✓ None = 0 points ✓ Low = 1 point ✓ Moderate = 2 points All three diagrams in this row are HIGH = 3points 	0

Wedand hame of humber. Wedand P		
 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 pole</i> □ 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) AND/OR overhanging plants extends at least 3 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 slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet wee where wood is exposed</i>). □ 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>). □ Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for li strata</i>). 	oints. 3.3 ft (1 m) degree athered	1
Total for H 1 Add the points in the bo	xes above	3
Rating of Site Potential If score is:15-18 = H7-14 = M0-6 = LRecord	the rating on t	he 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). Calculate: % undisturbed habitat + [(%moderate and low intensity land uses)/2] = 35.8% + (15.9%/2) If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon 20-33% of 1 km Polygon 10-19% of 1 km Polygon < 10% of 1 km Polygon) = 46.5% points = 3 points = 2 points = 1 points = 0	3
 H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. <i>Calculate:</i> % undisturbed habitat + [(%moderate and low intensity land uses)/2 = 58.6% + (38.4%/2) = □ Undisturbed habitat > 50% of Polygon □ Undisturbed habitat 10-50% and in 1-3 patches □ Undisturbed habitat 10-50% and > 3 patches □ Undisturbed habitat < 10% of 1 km Polygon 	= 77.8% points = 3 points = 2 points = 1 points = 0	3
 H 2.3. Land use intensity in 1 km Polygon: If □ > 50% of 1 km Polygon is high intensity land use □ ≤ 50% of 1 km Polygon is high intensity 	points = (- 2) points = 0	0
Total for H 2 Add the points in the bo	ixes above	6
Rating of Landscape Potential If score is: Image: A-6 = H Image: Image: Image: A-6 = H Image: Image: A-6 = H Image: Image: A-6 = H Image: A-	he 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? <i>Choose only the high</i>	est score	

that upplies to the wettand being fated.	
Site meets ANY of the following criteria:	points = 2
\Box It has 3 or more priority habitats within 100 m (see next page)	
\square It provides habitat for Threatened or Endangered species (any plant or animal on th	e state or federal lists)
It is mapped as a location for an individual WDFW priority species	
\square It is a Wetland of High Conservation Value as determined by the Department of Nat	ural Resources
\square It has been categorized as an important habitat site in a local or regional comprehen	nsive 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 = 1
\Box Site does not meet any of the criteria above	points = 0

Rating of Value If score is: $\Box 2 = H \boxtimes 1 = M \Box 0 = L$

Record the rating on the first page

1

WDFW Priority Habitats

<u>Priority habitats listed by WDFW</u> (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. <u>http://wdfw.wa.gov/publications/00165/wdfw00165.pdf</u> or access the list from here: <u>http://wdfw.wa.gov/conservation/phs/list/</u>)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE:** This question is independent of the land use between the wetland unit and the priority habitat.

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

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

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

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

□ **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

□ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

□ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

□ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

□ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).

□ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

□ **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

□ **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

 \boxtimes **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 > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.	
SC 1.0. Estuarine wetlands	
Does the wetland meet the following criteria for Estuarine wetlands?	
The dominant water regime is tidal,	
U Vegetated, and	
□ With a salinity greater than 0.5 ppt □ Yes –Go to SC 1.1 ⊠No= Not an estuarine wetland	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area	Cat I
Preserve, state Park of Educational, Environmental, of scientific Reserve designated under WAC 332-30-151? \Box Ves = Category I \Box No - Go to SC 1.2	Cat. I
SC 1.2 Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?	
The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has	Cat. I
less than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i> , see page 25)	
\Box At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or	
un- mowed grassland.	Cat. II
□ The wetland has at least two of the following features: tidal channels, depressions with open water,	
or contiguous treshwater wetlands. \Box Yes = Category I \Box No= Category I	
SC 2.0. Wetlands of High Conservation Value (WHCV)	
SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High	
Conservation Value?	
SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?	
$\frac{\text{nttp://www.dnr.wa.gov/NHPWetlandviewer}}{\text{SC 2.3. Is the wetland in a Section/Townshin/Range that contains a Natural Heritage wetland?}$	Cat. I
http://file.dnr.wa.gov/publications/amp_nh_wetlands_trs.pdf	
□Yes – Contact WNHP/WDNR and go to SC 2.4 □No = Not a WHCV	
SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on	
their website?	
SC 3.0. Bogs	
Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? Use the key	
below. If you answer YES you will still need to rate the wetland based on its functions.	
SC 3.1. Does an area within the wetland unit have organic soil nonzons, either peaks of mucks, that compose 16 in or more of the first 32 in of the soil profile?	
SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep	
over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or	
pond? \Box Yes – Go to SC 3.3 \boxtimes No = Is not a bog	
SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30%	Cat. I
cover of plant species listed in Table 4? Yes = Is a Category I bog No – Go to SC 3.4	
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 in deep. If the pH is less than 5.0 and the	
SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce. subalpine fir. western red cedar.	
western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the	
species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy?	
□Yes = Is a Category I bog □No = Is not a	

SC 4.0. Forested Wetlands	
Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate</i>	
the wetland based on its functions.	
□ Old-growth forests (west of Cascade crest): Stands of at least two tree species, forming a multi-layered	
canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of	Cat. I
age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.	
□ Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR	
the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).	
\Box Yes = Category I \Box No = Not a forested wetland for this section	
SC 5.0. Wetlands in Coastal Lagoons	
Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?	
\square 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	
\square The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5	
ppt) during most of the year in at least a portion of the lagoon (needs to be measured near the bottom)	Cat. I
Ý Yes – Go to SC 5.1 🛛 No = Not a wetland in a coastal lagoon	
SC 5.1. Does the wetland meet all of the following three conditions?	
\Box The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has	Cat. II
less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).	
\square At least st of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or	
un- mowed grassland.	
\Box The wetland is larger than $1/_{10}$ ac (4350 ft ²)	
□Yes = Category I □No = Category II	
SC 6.0. Interdunal Wetlands	
Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? If	
you answer yes you will still need to rate the wetland based on its habitat functions.	Catl
In practical terms that means the following geographic areas:	Cati
Long Beach Peninsula: Lands west of SR 103	
Grayland-Westport: Lands west of SR 105	
Ocean Shores-Copalis: Lands west of SR 115 and SR 109	Cat. II
$\Box Yes - Go \text{ to } SC 6.1 \qquad \Box No = not an interdunal wetland for rating$	
SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M	
tor the three aspects of function)? \Box Yes = Category I \Box No – Go to SC 6.2	Cat. III
SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?	
□Yes = Category II □No – Go to SC 6.3	
SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?	Cat. IV
□ Yes = Category III □ No = Category IV	
Category of wetland based on Special Characteristics	NΔ
If you answered No for all types, enter "Not Applicable" on Summary Form	

Wetland name or number: Wetland P

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2014 Ecology Wetland Rating Form Figures

CAPITOL LAND TRUST – HENDERSON INLET

Figure 1. Cowardin plant classes for Wetlands A-E- H1.1, H1.41
Figure 2. Cowardin plant classes for Wetlands F-M- H1.1, H1.42
Figure 3. Hydroperiods and 150-foot area for Wetlands A-E – H1.2, S2.1, S5.1, D1.1, D1.4, H1.2, D2.2, D5.2
Figure 4. Hydroperiods and 150-foot area for Wetlands F-M – H1.2, S2.1, S5.1, D1.1, D1.4, H1.2, D2.2, D5.2
Figure 5. Plant cover of dense and rigid trees, shrubs, and herbaceous plants for Wetlands A, D, and E - S1.3, S4.1
Figure 6. Plant cover of dense and rigid trees, shrubs, and herbaceous plants for Wetlands F, G, J, K, L and M – S1.3, S4.1
Figure 7. Undisturbed habitat and moderate-low intensity land uses within 1 km from wetland edge including polygon for accessible habitat for Wetlands A-M – H2.1, H2.2, H2.37
Figure 8. Screen-capture of 303(d) listed waters in basin for Wetlands A-M. – S3.1, S3.28
Figure 9. Screen-capture of TMDL list for WRIA in which unit is found for Wetlands A-M – S3.39
Figure 10. Map of the contributing basin for Wetland B – D4.3, D5.310
Figure 11. Map of the contributing basin for Wetland C – D4.3, D5.311
Figure 12. Map of the contributing basin for Wetlands H and I – D4.3, D5.3

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Figure 1. Cowardin plant classes for Wetlands A-E– H1.1, H1.4



Figure 2. Cowardin plant classes for Wetlands F-M- H1.1, H1.4



Figure 3. Hydroperiods and 150-foot area for Wetlands A-E – H1.2, S2.1, S5.1, D1.1, D1.4, H1.2, D2.2, D5.2



Figure 4. Hydroperiods and 150-foot area for Wetlands F-M – H1.2, S2.1, S5.1, D1.1, D1.4, H1.2, D2.2, D5.2



Figure 5. Plant cover of dense and rigid trees, shrubs, and herbaceous plants for Wetlands A, D, and E – S1.3, S4.1



Figure 6. Plant cover of dense and rigid trees, shrubs, and herbaceous plants for Wetlands F, G, J, K, L and M – S1.3, S4.1



Figure 7. Undisturbed habitat and moderate-low intensity land uses within 1 km from wetland edge including polygon for accessible habitat for Wetlands A-M – H2.1, H2.2, H2.3



Figure 8. Screen-capture of 303(d) listed waters in basin for Wetlands A-M. – S3.1, S3.2

Note: The "Waterbody name" for the mapped 303(d) polygon encompassing the study area is "Unnamed Creek (Trib to Dobbs Creek)." Wetlands in study area do not drain to Dobbs Creek, and therefore were not given points for discharging to a waterbody on the 303(d) list.



Figure 9. Screen-capture of TMDL list for WRIA in which unit is found for Wetlands A-M – S3.3



Figure 10. Map of the contributing basin for Wetland B – D4.3, D5.3

Note: Wetland B has no outlet.



Figure 11. Map of the contributing basin for Wetland C – D4.3, D5.3

Note: Wetland C has no outlet.



Figure 12. Map of the contributing basin for Wetlands H and I – D4.3, D5.3

Note: Wetlands I and H have no outlet.
2014 Ecology Wetland Rating Form Figures

CAPITOL LAND TRUST – HENDERSON INLET

Wetland P (Depressional)	1
Figure 1. Cowardin plant classes – D1.3, H1.1, H1.4	1
Figure 2. Hydroperiods, outlet(s), and 150-ft area – D1.1, D1.4, H1.2, D2.2, D5.2	2
Figure 3. Map of the contributing basin – D4.3, D5.3	3
Figure 4. Undisturbed habitat and moderate-low intensity land uses within 1 km from wetland o including polygon for accessible habitat – H2.1, H2.2, H2.3	edge 4
Figure 5. Screen-capture of 303(d) listed waters in basin – D3.1, D3.2	5
Figure 6. Screen-capture of TMDL map for sub-basin in which unit is found – D3.3	6

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WETLAND P (DEPRESSIONAL)



Figure 1. Cowardin plant classes – D1.3, H1.1, H1.4



Figure 2. Hydroperiods, outlet(s), and 150-ft area – D1.1, D1.4, H1.2, D2.2, D5.2



Figure 3. Map of the contributing basin – D4.3, D5.3



Figure 4. Undisturbed habitat and moderate-low intensity land uses within 1 km from wetland edge including polygon for accessible habitat – H2.1, H2.2, H2.3



Figure 5. Screen-capture of 303(d) listed waters in basin – D3.1, D3.2



Figure 6. Screen-capture of TMDL map for sub-basin in which unit is found – D3.3

Appendix C

WETLAND DETERMINATION DATA FORMS



DP-1

Project/Site: Capitol Land Trust – Henderson Inlet	City/County: Thurston County Sampling date: 8/28/19							
Applicant/Owner: Bob Droll	State: WA Sampling Point: DP-13							
Investigator(s): L. Dougherty, G. Brennan	Section, Township, Range: <u>S28 T19N R01W</u>							
Landform (hillslope, terrace, etc): Hillslope	Local relief (concave, convex, none): <u>Concave</u> Slope (%): <u>2-5</u>							
Subregion (LRR): A Lat: - Lo	ong: Datum:							
Soil Map Unit Name: Kapowsin silt loam	NWI classification: None							
Are climatic / hydrologic conditions on the site typical for this time of year	ar? 🛛 Yes 🛛 No (If no, explain in remarks.)							
Are Vegetation \Box , Soil \Box , or Hydrology \Box significantly disturbed?	Are "Normal Circumstances" present on the site? \boxtimes Yes \Box No							
Are Vegetation \Box , Soil \Box , or Hydrology \Box naturally problematic?	(If needed, explain any answers in Remarks.)							
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.								
Hydrophytic Vegetation Present? Yes 🛛 No 🗆	Is the Sampled Area							

Hydric Soils Pres Wetland Hydrolo	sent? ogy Present?	Yes Yes	\boxtimes	No No	Is the Sampled Area within a Wetland?	Yes 🛛	No 🗌
Remarks: V	Vetland G in-pit (center of	swale).				

Tree Stratum (Plot size: 5-m diameter) 1. Thuja plicata 2. Pseudotsuga menziesii (rooted out) 3.	Absolute % Cover 75 20	Dominant Species? Y	Indicator Status FAC FACU	Dominance Test worksheet Number of Dominant Species that are OBL, FACW, or FAC Total Number of Dominant Species Across all Strata: Percent of Dominant Species	5 5 100	(A) (B)
Sapling/Shrub Stratum (Plot size: 3-m diameter) 1. Rubus armeniacus 2.	50	Y	FAC	Prevalence Index worksheet Total % Cover of: OBL species FACW species FAC species	Multiply by: x 1 = x 2 = x 3 =	
5 <u>Herb Stratum</u> (Plot size: 1-m diameter) 1. <u>Ranunculus repens</u> 2. Juncus effusus	50 30 30	= Total Cov Y Y	ver FAC FACW	FACU species UPL species Column Totals: Prevalence Index = B/A =	x 4 = x 5 = (A)	(B)
2. Junicus circulaus 3. Carex deweyana Schwein. 4. Cirsium arvense 5. Lotus corniculatus 6.	25 7 5 	Y N N = Total Co	FAC FAC FAC	Hydrophytic Vegetation 1 - Rapid Test for Hydro 2 - Dominance Test is > 3 - Prevalence Index is : 4 - Morphological Adapt data in Remarks or o 5 - Wetland Non-Vascul Problematic Hydrophytic ¹Indicators of hydric soil and present, unless disturbed or p	n Indicators: phytic Vegetation 50% ≤ 3.0 ¹ ations ¹ (Provide su on a separate sheet ar Plants ¹ Vegetation ¹ (Expl wetland hydrology problematic.	upporting et) ain) must be
1.	0	_ = Total Co	ver	Hydrophytic Vegetation Ye Present?	es 🛛 No [

Depth	Matrix		•		Redox Features	\$					
(inches)	Color (moist)	%	Color (r	noist)	%	 Type ¹	Loc	2	Texture	Remark	s
0-4	10YR 3/2	100							Clay loam		
4-12*	10YR 4/2	93	7.5YR	R 4/4	7	С	М		Clay loam		
¹ Type: C=C	Concentration, D=D	epletion, R	M=Reduce	ed Matri	ix, CS=Covered o	r Coated San	d Grains.	² Lo	oc: PL=Pore Lining, N	1=Matrix.	
Hydric So	il Indicators: (Appl	icable to	all LRRs, u	unless	otherwise noted.)		Ind	icators for Problem	atic Hydric Sc	oils³:
Histos	sol (A1)			Sandy	Redox (S5)				2cm Muck (A10)		
□ Histic	Epipedon (A2)			Strippe	ed Matrix (S6)				Red Parent Materia	al (TF2)	
Black	Histic (A3)			Loamy	/ Mucky Mineral (F	1) (except M	LRA 1)		Very Shallow Dark	Surface (TF12)
□ Hydro	gen Sulfide (A4)			Loamy	Gleyed Matrix (F	2)			Other (Explain in R	emarks)	
Deple	ted Below Dark Sur	face (A11)		Deplet	ed Matrix (F3)						
Thick	Dark Surface (A12)			Redox	Dark Surface (F6	5)		³ In	dicators of hydrophyt	ic vegetation a	nd
Sandy	y Mucky Mineral (S)		Deplet	ed Dark Surface (F7)			wetland hydrology m	nust be present	t, unless
□ Sandy	y Gleyed Matrix (S4)		Redox	Depressions (F8))			disturbed or problem	natic.	
Restrictive	e Laver (if present)	:									
Type:						н	ydric soi present?	I	Yes 🛛	No 🗆	
Depth	(inches):						Jiesenti				
Remarks:	*Couldn't dia pas	t 12" due f	lo compaci	lion.							
Remarks:	*Couldn't dig pas	t 12" due 1	to compact	lion.							

HYDROLOGY

Wetland Hydrology Indicators: Secondary Indicators (2 or more required)										
 Surface water (A1) High Water Table (A2))				Water-Stained Leaves (except MLRA 1, 2, 4A & 4B) (B9)		Water-Stained Leaves (B9) (MLRA 1, 2, 4A & 4B)			
□ Saturation (A3)					Salt Crust (B11)		Drainage Patterns (B10)			
Water Marks (B1)					Aquatic Invertebrates (B13)		Dry-Season Water Table (C2)			
Sediment Deposits (B)	2)				Hydrogen Sulfide Odor (C1)		Saturation Visible on Aerial Imagery (C9)			
Drift Deposits (B3)					Oxidized Rhizospheres along Living Roots (C3)	\boxtimes	Geomorphic Position (D2)			
Algal Mat or Crust (B4))				Presence of Reduced Iron (C4)		Shallow Aquitard (D3)			
□ Iron Deposits (B5)					Recent Iron Reduction in Tilled Soils (C6)	\boxtimes	FAC-Neutral Test (D5)			
Surface Soil Cracks (E)	36)				Stunted or Stressed Plants (D1) (LRR A)		Raised Ant Mounds (D6) (LRR A)			
□ Inundation Visible on Aerial Imagery (B7) □ Other (explain in remarks)							Frost-Heave Hummocks			
Sparsely Vegetated C	oncave	Surfa	ace (B	8)						
Field Observations:										
Surface Water Present?	Yes		No	\boxtimes	Depth (in): Wetland Hyd	roloav				
Water Table Present?	Yes		No	\boxtimes	Depth (in): Present	?	Yes 🛛 No 🗌			
Saturation Present? (includes capillary fringe)	Yes		No	\boxtimes	Depth (in):					
Describe Recorded Data (s	stream	gauge	e, mon	iitoring	well, aerial photos, previous inspections), if availa	able:				
Remarks:										



DP-1

Project/Site: Capitol Land Trust – Henderson Inlet	City/County:	Thurston (County	Sa	ampling date:	8/28/19
Applicant/Owner: Bob Droll			State:	WA	Sampling Point:	DP-14
Investigator(s): L. Dougherty, G. Brennan	Section, Townshi	p, Range:	S28 T19	9N R01W	1	
Landform (hillslope, terrace, etc): Hillslope	Local relief (conca	ave, convex	, none):	None	Slope	e (%): <u>10</u>
Subregion (LRR): A Lat: - Lon	g:			Datum:	-	
Soil Map Unit Name: Kapowsin silt loam	N	IWI classific	ation:	None		
Are climatic / hydrologic conditions on the site typical for this time of year	? 🛛 Yes 🗆 No) (If no, exp	olain in rer	marks.)		
Are Vegetation \Box , Soil \Box , or Hydrology \Box significantly disturbed?	Are "Normal C	Circumstance	es" preser	nt on the	site? 🛛 Yes 🛛	□ No
Are Vegetation \Box , Soil \Box , or Hydrology \Box naturally problematic?	(If needed, exp	plain any an	iswers in I	Remarks	.)	
SUMMARY OF FINDINGS – Attach site map showing sampli	ng point location	is, transect	ts, impor	tant feat	ures, etc.	

Hydrophytic Vegetation Present?	Yes	\boxtimes	No			Yes 🗌	
Hydric Soils Present?	Yes		No	\boxtimes	Is the Sampled Area within a Wetland?		No 🛛
Wetland Hydrology Present?	Yes		No	\boxtimes			
Remarks: Wetland G out-pit.							

Tree Stratum (Plot size: 5-m diameter) 1. Alnus rubra 2. Pseudotsuga menziesii 3.	Absolute % Cover 20 10	Dominant Species? Y Y	Indicator Status FAC FACU	Dominance Test worksheet: Number of Dominant Species that are OBL, FACW, or FAC: Total Number of Dominant Species Across all Strata: Percent of Dominant Species 67
Sapling/Shrub Stratum (Plot size: 3-m diameter) 1. Rubus armeniacus 2. Rubus laciniatus 3.	30 30 15	_ = Total Cov Y Y	/er FAC FACU	that are OBL, FACW, or FAC: Gr (A/B) Prevalence Index worksheet:
5. <u>Herb Stratum</u> (Plot size: 1-m diameter) 1. <u>Lotus corniculatus</u> 2. Grass sp.	45 30 20	_ = Total Cov Y Y	FAC FAC*	FACU species x 4 = UPL species x 5 = Column Totals: (A) Prevalence Index = B/A =
3. Ranunculus repens 4.	 		FAC	Hydrophytic Vegetation Indicators: □ 1 – Rapid Test for Hydrophytic Vegetation ⊠ 2 – Dominance Test is > 50% □ 3 – Prevalence Index is ≤ 3.01 □ 4 – Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) □ 5 – Wetland Non-Vascular Plants ¹ □ Problematic Hydrophytic Vegetation ¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must be present. unless disturbed or problematic.
Woody Vine Stratum (Plot size: 3-m diameter) 1.	0 rom soil pit.	= Total Co	ver	Hydrophytic Vegetation Yes No Present?

Profile De	scription: (Desc	ribe to the	depth need	led to docume	ent the indicator	or confirm the ab	sence of indicators.)	
(inches)	Color (moist)	<u>«</u>	Color (moist)	% Type	e ¹ Loc ²	Texture	Remarks
0-8	10YR 4/3	97	7.5YF	R 4/4	3 C	М	Silt loam	
8-16	2 5V 5/3	85	7 5 4	7/8	15 C	M	Silt loam	
0-10	2.51 5/3	60	7.511	K //O	15 C	IVI	Sill IOam	
¹ Type: C=	Concentration, D	=Depletion,	RM=Reduc	ed Matrix, CS=	Covered or Coate	ed Sand Grains.	² Loc: PL=Pore Lining, M	=Matrix.
Hydric So	il Indicators: (A	pplicable to	all LRRs,	unless otherw	/ise noted.)		Indicators for Problema	tic Hydric Soils ³ :
 Histo Histic Black Hydro Deple Thick Sand Sand 	sol (A1) Epipedon (A2) Histic (A3) ogen Sulfide (A4) ted Below Dark Dark Surface (A y Mucky Mineral y Gleved Matrix (Surface (A1 12) (S1) 'S4)	1)	Sandy Redox Stripped Matri Loamy Mucky Loamy Gleye Depleted Matri Redox Dark S Depleted Dari Redox Depre	((S5) rix (S6) y Mineral (F1) (ex d Matrix (F2) trix (F3) Surface (F6) k Surface (F7) ssions (F8)	cept MLRA 1)	 2cm Muck (A10) Red Parent Material Very Shallow Dark S Other (Explain in Registration of hydrophytic wetland hydrology mudisturbed or problematic starts) 	(TF2) Surface (TF12) emarks) c vegetation and ust be present, unless atic.
Restrictiv	e Layer (if prese	ent):						
Type:						Hydric soil	Yes 🗌	No 🛛
Denth	(inches):					present?		
IYDROL	OGY							
Wetland H Primary In	lydrology Indica dicators (minimu	ators: m of one re	quired: chec	k all that apply)		Secondary Indicators (2	or more required)
□ Surfa	ce water (A1)		Г	Water-Stair	ned Leaves (exce	pt MLRA 1, 2, 4A	Water-Stained Le	aves (B9) (MLRA 1,
□ High	Water Table (A2)	1	-	⁻ & 4B) (B9)			2, 4A & 4B)	
□ Satur	ation (A3)		L	□ Salt Crust (B11)		Drainage Patterns Dry Seeson Wate	s (B10)
	r Marks (B1) pont Donosite (B'	2)	L	☐ Aquatic Inv ☐ Hydrogon S	Sulfide Oder (C1)		Dry-Season wate Saturation Visible	on Aprial Imagony (CO
	Penosits (B3)	<u>~</u>)	Г	 Oxidized Rh 	hizospheres along	Living Roots (C3)	Geomorphic Posi	tion (D2)
	Mat or Crust (B4)		Presence o	of Reduced Iron (C	C4)	□ Shallow Aquitard	(D3)
	Deposits (B5)	/		Recent Iror	Reduction in Till	ed Soils (C6)	FAC-Neutral Test	(D5)
□ Surfa	ce Soil Cracks (E	86)		Stunted or	Stressed Plants (D1) (LRR A)	Raised Ant Moun	ds (D6) (LRR A)
□ Inund □ Spars	ation Visible on A sely Vegetated Co	Aerial Image	ery (B7) [ace (B8)	Other (expl	ain in remarks)		□ Frost-Heave Hum	imocks
Field Obs	ervations:							
Surface W	ater Present?	Yes 🗆	No 🛛	Depth (in):				
Water Tab	le Present?	Yes 🗆	No 🛛	Depth (in):		Wetland Hyd Present	? Yes	
Saturation	Present?	Yes 🗆	No 🛛	Depth (in):				
Describe F	Recorded Data (s	tream gaug	e, monitorin	g well, aerial pl	hotos, previous in	spections), if availa	able:	
Remarks:								



DP-15

Project/Site: Capitol Land Trust – Henderson Inlet	City/County: Thurston County Sampling date: 8/28/19							
Applicant/Owner: Bob Droll	State: WA Sampling Point: DP-15							
Investigator(s): L. Dougherty, G. Brennan Section, Township, Range: S28 T19N R01W								
Landform (hillslope, terrace, etc): Depression	Local relief (concave, convex, none): <u>Concave</u> Slope (%): <u>0</u>							
Subregion (LRR): A Lat: - Lon	g: Datum:							
Soil Map Unit Name: Kapowsin silt loam NWI classification: None								
Are climatic / hydrologic conditions on the site typical for this time of year	? 🛛 Yes 🛛 No (If no, explain in remarks.)							
Are Vegetation \Box , Soil \Box , or Hydrology \Box significantly disturbed?	Are "Normal Circumstances" present on the site? $\ igtimes$ Yes $\ \Box$ No							
Are Vegetation \Box , Soil \Box , or Hydrology \Box naturally problematic?	Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)							
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.								
Hydrophytic Vegetation Present? Yes 🛛 No 🗆	In the Sampled Area							

Hydric Soils Present?		Yes	\boxtimes	No		Yes 🛛	No 🗆	
Wetland Hydrolog	gy Present?	Yes	\boxtimes	No				
Remarks: W	/etland H in-pit.							

<u>Tree</u> 1.	<u>e Stratum</u> (Plot size: 5-m diameter)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksh Number of Dominant Spe that are OBL, FACW, or F	i eet: cies [:] AC:	2	(A)
2. 3.					Total Number of Dominar Species Across all Strata	.t	2	(B)
4.		0	= Total Co	ver	Percent of Dominant Spe that are OBL, FACW, or F	cies AC:	100	- (A/B)
<u>Sap</u> 1. 2. 3.	ing/Shrub Stratum (Plot size: 3-m diameter)				Prevalence Index works Total % Cover of: OBL species FACW species	heet: x 1 = x 2 =	ly by:	
4. 5					FAC species	x 3 = x 4 =		<u> </u>
J		0	= Total Co	ver	UPL species	x 5 =		<u> </u>
Hert	o Stratum (Plot size: 1-m diameter)		-		Column Totals:	(A)		(B)
1.	Phalaris arundinacea	50	Y	FACW	Prevalence Index = B/A =	. ,		• •
2.	Juncus effusus	40	Y	FACW				
3.	Lotus corniculatus	15	N	FAC	Hydrophytic Vegeta	tion Indicat	ors:	
4.					1 – Rapid Test for Hy	drophytic Ve	egtation	
5.					2 – Dominance Test	is > 50%		
6.					3 – Prevalence index	IS ≤ 3.0'	Dura viala avva	
7. 8	<u> </u>				data in Remarks	aptations (F	Provide sup arate sheet)	porting
9.					□ 5 – Wetland Non-Vas	scular Plants	1 1	,
10.					Problematic Hydroph	vtic Vegetati	ion ¹ (Explai	in)
11.					¹ Indicators of hydric soil a	nd wetland h	vdrology m	nust be
-		105	= Total Co	ver	present, unless disturbed	or problema	tic.	
Woo	ody Vine Stratum (Plot size: 3-m diameter)		-					-
1.	,				Hydrophytic			
2.					Vegetation	Yes 🛛	No 🗌]
% B	are Ground in Herb Stratum: 0	0	= Total Cov	ver	Present?			
Don					•			
Ren	Iarks:							

Sampling Point: DP-15

inchoc)	Matrix		•		Redox	Features			_		_
inches)	Color (moist)	%	C	olor (moist)	%	Туре	¹ Loc ²		Texture		Remarks
0-16	10YR 3/2	90		7.5YR 4/6	10	C	M, Pl		Silt loam		
Type: C=C ydric Soi Histos Histic Black Hydro Deple	Concentration, D= I Indicators: (Ap ol (A1) Epipedon (A2) Histic (A3) gen Sulfide (A4) ted Below Dark S	Depletic plicable	on, RM=R ∋ to all Lf A11)	educed Mai R Rs, unless Sand Stripp Loam Loam Deple	trix, CS=Cc s otherwise ly Redox (S bed Matrix ny Mucky M ny Gleyed M eted Matrix	overed or Coate e noted.) (S6) lineral (F1) (exc Matrix (F2) (F3)	d Sand Grains. ept MLRA 1)	² Loc: Indica □ 2 □ R □ V □ C	PL=Pore Linin tors for Probl cm Muck (A10 ted Parent Mat ery Shallow D other (Explain i	ig, M=Ma lematic)) terial (TF vark Surfa	atrix. Hydric Soils³: ² 2) ace (TF12) rks)
☐ Thick ☐ Sandy ☐ Sandy	Dark Surface (A1 Mucky Mineral (S Gleyed Matrix (S	2) S1) S4)	,	 ☑ Redo □ Deple □ Redo 	ox Dark Sur eted Dark S ox Depressi	face (F6) Surface (F7) ions (F8)		³ Indica we dis	ators of hydrop etland hydrolog sturbed or prob	ohytic ve gy must l plematic.	getation and be present, unles
Restrictive Type: Depth	(inches):	nt):					Hydric soil present?		Yes	\boxtimes	No 🗆
Remarks:											
Remarks:											
Remarks: YDROLC	DGY ydrology Indicat	ors:									
Remarks: YDROL(Vetland H Primary Ind Surfac High V	DGY ydrology Indicat licators (minimum se water (A1) Vater Table (A2)	cors: n of one	required:	check all th	at apply) iter-Stained	l Leaves (exce	ot MLRA 1, 2, 4A	Seco	ndary Indicator Water-Staine	rs (2 or r ed Leave	nore required) s (B9) (MLRA 1,
Primary Inc Primary Inc Surfac High V Satura Water Sedim Drift D Algal N Inon Dri Surfac Surfac Inunda	DGY ydrology Indicat licators (minimum e water (A1) Vater Table (A2) tition (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) e Soil Cracks (B6 ation Visible on Ac	ors: of one)) erial Ima	required: agery (B7	check all th ₩a Sal Sal Sal Sal Sal Sal Sal Sal Sal Sa	at apply) ter-Stained IB) (B9) It Crust (B1 uatic Invert drogen Sul idized Rhiz esence of F cent Iron R unted or Str ner (explain	1 Leaves (exce 1) ebrates (B13) fide Odor (C1) ospheres along Reduced Iron (C eduction in Tille essed Plants (E n in remarks)	Dt MLRA 1, 2, 4A Living Roots (C3) 4) d Soils (C6) 11) (LRR A)		ndary Indicator Water-Staine 2, 4A & 4B) Drainage Pat Dry-Season V Saturation Vis Geomorphic Shallow Aqui FAC-Neutral Raised Ant M Frost-Heave	rs (2 or r ed Leave tterns (B Water Ta sible on A Position itard (D3 Test (D Aounds (Hummo	more required) s (B9) (MLRA 1, 10) able (C2) Aerial Imagery (C (D2)) 5) D6) (LRR A) cks
YDROL(Yetland H Primary Inc Surfac High V Satura Vater Sedim Sedim Sedim Surfac Incon D Surfac Surfac Sparse Field Obse	DGY ydrology Indicat licators (minimum e water (A1) Vater Table (A2) tition (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) the Soil Cracks (B6) ation Visible on Ac ely Vegetated Con- trvations:	ors: of one of one) erial Ima ncave S	required: agery (B7 urface (B	check all th ₩a & 4 □ Sal □ Aq □ Hy ⊠ Ox □ Pre □ Re □ Stu) □ Ott 8)	at apply) ter-Stained IB) It Crust (B1 uatic Invert drogen Sul idized Rhiz esence of F cent Iron R unted or Str ner (explair	1 Leaves (exce 1) ebrates (B13) fide Odor (C1) ospheres along Reduced Iron (C eduction in Tille ressed Plants (E n in remarks)	Dt MLRA 1, 2, 4A Living Roots (C3) 4) d Soils (C6) 11) (LRR A)	Secon	ndary Indicator Water-Staine 2, 4A & 4B) Drainage Pat Dry-Season V Saturation Vis Geomorphic Shallow Aqui FAC-Neutral Raised Ant M Frost-Heave	rs (2 or r ed Leave tterns (B Water Ta sible on A Position itard (D3 Test (D5 Aounds (Hummo	more required) is (B9) (MLRA 1, 10) able (C2) Aerial Imagery (C (D2) ;) 5) D6) (LRR A) cks
Remarks: YDROL(Vetland H Primary Inc Surfac High V Satura Water Sedim Drift D Algal N Algal N Algal Surface Surface Wa Vater Table	ydrology Indicat licators (minimum e water (A1) Vater Table (A2) tition (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) e Soil Cracks (B6 ation Visible on Ac ely Vegetated Con ervations: ater Present? e Present?	Yes [Yes [required: agery (B7 surface (B Surface (B No No	check all th ₩a Sal Sal Sal Sal Aq Hyu Sox Pre Stu Ott 8) Dep	at apply) tter-Stained IB (B9) It Crust (B1) uatic Invert drogen Sul idized Rhiz esence of F cent Iron R inted or Str her (explain her (explain oth (in):	1 Leaves (exce) 1) ebrates (B13) fide Odor (C1) ospheres along Reduced Iron (C eduction in Tille ressed Plants (E n in remarks)	ot MLRA 1, 2, 4A Living Roots (C3) 4) d Soils (C6) 01) (LRR A) Wetland Hyd Present	Seco	ndary Indicator Water-Staine 2, 4A & 4B) Drainage Pat Dry-Season V Saturation Vis Geomorphic Shallow Aqui FAC-Neutral Raised Ant M Frost-Heave	rs (2 or r ed Leave tterns (B Water Ta sible on <i>J</i> Position itard (D3 Test (D5 <i>J</i> ounds (Hummo	more required) is (B9) (MLRA 1, 10) able (C2) Aerial Imagery (C (D2)) 5) D6) (LRR A) cks
Remarks: YDROL(Primary Inc Primary Inc Surfac High V Satura Water Sedim Drift D Algal N Iron D Surfac Surfac Surface Wa Vater Table Saturation I includes ca	DGY ydrology Indicat licators (minimum e water (A1) Vater Table (A2) tition (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) e Soil Cracks (B6 ation Visible on Ac ely Vegetated Con ervations: ater Present? e Present? Present? apillary fringe)	ors: of one of one) erial Ima ncave S Yes [Yes [Yes [required: agery (B7 Surface (B D No No No No	check all th □ & 4 □ Sai □ Aq □ Hy □ Pre □ Pre □ Stu □ Ott 8) Dep ⊠ Dep ⊠ Dep ⊠ Dep	at apply) tter-Stained tB) (B9) It Crust (B1 uatic Invert drogen Sul idized Rhiz esence of F cent Iron R inted or Str her (explain oth (in): oth (in):	1 Leaves (exce 1) ebrates (B13) fide Odor (C1) ospheres along Reduced Iron (C eduction in Tille ressed Plants (E n in remarks)	ot MLRA 1, 2, 4A Living Roots (C3) 4) d Soils (C6) 11) (LRR A) Wetland Hyd Present	Secon	ndary Indicator Water-Staine 2, 4A & 4B) Drainage Pat Dry-Season V Saturation Vis Geomorphic Shallow Aqui FAC-Neutral Raised Ant M Frost-Heave	rs (2 or r ed Leave tterns (B Water Ta sible on A Position itard (D3 Test (D9 Aounds (Hummo	more required) s (B9) (MLRA 1 , 10) able (C2) Aerial Imagery (C (D2)) 5) D6) (LRR A) cks
Vetland H rimary Inco J Surfac J High V J Satura J Water J Sedim J Drift D J Algal N J Iron D J Surfac J Inunda J Sparse ield Obse urface Wa /ater Table aturation I ncludes ca escribe R	DGY ydrology Indicat licators (minimum e water (A1) Vater Table (A2) tition (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) e Soil Cracks (B6) ation Visible on Ae ely Vegetated Con ervations: ater Present? e Present? Present? apillary fringe) ecorded Data (str	ors: of one of one))))) Yes [Yes [Yes [Yes [Yes [Yes [Yes [required: agery (B7 urface (B No No No No uge, mon	check all th ₩a & 4 □ Sai □ Aq □ Pre □ Re □ Stu 0 Ott 8) □ Dep □ Dep □ itoring well,	at apply) ter-Stained (B) (B9) It Crust (B1) uatic Invert drogen Sul idized Rhiz esence of F cent Iron R inted or Str her (explain oth (in): oth (in): aerial phot	1 Leaves (exce 1) ebrates (B13) fide Odor (C1) ospheres along Reduced Iron (C eduction in Tille ressed Plants (E n in remarks) cos, previous ins	ot MLRA 1, 2, 4A Living Roots (C3) 4) Id Soils (C6) 11) (LRR A) Wetland Hyd Present	Secon	ndary Indicator Water-Staine 2, 4A & 4B) Drainage Pat Dry-Season V Saturation Vis Geomorphic Shallow Aqui FAC-Neutral Raised Ant W Frost-Heave	rs (2 or r ed Leave tterns (B Water Ta sible on <i>i</i> Position itard (D3 Test (D5 Aounds (Hummo	nore required) s (B9) (MLRA 1, 10) able (C2) Aerial Imagery (C (D2)) 5) D6) (LRR A) cks



DP-16

Project/Site: Capitol Land Trust – Henderson Inlet	City/County: Thurston County Sampling date: 8/28/19								
Applicant/Owner: Bob Droll	State: WA Sampling Point: DP-16								
Investigator(s): L. Dougherty, G. Brennan	Section, Township, Range: S28 T19N R01W								
Landform (hillslope, terrace, etc): Hillslope	Local relief (concave, convex, none): <u>None</u> Slope (%): <u>15</u>								
Subregion (LRR): A Lat: - Lon	g: Datum:								
Soil Map Unit Name: Kapowsin silt Ioam	NWI classification: None								
Are climatic / hydrologic conditions on the site typical for this time of year	? \boxtimes Yes \Box No (If no, explain in remarks.)								
Are Vegetation \Box , Soil \Box , or Hydrology \Box significantly disturbed?	Are "Normal Circumstances" present on the site? $\ igtriangle$ Yes $\ \Box$ No								
Are Vegetation \Box , Soil \Box , or Hydrology \Box naturally problematic?	(If needed, explain any answers in Remarks.)								
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.									

Hydrophytic Vegetation Present?	Yes	\boxtimes	No		is the Sampled Area	_	_
Hydric Soils Present?	Yes		No	\boxtimes	within a Wetland?	Yes 🛛	No 🛛
Wetland Hydrology Present?	Yes		No	\boxtimes			
Remarks: Wetland H out-pit.							

Tree Stratum (Plot size: 5-m diameter) 1. <i>Pinus contorta</i> 2.	Absolute % Cover 80	Dominant Species? Y	Indicator Status FAC	Dominance Test worksheet: Number of Dominant Species that are OBL, FACW, or FAC: Total Number of Dominant Species Across all Strata: Percent of Dominant Species	2 (A) 3 (B) 67 (A)(D)
Sapling/Shrub Stratum (Plot size: 3-m diameter) 1. Crataegus monogyna 2. Rubus armeniacus 3.	 	_ = Total Co 	FAC FAC ver FACU FACU	That are OBL, FACW, of FAC. Prevalence Index worksheet: Total % Cover of: OBL species FACW species FAC species FACU species UPL species Column Totals: Prevalence Index = B/A =	Multiply by: x 1 = x 2 = x 3 = x 4 = x 5 = (A) (B)
3. Polystichum munitum 4.			Ver	Hydrophytic Vegetation II □ 1 – Rapid Test for Hydroph ☑ 2 – Dominance Test is > 50 □ 3 – Prevalence Index is ≤ 3 □ 4 – Morphological Adaptation data in Remarks or on 1 □ 5 – Wetland Non-Vascular □ Problematic Hydrophytic Vetland Non-Vascular □ Problematic Hydrophytic Vetland Non-Vascular □ Hydrophytic Soil and we present, unless disturbed or pro Hydrophytic Vegetation Yes Procept2	ndicators: hytic Vegetation 0% 3.0 ¹ ons ¹ (Provide supporting a separate sheet) Plants ¹ egetation ¹ (Explain) teland hydrology must be bblematic. No
% Bare Ground in Herb Stratum: 0 Remarks: Understory mostly covered in pine ne	edles.		ver	Present?	

Profile Des	cription: (Describe	e to the dep	oth need	led to document the ind	icator or confirm the	abse	nce of indicators.)	
Depth	Matrix			Redox Features	<u>i</u>			
(inches)	Color (moist)	%	Color (n	noist) %	Type ¹ Lo	DC ²	Texture Remarks	
0-12*	10YR 5/3	100					Silt loam	
¹ Type: C=C	oncentration, D=De	pletion, RM	=Reduce	ed Matrix, CS=Covered or	Coated Sand Grains.	² L	Loc: PL=Pore Lining, M=Matrix.	
Hydric Soi	I Indicators: (Appli	cable to all	LRRs, u	unless otherwise noted.)	In	dicators for Problematic Hydric Soils ³ :	
□ Histos	ol (A1)			Sandy Redox (S5)			2cm Muck (A10)	
□ Histic	Epipedon (A2)			Stripped Matrix (S6)			Red Parent Material (TF2)	
□ Black	Histic (A3)			Loamy Mucky Mineral (F	1) (except MLRA 1)		Very Shallow Dark Surface (TF12)	
□ Hvdro	pen Sulfide (A4)			Loamy Gleved Matrix (F	2)		Other (Explain in Remarks)	
Deplet	ed Below Dark Surf	ace (A11)		Depleted Matrix (F3)	_,		(
□ Thick	Dark Surface (A12)			Redox Dark Surface (F6)	³	ndicators of hydrophytic vegetation and	
□ Sandv	Mucky Mineral (S1)		Depleted Dark Surface (, F7)		wetland hydrology must be present, un	less
□ Sandy	Gleyed Matrix (S4)	/		Redox Depressions (F8)	,		disturbed or problematic.	
Restrictive	Layer (if present):							
Type:					Hydric so	oil 2	Yes 🛛 No 🗌	
Depth	(inches):				present	•		
Remarks:	*Couldn't dia past	12" due to	compact	ion	1			
i terriarită.	Source rug pasi		compact	.01.				

HYDROLOGY

Wetland Hydrology Indicators: Secondary Indicators (2 or more required) Primary Indicators (minimum of one required: check all that apply) Secondary Indicators (2 or more required)												
 Surface water (A1) High Water Table (A2))				Water-Stained Leaves (except MLRA 1, 2, 4A & 4B) (B9)		Water-Stained Leaves (B9) (MLRA 1, 2, 4A & 4B)					
□ Saturation (A3)	,				Salt Crust (B11)		Drainage Patterns (B10)					
□ Water Marks (B1)					Aquatic Invertebrates (B13)		Dry-Season Water Table (C2)					
Sediment Deposits (B)	2)				Hydrogen Sulfide Odor (C1)		Saturation Visible on Aerial Imagery (C9)					
 Drift Deposits (B3) 					Oxidized Rhizospheres along Living Roots (C3)		Geomorphic Position (D2)					
□ Algal Mat or Crust (B4	4)				Presence of Reduced Iron (C4)		Shallow Aquitard (D3)					
□ Iron Deposits (B5)					Recent Iron Reduction in Tilled Soils (C6)		FAC-Neutral Test (D5)					
□ Surface Soil Cracks (B6)					Stunted or Stressed Plants (D1) (LRR A)		Raised Ant Mounds (D6) (LRR A)					
□ Inundation Visible on Aerial Imagery (B7)					Other (explain in remarks)		Frost-Heave Hummocks					
Sparsely Vegetated C	oncave	e Surfa	ace (B	8)								
Field Observations:												
Surface Water Present?	Yes		No	\boxtimes	Depth (in): Wetland Hyd	roloav						
Water Table Present?	Yes		No	\boxtimes	Depth (in): Present	?	Yes 📙 No 🖾					
Saturation Present? (includes capillary fringe)	Yes		No	\boxtimes	Depth (in):							
Describe Recorded Data (s	stream	gauge	e, mor	itoring	well, aerial photos, previous inspections), if availa	able:						
Remarks:												



DP-17

Project/Site: Capitol Land Trust – Henderson Inlet	City/County: Thurston County Sampling date: 8/28/19									
Applicant/Owner: Bob Droll	State: WA Sampling Point: DP-17									
Investigator(s): L. Dougherty, G. Brennan	Section, Township, Range: <u>S28 T19N R01W</u>									
Landform (hillslope, terrace, etc): Terrace	Local relief (concave, convex, none): <u>None</u> Slope (%): <u>2</u>									
Subregion (LRR): A Lat: - Lor	ng: Datum:									
Soil Map Unit Name: Kapowsin silt Ioam	NWI classification: None									
Are climatic / hydrologic conditions on the site typical for this time of year	.r? 🛛 Yes 🛛 No (If no, explain in remarks.)									
Are Vegetation \Box , Soil \Box , or Hydrology \Box significantly disturbed?	Are "Normal Circumstances" present on the site? \boxtimes Yes \Box No									
Are Vegetation \Box , Soil \Box , or Hydrology \Box naturally problematic?	(If needed, explain any answers in Remarks.)									
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.										
Hydrophytic Vegetation Present? Yes 🛛 No 🗆										

Hydrophytic vegetation Present?	res		INU	la the Compled Area		
Hydric Soils Present?	Yes	\boxtimes	No	within a Wetland?	Yes 🛛	No 🗌
Wetland Hydrology Present?	Yes	\boxtimes	No			
Remarks: Wetland I in-pit.						

Tree Stratum (Plot size: 5-m diameter) 1.	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species that are OBL, FACW, or FAC:	:	2 (A	()
2				Total Number of Dominant Species Across all Strata:	:	2 (B	5)
4.	0	= Total Co	ver	Percent of Dominant Species that are OBL, FACW, or FAC:	1	00 (A	, √B)
Sapling/Shrub Stratum (Plot size: 3-m diameter) 1. <u>Rubus armeniacus</u>	5	Y	FAC	Prevalence Index worksheet	:: <u>Multiply b</u>	<u>y:</u>	
2				FACW species	x 1 =		
4.				FAC species	x 3 =		
5.				FACU species	x 4 =		
	5	= Total Co	ver	UPL species	x 5 =		
Herb Stratum (Plot size: 1-m diameter)				Column Totals:	(A)	((B)
1. Juncus effusus	80	Y	FACW	Prevalence Index = B/A =			
2. Lotus corniculatus	10	N	FAC				
3. Epilobium ciliatum	5	<u>N</u>	FACW	Hydrophytic Vegetation	Indicators	: tation	
4. Rubus ursinus	2	N	FACU	\square 1 – Rapid Test for Hydrop	50%	lation	
5				\square 3 – Prevalence Index is <	3.0 ¹		
7				4 – Morphological Adapta	tions ¹ (Prov	/ide supporti	ing
o				□ 5 – Wetland Non-Vascula	r Plants ¹	e sheel)	
10				Problematic Hydrophytic	Vegetation ¹	(Explain)	
11.				¹ Indicators of hydric soil and w	etland hvdr	rology must l	be
	97	= Total Co	ver	present, unless disturbed or pr	roblematic.	0.099	~~
Woody Vine Stratum (Plot size: 3-m diameter)		-					
1.				Hydrophytic			
2.				Vegetation Yes	s 🛛	No 🗆	
% Bare Ground in Herb Stratum: 0	0	= Total Co	ver	Present?			
Remarks:							
Remarks.							

Sampling Point: DP-17

Profile Des	cription: (Describ	e to the de	pth needed to	document the in	dicator or conf	irm the al	bsen	ce of indicators.)		
Depth (inchoo)	<u>Matrix</u>	0/	Color (moiot	Redox Featur	<u>es</u> Turaci		2	Taxtura		Domorko
(inches)	Color (moist)	%	Color (moist) %	Туре	LOC	-	Texture		Remarks
0-12*	10YR 3/2	95	7.5YR 6/6	5	С	М		Sandy loam		
¹ Type: C=C	oncentration, D=De	pletion, RM	I=Reduced Ma	atrix, CS=Covered	or Coated Sand	Grains.	² Lc	oc: PL=Pore Lining	, M=Ma	trix.
Hydric Soil	Indicators: (Appli	cable to al	l LRRs, unles	s otherwise note	d.)		Ind	icators for Proble	matic H	lydric Soils ³ :
□ Histos	ol (A1)		🗆 San	dy Redox (S5)				2cm Muck (A10)		
Histic I	Epipedon (A2)		🗆 Strip	ped Matrix (S6)				Red Parent Mate	rial (TF	2)
Black I	Histic (A3)		🗆 Loa	my Mucky Mineral	(F1) (except ML	RA 1)		Very Shallow Da	rk Surfa	ce (TF12)
Hydrog	gen Sulfide (A4)		🗆 Loa	my Gleyed Matrix ((F2)			Other (Explain in	Remar	ks)
Deplet	ed Below Dark Surf	ace (A11)	🗆 Dep	leted Matrix (F3)						
Thick I	Dark Surface (A12)		🛛 Red	ox Dark Surface (F	-6)		³ Inc	dicators of hydroph	ytic veg	etation and
Sandy	Mucky Mineral (S1)	🗆 Dep	leted Dark Surface	e (F7)			wetland hydrology	must b	e present, unless
Sandy	Gleyed Matrix (S4)		🗆 Red	ox Depressions (F	8)			disturbed or proble	ematic.	
Restrictive	Laver (if present)									
Type:	· · · · · · · · · · · · · · · · · · ·				Hy	/dric soi	I	Vee		
Type.					р	resent?		res		
Depth	(inches):									
Demenden	*Ooulduit die voor									
Remarks:	Couldn't dig pas		compaction.							

HYDROLOGY

Wetland Hydrology Indicators: Secondary Indicators (2 or more required) Primary Indicators (minimum of one required: check all that apply) Secondary Indicators (2 or more required)												
 Surface water (A1) High Water Table (A2))				Water-Stained Leaves (except MLRA 1, 2, 4A & 4B) (B9)		Water-Stained Leaves (B9) (MLRA 1, 2, 4A & 4B)					
□ Saturation (A3)	,				Salt Crust (B11)		Drainage Patterns (B10)					
Water Marks (B1)					Aquatic Invertebrates (B13)		Dry-Season Water Table (C2)					
□ Sediment Deposits (B	2)				Hydrogen Sulfide Odor (C1)		Saturation Visible on Aerial Imagery (C9)					
Drift Deposits (B3)					Oxidized Rhizospheres along Living Roots (C3)		Geomorphic Position (D2)					
□ Algal Mat or Crust (B4	•)				Presence of Reduced Iron (C4)		Shallow Aquitard (D3)					
□ Iron Deposits (B5)					Recent Iron Reduction in Tilled Soils (C6)	\boxtimes	FAC-Neutral Test (D5)					
Surface Soil Cracks (I				Stunted or Stressed Plants (D1) (LRR A)		Raised Ant Mounds (D6) (LRR A)						
□ Inundation Visible on	mage	ry (B7)	Other (explain in remarks)	\boxtimes	Frost-Heave Hummocks						
Sparsely Vegetated C	oncave	Surfa	ace (B	8)								
Field Observations:												
Surface Water Present?	Yes		No	\boxtimes	Depth (in): Wetland Hyd	rology						
Water Table Present?	Yes		No	\boxtimes	Depth (in): Present	?	Yes 🖾 No 🗋					
Saturation Present?	Yes		No	\boxtimes	Depth (in):							
	troors			itorina		obles						
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:												
Remarks:												



DP-18

Project/Site: Capitol Land Trust – Henderson Inlet	City/County: Thurston County Sampling date: 8/28/19
Applicant/Owner: Bob Droll	State: WA Sampling Point: DP-18
Investigator(s): L. Dougherty, G. Brennan	Section, Township, Range: S28 T19N R01W
Landform (hillslope, terrace, etc): Hillslope	Local relief (concave, convex, none): <u>None</u> Slope (%): <u>7</u>
Subregion (LRR): A Lat: - Lon	g: Datum:
Soil Map Unit Name: Kapowsin silt loam	NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year	? 🛛 Yes \Box No (If no, explain in remarks.)
Are Vegetation \Box , Soil \Box , or Hydrology \Box significantly disturbed?	Are "Normal Circumstances" present on the site? \boxtimes Yes \Box No
Are Vegetation \Box , Soil \Box , or Hydrology \Box naturally problematic?	(If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sampli	ng point locations, transects, important features, etc.

Remarks: Wetland I out-pit.							
Wetland Hydrology Present?	Yes		No	\boxtimes			
Hydric Soils Present?	Yes		No	\boxtimes	Is the Sampled Area within a Wetland?	Yes 🛛	No 🛛
Hydrophytic Vegetation Present?	Yes	\boxtimes	No				

Tree Stratum (Plot size: 5-m diameter) 1. Pseudotsuga menziesii 2. Frangula purshiana 3.	Absolute % Cover 60 15	Dominant Species? Y Y	Indicator Status FACU FAC	Dominance Test worksheet: Number of Dominant Species that are OBL, FACW, or FAC: Total Number of Dominant Species Across all Strata: Percent of Dominant Species that are OBL FACW, or FAC: 0
Sapling/Shrub Stratum (Plot size: 3-m diameter) 1. Rubus armeniacus 2.	40	_ = 10tai Cov	FAC	Inat are OBL, FACW, OF FAC: (A/B) Prevalence Index worksheet:
<u>5.</u> <u>Herb Stratum</u> (Plot size: 1-m diameter) <u>1. Cirsium arvense</u> <u>2. Rubus ursinus</u>	<u>40</u> <u>15</u> 10	_ = Total Cov Y Y	ver FAC FACU	FACU species x 4 = UPL species x 5 = Column Totals: (A) Prevalence Index = B/A =
2. Hubbs ursmus 3. Epilobium ciliatum 4.	 		FACW	Hydrophytic Vegetation Indicators: □ 1 – Rapid Test for Hydrophytic Vegetation ⊠ 2 – Dominance Test is > 50% □ 3 – Prevalence Index is ≤ 3.01 □ 4 – Morphological Adaptations1 (Provide supporting data in Remarks or on a separate sheet) □ 5 – Wetland Non-Vascular Plants1 □ Problematic Hydrophytic Vegetation1 (Explain) ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 3-m diameter) 1. 2. % Bare Ground in Herb Stratum: 0* Remarks: *Groundcover is mostly duff/dead blace	0	_ = Total Co	ver	Hydrophytic Vegetation Yes ⊠ No □ Present?

Depth Matrix Redox Features (inches) Color (moist) % Color (moist) % Type1 Loc2 Texture Remarks 0-12* 10YR 3/2 100 Silt loam Silt loam	Profile Description:	Describe to the	depth neede	ed to document the indicat	or or confirm the a	bsence	of indicators.)	
(inches) Color (moist) % Type1 Loc2 Texture Remarks 0-12* 10YR 3/2 100 Silt loam Silt loam 12* 10YR 3/2 100 Silt loam Silt loam 12* 10YR 3/2 100 Silt loam Silt loam	Depth	Matrix		Redox Features				
0-12* 10YR 3/2 100 Sitt loam 0-12* 10YR 3/2 100 Sitt loam Sitt loam Sitt loam Sitt loam 1 Sitt loam Sitt loam 1 1 Sitt loam	(inches) Color (noist) %	Color (m	noist) % Ty	/pe ¹ Loo	²	Texture	Remarks
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ² Loc: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils ³ : Histicsol (A1) Sandy Redox (S5) 2cm Muck (A10) Histic Epipedon (A2) Stripped Matrix (S6) Red Parent Material (TF2) Black Histic (A3) Loamy Gleyed Matrix (F2) Other (Explain in Remarks) Depleted Below Dark Surface (A11) Depleted Matrix (F3) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) disturbed or problematic.	0-12* 10YF	3/2 100					Silt loam	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ² Loc: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils ³ : Histosol (A1) Sandy Redox (S5) 2cm Muck (A10) Histic Epipedon (A2) Stripped Matrix (S6) Red Parent Material (TF2) Black 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) Depleted Matrix (F3) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Sandy Gleyed Matrix (S4) Redox Depressions (F8) aisturbed or problematic.								
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ² Loc: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils ³ : Histosol (A1) Sandy Redox (S5) 2cm Muck (A10) Histic Epipedon (A2) Stripped Matrix (S6) Red Parent Material (TF2) Black 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) Depleted Matrix (F3) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Sandy Gleyed Matrix (S4) Redox Depressions (F8) attribute or problematic.								
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ² Loc: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils ³ : Histosol (A1) Sandy Redox (S5) 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) Depleted Matrix (F3) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) wetland hydrology must be present, unless disturbed or problematic. Restrictive Laver (if present): Redox Depressions (F8) Hestrictive Laver (if present):								
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ² Loc: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils ³ : Histosol (A1) Sandy Redox (S5) 2cm Muck (A10) Histic Epipedon (A2) Stripped Matrix (S6) Red Parent Material (TF2) Black Histic (A3) Loamy Mucky Mineral (F1) (except MLRA 1) Very Shallow Dark Surface (TF12) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F3) Other (Explain in Remarks) Thick Dark Surface (A12) Redox Dark Surface (F6) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Sandy Gleyed Matrix (S4) Redox Depressions (F8) Gisturbed or problematic.								
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ² Loc: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils ³ : Histosol (A1) Sandy Redox (S5) 2cm Muck (A10) Histic Epipedon (A2) Stripped Matrix (S6) Red Parent Material (TF2) Black 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) Depleted Matrix (F3) Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) aiturbed or problematic. Restrictive Laver (if present): Redox Depressions (F8) aiturbed or problematic.								
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ² Loc: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils ³ : Histosol (A1) Sandy Redox (S5) 2cm Muck (A10) Histic Epipedon (A2) Stripped Matrix (S6) Red Parent Material (TF2) Black 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) Depleted Matrix (F3) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Sandy Gleyed Matrix (S4) Redox Depressions (F8) disturbed or problematic.								
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ² Loc: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils ³ : Histosol (A1) Sandy Redox (S5) Indicators for Problematic Hydric Soils ³ : Histosol (A1) Sandy Redox (S5) 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) Depleted Matrix (F3) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) disturbed or problematic.								
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ² Loc: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils ³ : Histosol (A1) Sandy Redox (S5) 2cm Muck (A10) Histic Epipedon (A2) Stripped Matrix (S6) Red Parent Material (TF2) Black 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) Depleted Matrix (F3) Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) disturbed or problematic.								
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils ³ : Histosol (A1) Sandy Redox (S5) Indicators for Problematic Hydric Soils ³ : Histosol (A1) Sandy Redox (S5) 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) Depleted Dark Surface (F6) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Sandy Gleyed Matrix (S4) Redox Depressions (F8) Gisturbed or problematic.	¹ Type: C=Concentrat	on D-Doplotion	PM-Poduco	d Matrix, CS=Covered or Co	atad Sand Crains	21 00:	DI - Doro Lipipa M-N	lotrix
Histosol (A1) Sandy Redox (S5) 2cm Muck (A10) Histosol (A1) 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) Depleted Matrix (F3) Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Sandy Gleyed Matrix (S4) Redox Depressions (F8) Gisturbed or problematic.	Hydric Soil Indicato	s: (Applicable to		nless otherwise noted)	ateu Sanu Grains.	Indica	tors for Problematic	Hydric Soils ³
 Instosol (AT) Salidy Redox (SS) Salidy Redox (SS) 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) 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) 				Sandy Bodoy (S5)			Com Muck (A10)	
 Inside Epipedon (A2) Stripped Matrix (S0) Istripped Matrix (S0) Red Patent Material (T12) Red Patent Material (T12) Red Patent Material (T12) Very Shallow Dark Surface (TF12) Usery Shallow Dark Surface (TF12) Depleted Below Dark Surface (A11) Depleted Matrix (F2) Other (Explain in Remarks) Depleted Below Dark Surface (A12) Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Sandy Gleyed Matrix (S4) Redox Depressions (F8) 	Histosof (AT)	(4.2)		Stripped Matrix (S6)			CITI MUCK (ATU) Pod Parent Material (T	-E3)
Black Histic (AS) Ebally Midcky Mineral (F1) (except MERKT) Very Shalow Dark Surface (F12) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Other (Explain in Remarks) Depleted Below Dark Surface (A11) Depleted Matrix (F3) Other (Explain in Remarks) Thick Dark Surface (A12) Redox Dark Surface (F6) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Sandy Gleyed Matrix (S4) Redox Depressions (F8) disturbed or problematic.	Black Histic (A3)	(42)		Loomy Mucky Minoral (E1) (ovcopt ML PA 1)		Veu Faleni Malenai (1	(TE12)
Image: Provide (A4) Image: Control (A4)<		(()		Loamy Cloved Matrix (E2)			Alber (Evolein in Rom	
 Depleted below Dark Surface (A11) Thick Dark Surface (A12) Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Sandy Gleyed Matrix (S4) Redox Depressions (F8) a Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. 		; (A4) Dark Surfaco (A1	1)	Doploted Matrix (F2)				diks)
Image: Sandy Mucky Mineral (S1) Image: Depleted Dark Surface (F7) Image: Wetland hydrology must be present, unless disturbed or problematic. Restrictive Laver (if present): Image: Wetland Hydrology must be present, unless disturbed or problematic.	Depleted Below Thick Dark Surf:		, L	Redox Dark Surface (F6)		³ Indic	ators of hydrophytic y	egetation and
Sandy Gleyed Matrix (S4) Redox Depressions (F8) disturbed or problematic.	Sandy Mucky M	neral (S1)		Depleted Dark Surface (F7)		We	etland hydrology must	be present unless
Restrictive Laver (if present):	□ Sandy Gleved M	atrix (S4)		Redox Depressions (F8)		di	sturbed or problemation	2.
	Restrictive Laver (if	present):						
	Type:	,-			Hydric soi	il	Yes 🗌	No 🕅
Depth (inches):	Depth (inches):				present?			
Deptir (inclus).	Deptil (illenes).							
Remarks: *Couldn't dig past 12" due to compaction.	Remarks: *Couldr	t dig past 12" due	e to compacti	on.				

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one	Seco	ndary Indicators (2 or more required)			
□ Surface water (A1)			Water-Stained Leaves (except MLRA 1, 2, 4A & 4B) (B9)		Water-Stained Leaves (B9) (MLRA 1, 2 44 & 4B)
$\Box \text{Fight Water Table (A2)} \\ \Box \text{Saturation (A3)}$			Solt Crust (B11)		Drainage Batterns (B10)
Water Marka (P1)			Aquatia Invertebrates (P12)		Dry Sessen Water Table (C2)
Water Marks (BT) Sediment Depentite (D2)			Aqualic Invertebrates (B13)		Div-Season Water Table (C2)
			Hydrogen Sullide Odor (CT)		Saturation Visible on Aenal Imagery (C9)
			Oxidized Rhizospheres along Living Roots (C3)		Geomorphic Position (D2)
☐ Algal Mat or Crust (B4)			Presence of Reduced Iron (C4)		Shallow Aquitard (D3)
Iron Deposits (B5)			Recent Iron Reduction in Tilled Soils (C6)		FAC-Neutral Test (D5)
Surface Soil Cracks (B6)			Stunted or Stressed Plants (D1) (LRR A)		Raised Ant Mounds (D6) (LRR A)
Inundation Visible on Aerial Im	agery (B7	′) □	Other (explain in remarks)		Frost-Heave Hummocks
□ Sparsely Vegetated Concave S	Surface (E	38)			
Field Observations:					
Surface Water Present? Yes	🗆 No	\boxtimes	Depth (in):		
Water Table Present? Yes	🗆 No	\boxtimes	Depth (in): Present?	2010gy	Yes 🗌 No 🖾
Saturation Present? Yes	🗆 No	\boxtimes	Depth (in):		
(includes capillary fringe)					
Describe Recorded Data (stream ga	auge, mor	nitoring	well, aerial photos, previous inspections), if availa	ble:	
Remarks:					
-					



DP-1

Project/Site: Capitol Land Trust – Henderson Inlet	City/County: Thurston County Sampling date: 9/3/19							
Applicant/Owner: Bob Droll	State: WA Sampling Point: DP-19							
Investigator(s): L. Dougherty, G. Brennan	Section, Township, Range: S28 T19N R01W							
Landform (hillslope, terrace, etc): Hillslope	Local relief (concave, convex, none): <u>None</u> Slope (%): <u>5</u>							
Subregion (LRR): A Lat: - Lor	g: Datum:							
Soil Map Unit Name: Kapowsin silt Ioam	NWI classification: None							
Are climatic / hydrologic conditions on the site typical for this time of yea	? 🛛 Yes 🛛 No (If no, explain in remarks.)							
Are Vegetation \Box , Soil \Box , or Hydrology \Box significantly disturbed?	Are "Normal Circumstances" present on the site? $\ igtimes$ Yes $\ \Box$ No							
Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)								
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.								
Hydrophytic Vegetation Present? Yes 🛛 No								

Remarks: Wetland J in-pit	103		NO			
Wetland Hydrology Present?	Voc		No			
Hydric Soils Present?	Yes	\boxtimes	No	Is the Sampled Area within a Wetland?	Yes 🛛	No 🗆
Hydrophytic Vegetation Present?	Yes	\boxtimes	No			

Tree Stratum (Plot size: 5-m diameter) 1. Pseudotsuga menziesii (rooted upslope) 2.	Absolute % Cover 5	Dominant Species? N	Indicator Status FACU	Dominance Test worksheet:Number of Dominant Speciesthat are OBL, FACW, or FAC:Total Number of DominantSpecies Across all Strata:Percent of Dominant Species80
	5	= Total Co	ver	that are OBL, FACW, or FAC: (A/B)
Sapling/Shrub Stratum (Plot size: 3-m diameter) 1. Fraxinus latifolia 2. Rubus armeniacus 3.	<u>15</u> 10	Y Y	FACW FAC	Prevalence Index worksheet:Total % Cover of:Multiply by:OBL speciesx 1 =FACW speciesx 2 =FAC speciesx 3 =FACU speciesx 4 =
List Otertern (Distained an dismater)	25	= Total Co	ver	UPL species $x 5 =$
Herb Stratum (Plot size: 1-m diameter) 1. Rubus ursinus 2. Grass sp.	20	Y Y	FACU FAC*	Prevalence Index = B/A =
3. Juncus effusus 4.		Y = Total Cov = Total Cov	Ver	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤ 3.01 4 - Morphological Adaptations1 (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants1 Problematic Hydrophytic Vegetation1 (Explain) ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Hydrophytic Vegetation Yes No Present?
Remarks: *Presumed FAC indicator status Groundcover is mostly dead blackber	y canes/duff.			

Profile De	scription: (Desc	ribe to t	he depti	n neede	d to docume	nt the indicator	or confirm the ab	sence	of indicators.)		
Depth (inches)	Matrix Color (moist)	<u>%</u>	c	olor (m	oist) <u>Redo</u>	<u>x Features</u>	¹ Loc ²		Toxturo	R	omarks
0-6	10YR 3/2	 Q3		7 5YR	4/6 7	<u> </u>	LOC		Silt loam		CITICINS
0.0	10111 3/2			1.011	+/0 /		WI, 1 L				
6-12	10YR 4/2	85		10YR 4	1/4 1	5 C	М		Sandy loam		
¹ Type: C=0	Concentration, D	=Depletio	on, RM=F		d Matrix, CS=0	Covered or Coate	d Sand Grains.	² Loc:	PL=Pore Lining, N	M=Matrix	Iric Soils ³
 Histor Histor Histic Black Hydro Deple Thick Sand Sand 	sol (A1) Epipedon (A2) Histic (A3) ogen Sulfide (A4) ted Below Dark S Dark Surface (A Mucky Mineral Gleved Matrix (Surface (12) (S1) S4)	(A11)		Sandy Redox Stripped Matri: Loamy Mucky Loamy Gleyed Depleted Matr Redox Dark Si Depleted Dark Redox Depres	(S5) x (S6) Mineral (F1) (exc Matrix (F2) ix (F3) urface (F6) c Surface (F7) ssions (F8)	ept MLRA 1)	□ 2 □ F □ V □ C ³ Indic dis	2cm Muck (A10) Red Parent Materia /ery Shallow Dark Dther (Explain in R ators of hydrophyt etland hydrology n sturbed or problen	al (TF2) Surface cemarks) cic vegeta nust be p natic.	(TF12) ation and present, unless
Restrictive Type: Depth	e Layer (if prese	nt):					Hydric soil present?		Yes 🛛	No	
HYDROL		tors:									
Primary In	dicators (minimur	n of one	required	: check	all that apply)			Seco	ondary Indicators (2	2 or mor	e required)
 Surfa: High \ Satur: Water Sedin Drift I Algal Iron I Surfa: Surfa: Inund Spars 	ce water (A1) Nater Table (A2) ation (A3) Marks (B1) nent Deposits (B2) Deposits (B3) Mat or Crust (B4) peposits (B5) ce Soil Cracks (B ation Visible on A ely Vegetated Co	2)) 6) verial Ima oncave S	agery (B7 Surface (B	□ □ □ □ □ □ 1 38)	Water-Staine & 4B) (B9) Salt Crust (E Aquatic Inve Hydrogen St Oxidized Rhi Presence of Recent Iron Stunted or S Other (expla	ed Leaves (exce) 311) ertebrates (B13) ulfide Odor (C1) izospheres along FReduced Iron (C Reduced Iron (C Reduction in Tille Stressed Plants (E ain in remarks)	Living Roots (C3) 4) ed Soils (C6) 01) (LRR A)		Water-Stained L 2, 4A & 4B) Drainage Pattern Dry-Season Wat Saturation Visible Geomorphic Pos Shallow Aquitaro FAC-Neutral Tes Raised Ant Mour Frost-Heave Hur	eaves (E ns (B10) ter Table e on Aeri sition (D2 d (D3) st (D5) nds (D6) mmocks	9) (MLRA 1 , (C2) al Imagery (C9)) (LRR A)
Field Obs	ervations:										
Surface W	ater Present?	Yes	□ No	\boxtimes	Depth (in):		Wetland Hvd	roloqv	/		
Water Tab	le Present?	Yes			Depth (in):		Present	?	Yes	X	No 🗀
Saturation (includes c	Present? apillary fringe)	res			Deptn (In):						
Describe F	ecorded Data (s	tream ga	luge, mo	nitoring	well, aerial ph	otos, previous ins	spections), if availa	able:			
Remarks:											



DP-1

Project/Site: Capitol Land Trust – Henderson Inlet	City/County: Thurston County Sampling date: 9/3/19							
Applicant/Owner: Bob Droll	State: WA Sampling Point: DP-20							
Investigator(s): L. Dougherty, G. Brennan	Section, Township, Range: S28 T19N R01W							
Landform (hillslope, terrace, etc): Hillslope	Local relief (concave, convex, none): <u>None</u> Slope (%): <u>5</u>							
Subregion (LRR): A Lat: - Lon	g: Datum:							
Soil Map Unit Name: Kapowsin silt Ioam	NWI classification: None							
Are climatic / hydrologic conditions on the site typical for this time of year	? 🛛 Yes 🛛 No (If no, explain in remarks.)							
Are Vegetation \Box , Soil \Box , or Hydrology \Box significantly disturbed?	Are "Normal Circumstances" present on the site? $\ igtimes$ Yes $\ \Box$ No							
Are Vegetation \Box , Soil \Box , or Hydrology \Box naturally problematic?	(If needed, explain any answers in Remarks.)							
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.								

Hydrophytic Vegetation Present?	Yes	No	\boxtimes			
Hydric Soils Present?	Yes	No	\boxtimes	Is the Sampled Area within a Wetland?	Yes 🗌	No 🛛
Wetland Hydrology Present?	Yes	No	\boxtimes			
Remarks: Wetland J out-pit						

Tree Stratum (Plot size: 5-m diameter) 1. Pseudotsuga menziesii 2. Alnus rubra 3.	Absolute % Cover 80 15 95	Dominant Species? Y N = Total Co	Indicator Status FACU FAC	Dominance Test worksheet:Number of Dominant Speciesthat are OBL, FACW, or FAC:Total Number of DominantSpecies Across all Strata:Percent of Dominant Speciesthat are OBL, FACW, or FAC:20(A/B)
Sapling/Shrub Stratum (Plot size: 3-m diameter) 1. Rubus armeniacus 2. Oemleria cerasiformis 3.	15 20 35 25 10	Y Y = Total Cov Y Y	FAC FACU ver FACU FACU	Prevalence Index worksheet:Total % Cover of:Multiply by:OBL speciesx 1 =FACW speciesx 2 =FAC speciesx 3 =FACU speciesx 4 =UPL speciesx 5 =Column Totals:(A)Prevalence Index = B/A =
3.		= Total Co	ver	Hydrophytic Vegetation Indicators: □ 1 – Rapid Test for Hydrophytic Vegetation □ 2 – Dominance Test is > 50% □ 3 – Prevalence Index is ≤ 3.01 □ 4 – Morphological Adaptations1 (Provide supporting data in Remarks or on a separate sheet) □ 5 – Wetland Non-Vascular Plants1 □ Problematic Hydrophytic Vegetation1 (Explain) ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1.	0	_ = Total Cov	ver	Hydrophytic Vegetation Yes ☐ No ⊠ Present?

Profile Description: (Describe to the de	epth needed to document Redox	the indicator or confirm the Features	e absence of indicators.)	
(inches) Color (moist) %	Color (moist) %	Type ¹	Loc ² Texture	Remarks
0-8 10YR 2/2 100			Sandy loam	
8-14 10YR 4/4 100			Sandy loam	
¹ Type: C=Concentration, D=Depletion, R	M=Reduced Matrix, CS=Co	vered or Coated Sand Grains	 ²Loc: PL=Pore Lining, M=Matri 	ix.
Hydric Soil Indicators: (Applicable to a	III LRRs, unless otherwise	e noted.)	Indicators for Problematic Hy	ydric Soils ³ :
□ Histosol (A1)	Sandy Redox (S	5)	□ 2cm Muck (A10)	,
Histic Epipedon (A2) Black Histic (A3)	Stripped Matrix (Loamy Mucky M	ineral (F1) (except MI RA 1)	Red Parent Material (TF2) Very Shallow Dark Surface) :e (TF12)
□ Hydrogen Sulfide (A4)	Loamy Gleyed N	1atrix (F2)	 Other (Explain in Remarks) 	s)
Depleted Below Dark Surface (A11)	Depleted Matrix	(F3)	2	
Ihick Dark Sufface (A12) Sandy Mucky Mineral (S1)	Redox Dark Sur Depleted Dark S	ace (F6) Jurface (F7)	³ Indicators of hydrophytic vege wetland hydrology must be	etation and
□ Sandy Gleyed Matrix (S4)	Redox Depressi	ons (F8)	disturbed or problematic.	
Restrictive Layer (if present):	· · ·			
Type:		Hydric		
Depth (inches):		presen	t? 100 🔤 1	
Remarks:				
HYDROLOGY				
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one requ	ired: check all that apply)		Secondary Indicators (2 or mo	pre required)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one requ Surface water (A1)	ired: check all that apply)	Leaves (except MLRA 1, 2,	Secondary Indicators (2 or mo	pre required) (B9) (MLRA 1,
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one requ Surface water (A1) High Water Table (A2)	ired: check all that apply)	Leaves (except MLRA 1, 2,	Secondary Indicators (2 or mo 4A	ore required) (B9) (MLRA 1,
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one requ Surface water (A1) High Water Table (A2) Saturation (A3) Water Made (B4)	ired: check all that apply) Water-Stained & 4B) (B9) Salt Crust (B1	Leaves (except MLRA 1, 2 , 1)	Secondary Indicators (2 or mo 4A Vater-Stained Leaves (2, 4A & 4B) Drainage Patterns (B10)	ore required) (B9) (MLRA 1,))
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one requ Surface water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2)	ired: check all that apply) Water-Stained & 4B) (B9) Salt Crust (B1 Aquatic Inverte Hydrogen Sulf	Leaves (except MLRA 1, 2 , 1) ebrates (B13) ide Odor (C1)	Secondary Indicators (2 or mo 4A Water-Stained Leaves (2, 4A & 4B) Drainage Patterns (B10 Dry-Season Water Tab Saturation Visible on Ae	ore required) (B9) (MLRA 1,)) le (C2) trial Imagery (C9)
HYDROLOGY Wetland 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)	ired: check all that apply) U Water-Stained & 4B) (B9) Salt Crust (B1 Aquatic Inverte Hydrogen Sulf Oxidized Rhize	Leaves (except MLRA 1, 2, 1) ebrates (B13) ide Odor (C1) ospheres along Living Roots (i	Secondary Indicators (2 or mo 4A Water-Stained Leaves (2, 4A & 4B) Drainage Patterns (B10 Dry-Season Water Tabl Saturation Visible on Ae C3) Geomorphic Position (D	ore required) (B9) (MLRA 1,)) le (C2) erial Imagery (C9) (C2)
HYDROLOGY Wetland 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)	ired: check all that apply) Water-Stained & 4B) (B9) Salt Crust (B1 Aquatic Inverte Hydrogen Sulf Oxidized Rhize Presence of R	Leaves (except MLRA 1, 2, 1) ebrates (B13) ide Odor (C1) spheres along Living Roots (educed Iron (C4)	Secondary Indicators (2 or mo 4A Vater-Stained Leaves (2, 4A & 4B) Drainage Patterns (B10 Dry-Season Water Tab Saturation Visible on Ae C3) Geomorphic Position (D Shallow Aquitard (D3)	ore required) (B9) (MLRA 1,)) le (C2) srial Imagery (C9) D2)
HYDROLOGY Wetland 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) Curface Call Carolin (P6)	ired: check all that apply) Water-Stained & 4B) (B9) Salt Crust (B1 Aquatic Inverted Hydrogen Sulf Oxidized Rhize Presence of R Recent Iron Re	Leaves (except MLRA 1, 2, 1) ebrates (B13) ide Odor (C1) ospheres along Living Roots (educed Iron (C4) eduction in Tilled Soils (C6)	Secondary Indicators (2 or mo 4A Water-Stained Leaves (2, 4A & 4B) Drainage Patterns (B10 Dry-Season Water Tabl Saturation Visible on Ae C3) Geomorphic Position (C Shallow Aquitard (D3) FAC-Neutral Test (D5) Data Ant Manada (At Mana	ore required) (B9) (MLRA 1,)) le (C2) srial Imagery (C9) D2)
HYDROLOGY Wetland 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) Inundation Visible on Aerial Imageny	ired: check all that apply) Water-Stained & 4B) (B9) Salt Crust (B1 Aquatic Inverte Hydrogen Sulf Oxidized Rhize Presence of R Recent Iron Re Stunted or Streed (B7) Other (explain	Leaves (except MLRA 1, 2, 1) ebrates (B13) ide Odor (C1) ospheres along Living Roots (educed Iron (C4) eduction in Tilled Soils (C6) essed Plants (D1) (LRR A) in remarks)	Secondary Indicators (2 or mo 4A Water-Stained Leaves (2, 4A & 4B) Drainage Patterns (B10 Dry-Season Water Tabl Saturation Visible on Ae C3) Geomorphic Position (D Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6 Ernst-Heave Hummock	ore required) (B9) (MLRA 1,)) le (C2) erial Imagery (C9) O2) 6) (LRR A)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one requing) 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	ired: check all that apply) Water-Stained & 4B) (B9) Salt Crust (B1 Aquatic Inverte Hydrogen Sulf Oxidized Rhize Presence of R Recent Iron Re Stunted or Stru (B7) Other (explain re (B8)	Leaves (except MLRA 1, 2, 1) ebrates (B13) ide Odor (C1) spheres along Living Roots (educed Iron (C4) eduction in Tilled Soils (C6) essed Plants (D1) (LRR A) in remarks)	Secondary Indicators (2 or mo 4A Water-Stained Leaves (2, 4A & 4B) Drainage Patterns (B10 Dry-Season Water Tabl Saturation Visible on Ae C3) Geomorphic Position (D Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6 Frost-Heave Hummock	ore required) (B9) (MLRA 1, 0) le (C2) erial Imagery (C9) 02) 6) (LRR A) is
HYDROLOGY Wetland 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) Inundation Visible on Aerial Imagery Sparsely Vegetated Concave Surface Field Observations:	ired: check all that apply) Water-Stained & 4B) (B9) Salt Crust (B1 Aquatic Inverte Hydrogen Sulf Oxidized Rhize Presence of R Recent Iron Re Stunted or Strr (B7) Other (explain re (B8)	Leaves (except MLRA 1, 2, 1) ebrates (B13) ide Odor (C1) ospheres along Living Roots (educed Iron (C4) eduction in Tilled Soils (C6) essed Plants (D1) (LRR A) in remarks)	Secondary Indicators (2 or mo 4A Water-Stained Leaves (2, 4A & 4B) Drainage Patterns (B10 Dry-Season Water Table Saturation Visible on Ae C3) Geomorphic Position (C Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6 Frost-Heave Hummock	ore required) (B9) (MLRA 1,)) le (C2) erial Imagery (C9) D2) 6) (LRR A) is
HYDROLOGY Wetland 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) Inundation Visible on Aerial Imagery Sparsely Vegetated Concave Surface Field Observations: Surface Water Present?	ired: check all that apply)	Leaves (except MLRA 1, 2, 1) bbrates (B13) ide Odor (C1) ospheres along Living Roots (r educed Iron (C4) eduction in Tilled Soils (C6) essed Plants (D1) (LRR A) in remarks)	Secondary Indicators (2 or mo 4A Water-Stained Leaves (2, 4A & 4B) Drainage Patterns (B10 Dry-Season Water Table Saturation Visible on Ae C3) Geomorphic Position (D Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6 Frost-Heave Hummock	ore required) (B9) (MLRA 1, 0) le (C2) orial Imagery (C9) 02) 6) (LRR A) s
HYDROLOGY Wetland 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) Inundation Visible on Aerial Imagery Sparsely Vegetated Concave Surface Field Observations: Surface Water Present? Yes	ired: check all that apply) Water-Stained & 4B) (B9) Salt Crust (B1 Aquatic Inverte Hydrogen Sulf Oxidized Rhize Presence of R Recent Iron Re Stunted or Struted (B7) No Depth (in): No Depth (in):	Leaves (except MLRA 1, 2, 1) ebrates (B13) ide Odor (C1) ospheres along Living Roots (educed Iron (C4) eduction in Tilled Soils (C6) essed Plants (D1) (LRR A) in remarks) Wetland	Secondary Indicators (2 or mo 4A Water-Stained Leaves (2, 4A & 4B) Drainage Patterns (B10) Dry-Season Water Table Saturation Visible on Ae Saturation Visible on Ae C3) Geomorphic Position (D Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) Frost-Heave Hummock	ore required) (B9) (MLRA 1,)) le (C2) erial Imagery (C9) (D2) 6) (LRR A) (S
HYDROLOGY Wetland 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) Inundation Visible on Aerial Imagery Sparsely Vegetated Concave Surface Field Observations: Surface Water Present? Yes Water Table Present? Yes	ired: check all that apply) Water-Stained & 4B) (B9) Salt Crust (B1 Aquatic Inverte Hydrogen Sulf Oxidized Rhize Presence of R Recent Iron Re Stunted or Strute (B7) Other (explain ise (B8) No Depth (in): No Depth (in):	Leaves (except MLRA 1, 2, 1) ebrates (B13) ide Odor (C1) ospheres along Living Roots (educed Iron (C4) eduction in Tilled Soils (C6) essed Plants (D1) (LRR A) in remarks) Wetland Pres	Secondary Indicators (2 or mo 4A Water-Stained Leaves (2, 4A & 4B) Drainage Patterns (B10 Dry-Season Water Tabi Saturation Visible on Ae C3) Geomorphic Position (D Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6 Frost-Heave Hummock Hydrology Yes	ore required) (B9) (MLRA 1,)) le (C2) erial Imagery (C9) D2) 6) (LRR A) is No
HYDROLOGY Wetland 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) Inundation Visible on Aerial Imagery Sparsely Vegetated Concave Surface Field Observations: Surface Water Present? Yes Water Table Present? Yes Saturation Present? Yes Saturation Present? Yes	ired: check all that apply) Water-Stained & 4B) (B9) Salt Crust (B1) Aquatic Inverte Hydrogen Sulf Oxidized Rhize Presence of R Recent Iron Re Stunted or Strutter (B7) Other (explain re (B8) No Depth (in): No Depth (in):	Leaves (except MLRA 1, 2, 1) ebrates (B13) ide Odor (C1) ospheres along Living Roots (reduced Iron (C4) educed Iron (C4) eduction in Tilled Soils (C6) essed Plants (D1) (LRR A) in remarks) Wetland I Pres	Secondary Indicators (2 or mo 4A Water-Stained Leaves (2, 4A & 4B) Drainage Patterns (B10) Dry-Season Water Table Saturation Visible on Ae C3) Geomorphic Position (C Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) Frost-Heave Hummock	ore required) (B9) (MLRA 1, 0) le (C2) orial Imagery (C9) 02) 6) (LRR A) s No X
HYDROLOGY Wetland 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) Inundation Visible on Aerial Imagery Sparsely Vegetated Concave Surface Field Observations: Surface Water Present? Yes Water Table Present? Yes Saturation Present? Yes Gaturation Present? Yes Saturation Present? Yes Saturation Present? Yes Saturation Present? Yes Describe Recorded Data (stream gauge,	ired: check all that apply)	Leaves (except MLRA 1, 2, 1) ebrates (B13) ide Odor (C1) pspheres along Living Roots (educed Iron (C4) eduction in Tilled Soils (C6) essed Plants (D1) (LRR A) in remarks) Wetland I Pres ps, previous inspections), if a	Secondary Indicators (2 or mo 4A Water-Stained Leaves (2, 4A & 4B) Drainage Patterns (B10) Dry-Season Water Table Saturation Visible on Ae Saturation Visible on Ae C3) Geomorphic Position (D Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) Frost-Heave Hummock Hydrology Yes vailable:	ore required) (B9) (MLRA 1, (B) (C2) erial Imagery (C9) (D2) 6) (LRR A) (S
HYDROLOGY Wetland 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) Inundation Visible on Aerial Imagery Sparsely Vegetated Concave Surface Field Observations: Surface Water Present? Yes Water Table Present? Yes Saturation Present? Yes Describe Recorded Data (stream gauge,	ired: check all that apply) Water-Stained & 4B) (B9) Salt Crust (B1 Aquatic Inverte Hydrogen Sulf Oxidized Rhize Presence of R Recent Iron Re Stunted or Struct (B7) Other (explain ise (B8) No Depth (in): No Depth (in): No Depth (in): No Depth (in): No Mathematical photoese	Leaves (except MLRA 1, 2, 1) ebrates (B13) ide Odor (C1) ospheres along Living Roots (reduced Iron (C4) educed Iron (C4) eduction in Tilled Soils (C6) essed Plants (D1) (LRR A) in remarks) Wetland I Present p	Secondary Indicators (2 or mo 4A Water-Stained Leaves (2, 4A & 4B) Drainage Patterns (B10 Dry-Season Water Tab) Saturation Visible on Ae C3) Geomorphic Position (D Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6 Frost-Heave Hummock Hydrology Yes vailable:	ore required) (B9) (MLRA 1, (B) (C2) erial Imagery (C9) (C2) (C3) (C4) (C5) (C5) (C6) (C7) (C9) (C9)
HYDROLOGY Wetland 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) Inundation Visible on Aerial Imagery Sparsely Vegetated Concave Surface Field Observations: Surface Water Present? Yes Saturation Present? Yes Gaturation Present? Yes Saturation Present? Yes Saturation Present? Yes Gaturation Present? Yes Saturation Present? Yes Cincludes capillary fringe) Describe Recorded Data (stream gauge,	ired: check all that apply) Water-Stained & 4B) (B9) Salt Crust (B1) Aquatic Inverte Hydrogen Sulf Oxidized Rhize Presence of R Recent Iron Re Stunted or Struct (B7) Other (explain re (B8) No Depth (in): No Depth (in): monitoring well, aerial photometer	Leaves (except MLRA 1, 2, 1) ebrates (B13) ide Odor (C1) ospheres along Living Roots (reduced Iron (C4) educed Iron (C4) eduction in Tilled Soils (C6) essed Plants (D1) (LRR A) in remarks) Wetland I Present Dos, previous inspections), if a	Secondary Indicators (2 or mo 4A Water-Stained Leaves (2, 4A & 4B) Drainage Patterns (B10) Dry-Season Water Table Saturation Visible on Ae C3) Geomorphic Position (D Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) Frost-Heave Hummock Hydrology sent? Yes vailable:	ore required) (B9) (MLRA 1, 0) le (C2) orial Imagery (C9) 02) 6) (LRR A) s No
HYDROLOGY Wetland 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) Inundation Visible on Aerial Imagery Sparsely Vegetated Concave Surface Field Observations: Surface Water Present? Yes Water Table Present? Yes Gincludes capillary fringe) Describe Recorded Data (stream gauge, Remarks:	ired: check all that apply) Water-Stained & 4B) (B9) Salt Crust (B1 Aquatic Inverte Hydrogen Sulf Oxidized Rhize Presence of R Recent Iron Re Stunted or Street (B7) Other (explain e (B8) No Depth (in): No Depth (in): monitoring well, aerial phote	Leaves (except MLRA 1, 2, 1) ebrates (B13) ide Odor (C1) ospheres along Living Roots (reduced Iron (C4) educed Iron (C4) eduction in Tilled Soils (C6) essed Plants (D1) (LRR A) in remarks) Wetland I Present Dos, previous inspections), if a	Secondary Indicators (2 or mo 4A Water-Stained Leaves (2, 4A & 4B) Drainage Patterns (B10 Dry-Season Water Table Saturation Visible on Ae C3) Geomorphic Position (C Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6 Frost-Heave Hummock Hydrology Yes vailable:	ore required) (B9) (MLRA 1, 0) le (C2) orial Imagery (C9) 02) 6) (LRR A) is No



DP-1

Project/Site: Capitol Land Trust – Henderson Inlet	City/County: Thurston	County	Sa	ampling date: 9	3/3/19
Applicant/Owner: Bob Droll		State:	WA	Sampling Point:	DP-21
Investigator(s): L. Dougherty, G. Brennan	Section, Township, Range:	S28 T19	9N R01W	1	
Landform (hillslope, terrace, etc): Terrace	Local relief (concave, conve	x, none):	None	Slope	(%): 2
Subregion (LRR): A Lat: - Lot	ng:		Datum:	-	
Soil Map Unit Name: Alderwood gravelly sandy loam, 15 to 30 perce	nt slopes NWI classifi	cation:	None		
Are climatic / hydrologic conditions on the site typical for this time of year	r? 🛛 Yes 🛛 No (lf no, ex	plain in rei	marks.)		
Are Vegetation \Box , Soil \Box , or Hydrology \Box significantly disturbed?	Are "Normal Circumstand	ces" presei	nt on the	site? 🛛 Yes 🛛	No
Are Vegetation \Box , Soil \Box , or Hydrology \Box naturally problematic?	(If needed, explain any a	nswers in	Remarks.	.)	
SUMMARY OF FINDINGS Attach site man showing sample	ing point locations, transed	te impor	tant foat	ures etc	

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

Hydrophytic Vegetation Present?	Yes	\boxtimes	No			
Hydric Soils Present?	Yes	\boxtimes	No	Is the Sampled Area within a Wetland?	Yes 🛛	No 🗆
Wetland Hydrology Present?	Yes	\boxtimes	No			
Remarks: Wetland K in-pit						

<u>Tree Stratum</u> (Plot size: 5-m diameter) 1. <u>Pseudotsuga menziesii (rooted out)</u>	Absolute % Cover 5	Dominant Species? N	Indicator Status FACU	Dominance Test worksheet: Number of Dominant Species that are OBL, FACW, or FAC:	<u> </u>
2. 3.				Total Number of Dominant Species Across all Strata:	(B)
4	5	= Total Co	ver	that are OBL, FACW, or FAC:	75 (A/B)
Sapling/Shrub Stratum (Plot size: 3-m diameter)	30	Y	FAC	Prevalence Index worksheet	: Multiply by:
2 Rubus Jaciniatus	25	 	FACU	ORI species	v 1 –
2. <u>Nubus nacimitatus</u> 2		<u> </u>	1700		× 2 –
δ					x 2 -
т. 5				FACU species	x 4 =
	55	- Total Co	vor		× 5 -
Herb Stratum (Plot size: 1-m diameter)		/ 0101 000	VCI	Column Totals:	(Δ) (B)
1. Juncus effusus	25	Y	FACW		(1)
2. Ranunculus repens	10	Y	FAC	Prevalence Index = B/A =	
3. Lotus corniculatus	5	N	FAC	Hydrophytic Vegetation	Indicators:
4. Geum macrophyllum	1	N	FAC	1 – Rapid Test for Hydrop	hytic Vegetation
5. Rumex crispus	1	N	FAC	☑ 2 – Dominance Test is > 5	50%
6. Rubus ursinus	5	N	FACU	□ 3 – Prevalence Index is ≤	3.0 ¹
7	-	-		🚽 🕞 4 – Morphological Adapta	tions ¹ (Provide supporting
8				data in Remarks or or	n a separate sheet)
9				5 – Wetland Non-Vascula	r Plants ¹
10				Problematic Hydrophytic V	/egetation ¹ (Explain)
11				¹ Indicators of hydric soil and w	etland hydrology must be
	47	= Total Co	ver	present, unless disturbed or pr	oblematic.
Woody Vine Stratum (Plot size: 3-m diameter)					
1				Hydrophytic	-
2				Vegetation Yes	s⊠ No⊔
	0	= Total Co	ver	Present?	
% Bare Ground in Herb Stratum:					
Remarks:					

Profile Des	scription: (Desci Matrix	ribe to the d	lepth needed	to document the Redox Feat	indicator o	or confirm the ab	sence of indicators.)	
(inches)	Color (moist)	%	Color (mo	st) %	Type	Loc ²	Texture	Remarks
0-6	10YR 3/2	100					Silt loam	
6-12	10 YR 3/2	95	7.5YR 4/	4 5	С	М	Silt loam	
-					-			
¹ Type: C=C	oncentration, D=	Depletion, F	M=Reduced	Matrix, CS=Covere	ed or Coated	d Sand Grains.	² Loc: PL=Pore Lining, N	I=Matrix.
Hydric Soil	I Indicators: (Ap	plicable to	all LRRs, un	ess otherwise no	ted.)		Indicators for Problema	atic Hydric Soils ³ :
□ Histos	ol (A1)		🗆 S	andy Redox (S5)			□ 2cm Muck (A10)	
Histic I	Epipedon (A2)		□ S	ripped Matrix (S6)			Red Parent Materia	l (TF2)
□ Black	Histic (A3)			bamy Mucky Miner	ral (F1) (exc	ept MLRA 1)	Very Shallow Dark	Surface (TF12)
Deplet	ed Below Dark S	Surface (A11)		epleted Matrix (F3)	IX (F∠))			eniarks)
Thick I	Dark Surface (A1	2)	′ ⊠ R	edox Dark Surface	, e (F6)		³ Indicators of hydrophyti	c vegetation and
□ Sandy	Mucky Mineral (S1)		epleted Dark Surfa	ace (F7)		wetland hydrology m	ust be present, unless
Sandy	Gleyed Matrix (S	54)	□ R	edox Depressions	(F8)		disturbed or problem	latic.
Restrictive	Layer (if prese	nt):				Hydric coil		
Type:						present?	Yes 🛛	No 🗆
Depth	(inches):					.		
Romarks:								
rtomanto.								
HYDROLC	DGY							
Wetland Hy Primary Ind	ydrology Indication (minimum	t ors: n of one requ	uired: check a	ll that apply)			Secondary Indicators (2	or more required)
□ Surfac	e water (A1)			Water-Stained Lea	aves (excep	t MLRA 1, 2, 4A	Uniter-Stained Le	eaves (B9) (MLRA 1,
🗆 🛛 High W	Vater Table (A2)			& 4B) (B9)			□ 2, 4A & 4B)	
□ Satura	tion (A3)			Salt Crust (B11)			Drainage Pattern	is (B10)
□ Vvater	Marks (B1) ent Deposits (B2)		Aquatic Invertebra	Ates (B13) Odor (C1)		Dry-Season Wate Saturation Visible	er Table (C2)
Drift D	eposits (B3))	\boxtimes	Oxidized Rhizosph	neres along l	_ivina Roots (C3)	Geomorphic Pos	ition (D2)
Algal N	Aat or Crust (B4)			Presence of Redu	iced Iron (C4	4)	□ Shallow Aquitard	(D3)
Iron De	eposits (B5)			Recent Iron Reduc	ction in Tille	d Soils (C6)	FAC-Neutral Tes	t (D5)
□ Surfac	e Soil Cracks (B	6) 		Stunted or Stresse	ed Plants (D	1) (LRR A)	Raised Ant Mour	nds (D6) (LRR A)
	ation Visible on A	eriai imager	y(B7) ∐ ce(B8)	Other (explain in r	emarks)		□ Frost-Heave Hun	nmocks
	rvations.							
Surface M/a	ator Procont?		No 🕅	Depth (in):				
				Deptin (iii).		Wetland Hyd	rology Voc	
Water Table	e Present?	res 🗆	INO 🖾	Depth (in):		Present	? ies	
Saturation F (includes ca	Present? apillary fringe)	Yes 🗆	No 🛛	Depth (in):				
Describe Re	ecorded Data (st	ream gauge,	, monitoring w	ell, aerial photos, p	previous ins	pections), if availa	able:	
		-	-					
Remarks:								



DP-1

Project/Site: Capitol Land Trust – Henderson Inlet	City/County: Thurston	County	Sa	ampling date:	9/3/19
Applicant/Owner: Bob Droll		State:	WA	Sampling Point:	DP-22
Investigator(s): L. Dougherty, G. Brennan	Section, Township, Range:	S28 T19	9N R01W		
Landform (hillslope, terrace, etc): Hillslope	Local relief (concave, convex	(, none):	None	Slope	(%): <u>7-10</u>
Subregion (LRR): A Lat: - Lon	g:		Datum:	-	
Soil Map Unit Name: Alderwood gravelly sandy loam, 15 to 30 percent	nt slopes NWI classific	ation:	None		
Are climatic / hydrologic conditions on the site typical for this time of year	? ⊠ Yes □ No (If no, ex	olain in rer	marks.)		
Are Vegetation \Box , Soil \Box , or Hydrology \Box significantly disturbed?	Are "Normal Circumstanc	es" preser	nt on the	site? ⊠ Yes □	No
Are Vegetation \Box , Soil \Box , or Hydrology \Box naturally problematic?	(If needed, explain any ar	nswers in I	Remarks.	.)	

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

Hydrophytic Vegetation Present?	Yes	No	\boxtimes			
Hydric Soils Present?	Yes	No	\boxtimes	Is the Sampled Area within a Wetland?	Yes 🛛	No 🛛
Wetland Hydrology Present?	Yes	No	\boxtimes			
Remarks: Wetland K out-pit						

· · · · · · · · · · · · · · · ·

Tree Stratum (Plot size: 5-m diameter)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test work	ksheet:	
1. Acer circinatum	80	Y	FACU	that are OBL, FACW, o	or FAC:	1 (A)
2. Pseudotsuga menziesii	30	Y	FACU	Total Number of Domin	nant	\ , ,
3.				Species Across all Stra	ata:	э (В)
4				Percent of Dominant S	species	20
	110	= Total Cov	ver	that are OBL, FACW, o	or FAC:	(A/B)
Sapling/Shrub Stratum (Plot size: 3-m diam	neter)			Prevalence Index wo	rksheet:	
1. Corylus cornuta	10	Y	FACU	Total % Cover of:	<u>Multip</u>	l <u>y by:</u>
2. Rubus armeniacus	20	Y	FAC	OBL species	x 1 =	
3				FACW species	x 2 =	
4				FAC species	x 3 =	
5				FACU species	x 4 =	
	30	= Total Cov	ver	UPL species	x 5 =	
Herb Stratum (Plot size: 1-m diameter)				Column Totals:	(A)	(B)
1. Rubus ursinus	25	Y	FACU	Prevalence Index = B/	Α =	
2						
3				Hydrophytic Veg	etation Indicat	ors:
4				1 – Rapid Test for	Hydrophytic Ve	egetation
5				2 – Dominance Te	est is > 50%	
6				3 – Prevalence Ind	dex is $\leq 3.0^{1}$	
7				4 – Morphological data in Remai	Adaptations ¹ (F rks or on a sepa	Provide supporting trate sheet)
9.				□ 5 – Wetland Non-	Vascular Plants	1
10.				Problematic Hydro	ophytic Vegetati	on ¹ (Explain)
11.				¹ Indicators of hydric so	il and wetland h	vdrology must be
	25	= Total Co	ver	present, unless disturb	ed or problema	tic.
Woodv Vine Stratum (Plot size: 3-m diame	ter)	-			·	
1.				Hvdrophytic		
2.				Vegetation	Yes 🗌	No 🛛
	0	= Total Co	ver	Present?		
% Bare Ground in Herb Stratum: 10		-				
Demotion Croundanyar mostly dood ly						
Remarks: Groundcover mostly dead te	aves/autt.					

eptn	<u>Matrix</u>	0/		Redox Featur	res Trans 1			Tautor	. .	
nches)	Color (moist)	%	Color (m	noist) %	Type	Loc			Remar	ks
0-14	10YR 4/3	100						Silt loam		
ype: C=C	oncentration, D=D	Depletion,	RM=Reduce	ed Matrix, CS=Covered	or Coated Sand	l Grains.	² Loc: P	L=Pore Lining, N	1=Matrix.	
ydric Soil	Indicators: (App	licable to	all LRRs, u	Inless otherwise note	ed.)		Indicato	ors for Problem	atic Hydric S	oils³:
Histos	ol (A1) Eningdon (A2)			Sandy Redox (S5)				m Muck (A10)		
Black I	Histic (A3)			Loamy Mucky Mineral	(F1) (except MI	RA 1)	□ Ke	rv Shallow Dark	Surface (TF12	2)
Hydrog	gen Sulfide (A4)			Loamy Gleyed Matrix	(F2)		□ Otl	her (Explain in R	emarks)	_,
Deplet	ed Below Dark Su	Irface (A1	1) 🗆	Depleted Matrix (F3)						
Thick I	Dark Surface (A12	2)		Redox Dark Surface (I	F6)		³ Indicat	ors of hydrophyti	ic vegetation a	and
Sandy	Gleved Matrix (Se	1) 1)		Redox Depressions (F	e (F7) -8)		dist	urbed or problem	natic.	it, unie
estrictive	Laver (if present	<u>'/</u> t):			0)					
Type:					H	ydric soil		Yes 🗆	No 🛛	
Denth					r	resent				
Deptn emarks:	(inches):									
Depth emarks: (DROLC	(inches):									
emarks: /DROLC	(inches): DGY ydrology Indicator icators (minimum	ors: of one req	uired: check	c all that apply)			Second	dary Indicators (2	2 or more requ	uired)
Depth emarks: /DROLC /etland Hy rimary Ind	(inches): DGY /drology Indicato icators (minimum e water (A1)	ors: of one req	uired: check	all that apply)	res (except MLF	2A 1, 2, 4A	Second	dary Indicators (2 Water-Stained Le	2 or more requ eaves (B9) (M	uired) ILRA 1
Peptin emarks: (DROLC /etland Hy rimary Ind Surfac High W	(inches): DGY ydrology Indicator icators (minimum e water (A1) vater Table (A2) tion (A2)	ors: of one req	juired: check	(all that apply) Water-Stained Leav & 4B) (B9)	es (except MLF	2A 1, 2, 4A	Second	dary Indicators (2 Water-Stained Le 2, 4A & 4B)	2 or more requeeaves (B9) (M	uired) ILRA 1
Depth emarks: 'DROLC /etland Hy rimary Ind Surfac High W Satura Water	(inches): DGY ydrology Indicator icators (minimum e water (A1) vater Table (A2) tion (A3) Marks (B1)	ors: of one req	juired: check	 all that apply) Water-Stained Leaver & 4B) (B9) Salt Crust (B11) Aquatic Invertebrate 	res (except MLF	2A 1, 2, 4A	Second	dary Indicators (2 Water-Stained Le 2, 4A & 4B) Drainage Pattern Drv-Season Wat	2 or more requ eaves (B9) (M is (B10) er Table (C2)	uired) ILRA 1
Depth emarks: 'DROLC /etland Hy rimary Ind Surfac High W Satura Water Sedime	(inches): DGY ydrology Indicato icators (minimum e water (A1) vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2)	ors: of one req	juired: check	x all that apply) Water-Stained Leav & 4B) (B9) Salt Crust (B11) Aquatic Invertebrate Hydrogen Sulfide O	r es (except MLF es (B13) dor (C1)	:A 1, 2, 4A	Second	dary Indicators (2 Water-Stained Le 2, 4A & 4B) Drainage Pattern Dry-Season Wate Saturation Visible	2 or more requ eaves (B9) (M ns (B10) er Table (C2) e on Aerial Ima	uired) ILRA 1
Depth emarks: /DROLC /etland Hy rimary Ind Surfac High W Satura Water Sedima Drift Do	(inches): OGY ydrology Indicato icators (minimum e water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3)	ors: of one req	juired: check	 all that apply) Water-Stained Leav & 4B (B9) Salt Crust (B11) Aquatic Invertebrate Hydrogen Sulfide Or Oxidized Rhizosphere 	res (except MLF es (B13) dor (C1) res along Living I	Roots (C3)	Second	dary Indicators (2 Water-Stained Le 2, 4A & 4B) Drainage Pattern Dry-Season Wate Saturation Visible Geomorphic Pos	2 or more reques eaves (B9) (M as (B10) er Table (C2) e on Aerial Ima ition (D2)	uired) ILRA 1 agery ((
Peptin emarks: (DROLC /etland Hy rimary Ind Surfac High W Satura Water Sedime Drift D Algal N	(inches): DGY ydrology Indicato icators (minimum e water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4)	ors: of one req	juired: check	x all that apply) Water-Stained Leav & 4B) (B9) Salt Crust (B11) Aquatic Invertebrate Hydrogen Sulfide Ou Oxidized Rhizospher Presence of Reduce	res (except MLF es (B13) dor (C1) res along Living l ed Iron (C4)	Roots (C3)	Second	dary Indicators (2 Water-Stained Lo 2, 4A & 4B) Drainage Pattern Dry-Season Wat Saturation Visible Geomorphic Pos Shallow Aquitard	2 or more reque eaves (B9) (M as (B10) er Table (C2) e on Aerial Ima ition (D2) I (D3)	uired) ILRA 1 agery ((
Depth emarks: 'DROLC /etland Hy rimary Ind Surfac High W Satura Water Sedimu Sedimu Drift Du Algal M Iron De Surfac	(inches): OGY ydrology Indicato icators (minimum e water (A1) vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) o Soil Crocks (B6)	ors: of one req	juired: check	x all that apply) Water-Stained Leav & 4B) (B9) Salt Crust (B11) Aquatic Invertebrate Hydrogen Sulfide Or Oxidized Rhizospher Presence of Reduce Recent Iron Reducet Stutted or Stronged	res (except MLF es (B13) dor (C1) res along Living I ed Iron (C4) ion in Tilled Soils	Roots (C3)		dary Indicators (2 Water-Stained Le 2, 4A & 4B) Drainage Pattern Dry-Season Wat Saturation Visible Geomorphic Pos Shallow Aquitard FAC-Neutral Tes Pairod Apt Mour	2 or more reque eaves (B9) (M as (B10) er Table (C2) e on Aerial Ima ition (D2) I (D3) st (D5) ode (D5) (LPR	uired) ILRA 1 agery ((
Peptin emarks: (DROLC /etland Hy rimary Ind Surfac High W Satura Water Sedimu Sedimu Algal M Iron De Surfac Iron De Inunda	(inches): OGY ydrology Indicato icators (minimum e water (A1) vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Ae	ors: of one req	juired: check	 all that apply) Water-Stained Leave & 4B) (B9) Salt Crust (B11) Aquatic Invertebrate Hydrogen Sulfide Or Oxidized Rhizosphere Presence of Reduce Recent Iron Reducti Stunted or Stressed Other (explain in rer 	res (except MLF es (B13) dor (C1) res along Living l ed Iron (C4) ion in Tilled Soils I Plants (D1) (LR marks)	Roots (C3) s (C6) R A)		dary Indicators (2 Water-Stained Le 2, 4A & 4B) Drainage Pattern Dry-Season Wate Saturation Visible Geomorphic Pos Shallow Aquitard FAC-Neutral Tes Raised Ant Mour Frost-Heave Hur	2 or more reque eaves (B9) (M as (B10) er Table (C2) e on Aerial Ima ition (D2) I (D3) tt (D5) nds (D6) (LRR nmocks	uired) ILRA 1 agery ((
Depth emarks: 'DROLC /etland Hy rimary Ind Surfac High W Satura Water Sedime Sedime Algal M Iron De Surfac Inunda Sparse	(inches): OGY ydrology Indicato icators (minimum e water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Ae ely Vegetated Con	ors: of one req rial Image cave Surfa	juired: check	 all that apply) Water-Stained Leave & 4B) (B9) Salt Crust (B11) Aquatic Invertebrate Hydrogen Sulfide Ou Oxidized Rhizospher Presence of Reduce Recent Iron Reducti Stunted or Stressed Other (explain in rer 	res (B13) dor (C1) res along Living l ed Iron (C4) ion in Tilled Soils I Plants (D1) (LR marks)	Roots (C3) s (C6) R A)	Second	dary Indicators (2 Water-Stained Le 2, 4A & 4B) Drainage Pattern Dry-Season Wat Saturation Visible Geomorphic Pos Shallow Aquitard FAC-Neutral Tes Raised Ant Mour Frost-Heave Hur	2 or more reque eaves (B9) (M as (B10) er Table (C2) e on Aerial Ima ition (D2) I (D3) at (D5) ads (D6) (LRR nmocks	uired) ILRA 1 agery ((& A)
Depth emarks: /DROLC /etland Hy rimary Ind Surfac High W Satura Water Sedime Sedime Algal M Iron De Surfac Inunda Sparse ield Obse	(inches): OGY ydrology Indicato icators (minimum e water (A1) vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Ae ely Vegetated Con rvations:	ors: of one req rial Image cave Surfa	uired: check	 all that apply) Water-Stained Leaver & 4B) (B9) Salt Crust (B11) Aquatic Invertebrate Hydrogen Sulfide Or Oxidized Rhizospher Presence of Reduce Recent Iron Reducti Stunted or Stressed Other (explain in rer 	res (except MLF es (B13) dor (C1) res along Living I ed Iron (C4) ion in Tilled Soils I Plants (D1) (LR marks)	Roots (C3) (C6) R A)	Second	dary Indicators (2 Water-Stained Le 2, 4A & 4B) Drainage Pattern Dry-Season Wat Saturation Visible Geomorphic Pos Shallow Aquitard FAC-Neutral Tes Raised Ant Mour Frost-Heave Hur	2 or more reque eaves (B9) (M er Table (C2) e on Aerial Ima ittion (D2) I (D3) ot (D5) nds (D6) (LRR nmocks	uired) ILRA 1 agery ((R A)
emarks: (DROLC /etland Hy rimary Ind Surfac High W Satura Water Sedime Sedime Drift De Algal N Iron De Surfac Inunda Sparse ield Obse urface Wa	(inches): DGY ydrology Indicato icators (minimum e water (A1) vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Ae ely Vegetated Com rvations: tter Present?	ors: of one req rial Image cave Surfa Yes □	juired: check □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □	x all that apply) Water-Stained Leav & 4B) (B9) Salt Crust (B11) Aquatic Invertebrate Hydrogen Sulfide Ou Oxidized Rhizospher Presence of Reduce Recent Iron Reducti Stunted or Stressed Other (explain in rer Depth (in):	res (except MLF es (B13) dor (C1) res along Living l ed Iron (C4) ion in Tilled Soils I Plants (D1) (LR marks)	Roots (C3) s (C6) R A)		dary Indicators (2 Water-Stained Le 2, 4A & 4B) Drainage Pattern Dry-Season Wat Saturation Visible Geomorphic Pos Shallow Aquitard FAC-Neutral Tes Raised Ant Mour Frost-Heave Hur	2 or more reque eaves (B9) (M as (B10) er Table (C2) e on Aerial Ima ition (D2) I (D3) st (D5) nds (D6) (LRR nmocks	uired) ILRA 1 agery ((R A)
Vetland Hy rimary Ind Surfac High W Satura Water Sedime Surfac Inunda Surfac Surfac Surfac Inunda Surfac Surfac Unith Dose Surface Wa Vater Table	(inches): OGY ydrology Indicato icators (minimum e water (A1) vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) vat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Ae ely Vegetated Com rvations: tter Present?	ors: of one req rial Image cave Surfa Yes □ Yes □	juired: check	Water-Stained Leav & 4B) (B9) Salt Crust (B11) Aquatic Invertebrate Hydrogen Sulfide Ou Oxidized Rhizospher Presence of Reduce Recent Iron Reducti Stunted or Stressed Other (explain in rer Depth (in): Depth (in):	res (B13) dor (C1) res along Living l ed Iron (C4) ion in Tilled Soils I Plants (D1) (LR marks)	Roots (C3) (C6) (R A) etland Hydr Present?	Second Second	dary Indicators (2 Water-Stained Le 2, 4A & 4B) Drainage Pattern Dry-Season Wat Saturation Visible Geomorphic Pos Shallow Aquitard FAC-Neutral Tes Raised Ant Mour Frost-Heave Hur	2 or more requeeaves (B9) (M eaves (B9) (M er Table (C2) e on Aerial Ima ition (D2) I (D3) tt (D5) nds (D6) (LRR nmocks	uired) ILRA 1 agery ((2 A)
Comparison of the second seco	(inches): OGY /drology Indicato icators (minimum e water (A1) /ater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) /at or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Ae ely Vegetated Con rvations: tter Present? Present? Present? apillary fringe)	rial Image cave Surfa Yes Yes Yes Yes Yes	uired: check	all that apply) Water-Stained Leave & 4B) (B9) Salt Crust (B11) Aquatic Invertebrate Hydrogen Sulfide Or Oxidized Rhizospher Presence of Reduce Recent Iron Reducti Stunted or Stressed Other (explain in rer Depth (in): Depth (in): Depth (in):	res (except MLF es (B13) dor (C1) res along Living I ed Iron (C4) ion in Tilled Soils I Plants (D1) (LR marks)	Roots (C3) (C6) (R A) etland Hydr Present?		dary Indicators (2 Water-Stained Le 2, 4A & 4B) Drainage Patterm Dry-Season Wat Saturation Visible Geomorphic Pos Shallow Aquitard FAC-Neutral Tes Raised Ant Mour Frost-Heave Hur	2 or more requeeaves (B9) (M eaves (B9) (M er Table (C2) e on Aerial Ima ition (D2) I (D3) ot (D5) nds (D6) (LRR nmocks	uired) ILRA 1 agery (C R A)
Comparison of the second seco	(inches): ydrology Indicato icators (minimum e water (A1) vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Ae ely Vegetated Con rvations: ter Present? Present? apillary fringe) ecorded Data (streesed)	ors: of one req rial Image cave Surfa Yes Yes Yes Yes am gauge	juired: check	x all that apply) Water-Stained Leav & 4B) (B9) Salt Crust (B11) Aquatic Invertebrate Hydrogen Sulfide Od Oxidized Rhizosphere Presence of Reduccti Stunted or Stressed Other (explain in rer Depth (in): Depth (in): Depth (in): Depth (in): Depth (in):	res (except MLF es (B13) dor (C1) res along Living l ed Iron (C4) ion in Tilled Soils I Plants (D1) (LR marks) We evious inspectio	Roots (C3) s (C6) R A) etland Hydr Present?	Second Second	dary Indicators (2 Water-Stained Le 2, 4A & 4B) Drainage Patterm Dry-Season Wat Saturation Visible Geomorphic Pos Shallow Aquitard FAC-Neutral Tes Raised Ant Mour Frost-Heave Hur	2 or more requeeaves (B9) (M as (B10) er Table (C2) e on Aerial Ima ition (D2) I (D3) at (D5) nds (D6) (LRR nmocks	uired) ILRA 1 agery ((R A)
emarks: (DROLC /etland Hy rimary Ind Surfac High W Satura Water Sedime Sedime Algal M Iron De Surfac Inunda Surfac Surfac Inunda Sparse ield Obse urface Wa /ater Table aturation F ncludes ca escribe Re	(inches): OGY ydrology Indicato icators (minimum e water (A1) vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Ae ely Vegetated Com rvations: ter Present? Present? apillary fringe) ecorded Data (streesed)	rial Image cave Surfa Yes Yes Yes Yes am gauge	juired: check	all that apply) Water-Stained Leave & 4B) (B9) Salt Crust (B11) Aquatic Invertebrate Hydrogen Sulfide Or Oxidized Rhizospher Presence of Reduce Recent Iron Reducti Stunted or Stressed Other (explain in rer Depth (in): Depth (in): Depth (in): Depth (in): Depth (in):	res (except MLF es (B13) dor (C1) res along Living l ed Iron (C4) ion in Tilled Soils I Plants (D1) (LR marks) We evious inspectio	Roots (C3) s (C6) R A) etland Hydr Present?	Second Second	dary Indicators (2 Water-Stained Le 2, 4A & 4B) Drainage Patterm Dry-Season Wat Saturation Visible Geomorphic Pos Shallow Aquitard FAC-Neutral Tes Raised Ant Mour Frost-Heave Hur	2 or more requeences (B9) (M eaves (B9) (M er Table (C2) e on Aerial Ima ition (D2) I (D3) tt (D5) nds (D6) (LRR nmocks	agery ((
Depth emarks: DROLC Vetland Hy rimary Ind Surfac High W Satura Water Sedimu Satura Unift Du Satura Surfac Surfac Inunda Sparse eld Obse vater Table aturation F includes ca escribe Re emarks:	(inches): OGY ydrology Indicato icators (minimum e water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Ae ely Vegetated Con rvations: ter Present? Present? apillary fringe) ecorded Data (streesed)	ors: of one req rial Image cave Surfa Yes Yes Yes Yes am gauge	uired: check	x all that apply) Water-Stained Leav & 4B) (B9) Salt Crust (B11) Aquatic Invertebrate Hydrogen Sulfide Ou Oxidized Rhizospher Presence of Reduce Recent Iron Reducti Stunted or Stressed Other (explain in rer Depth (in): Depth (in): Depth (in): y well, aerial photos, pro-	res (except MLF es (B13) dor (C1) res along Living l ed Iron (C4) ion in Tilled Soils I Plants (D1) (LR marks) We evious inspectio	Roots (C3) s (C6) R A) etland Hydr Present?	Second Second	dary Indicators (2 Water-Stained Le 2, 4A & 4B) Drainage Pattern Dry-Season Wat Saturation Visible Geomorphic Pos Shallow Aquitard FAC-Neutral Tes Raised Ant Mour Frost-Heave Hur Yes	2 or more requeences (B9) (M as (B10) er Table (C2) e on Aerial Ima ition (D2) I (D3) at (D5) nds (D6) (LRR nmocks	uired) ILRA 1 agery (RA)



DP-25

Project/Site: Capitol Land Trust – Henderson Inlet		City/County:	Thurston	County	S	ampling date:	9/3/19		
Applicant/Owner: Bob Droll				State:	WA	Sampling Point:	DP-25		
Investigator(s): L. Dougherty, G. Brennan	Se	ection, Townshi	p, Range:	S28 T1	9N R01V	V			
Landform (hillslope, terrace, etc): Hillslope	Lo	ocal relief (conca	ave, conve	k, none):	None	Slope	(%): 5		
Subregion (LRR): A Lat:	Long:	-			Datum	: _			
Soil Map Unit Name: Skipopa silt Ioam		N	IWI classific	cation:	None				
Are climatic / hydrologic conditions on the site typical for this time of	year?	🛛 Yes 🛛 No	(If no, ex	plain in re	marks.)				
Are Vegetation \Box , Soil \Box , or Hydrology \Box significantly disturbed?		Are "Normal C	ircumstanc	es" prese	nt on the	site? 🛛 Yes 🗆	l No		
Are Vegetation \Box , Soil \Box , or Hydrology \Box naturally problematic?		(If needed, ex	plain any ai	nswers in	Remarks	6.)			
SUMMARY OF FINDINGS – Attach site map showing sar	SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.								
Hydrophytic Vegetation Present? Yes 🛛 No									
	_	Is the Sam	pled Area	a	-	. 🖂			

Hydric Soils Present? Wetland Hydrology Present?	Yes Yes	\boxtimes	No No	Is the Sampled Area within a Wetland?	Yes 🛛	No 🗆
Remarks: Wetland M in-pit						

Tree Stratum (Plot size: 5-m diameter) 1. Alnus rubra (rooted out) 2. Acer macrophyllum (rooted out) 3.	Absolute % Cover 10 15 	Dominant Species? N N = Total Cc	Indicator Status FAC FACU	Dominance Test worksheet Number of Dominant Species that are OBL, FACW, or FAC: Total Number of Dominant Species Across all Strata: Percent of Dominant Species that are OBL, FACW, or FAC:	: <u>3</u> (A) <u>4</u> (B) . 75 (A/B)
Sapling/Shrub Stratum (Plot size: 3-m diameter) 1. Rubus armeniacus 2.	10	Y	FAC	Prevalence Index workshee Total % Cover of: OBL species FACW species FAC species FAC species FACU species	t: <u>Multiply by:</u> x 1 = x 2 = x 3 = x 4 =
Herb Stratum (Plot size: 1-m diameter) Oenanthe sarmentosa Juncus effusus	<u> 10 </u> <u> 80 </u> 30	= Total Cov	ver OBL FACW	UPL species Column Totals: Prevalence Index = B/A =	(A) (B)
2. Junicus errasus 3. Rubus ursinus 4.		Y 	FACU FACU	Hydrophytic Vegetation 1 – Rapid Test for Hydrop 2 – Dominance Test is > 3 – Prevalence Index is ≤ 4 – Morphological Adapta data in Remarks or o 5 – Wetland Non-Vascula Problematic Hydrophytic ¹ Indicators of hydric soil and w present, unless disturbed or p	I Indicators: phytic Vegetation 50% \$ 3.0 ¹ ations ¹ (Provide supporting in a separate sheet) ar Plants ¹ Vegetation ¹ (Explain) wetland hydrology must be problematic.
1. 2. % Bare Ground in Herb Stratum: Remarks:		_ = Total Co	ver	Hydrophytic Vegetation Ye Present?	s 🖾 No 🗆

Sampling Point: DP-25

Profile Des Depth	cription: (Descr Matrix	ibe to	the dep	oth needeo	to document the indicato Redox Features	r or confirm the ab	sence	of indicators.)	
(inches)	Color (moist)	%	, D	Color (mo	oist) % Ty	be ¹ Loc ²		Texture	Remarks
0-14	10YR 2/1	98	3	7.5YR 6	/8 2 0	C M		Clay loam	
Type: C=C lydric Soil Histose Histic F Black I Hydrog Deplet Thick I Sandy	oncentration, D= Indicators: (Ap ol (A1) Epipedon (A2) Histic (A3) Jen Sulfide (A4) ed Below Dark S Dark Surface (A1 Mucky Mineral (Depleti plicabl urface 2) S1)	ion, RM le to all (A11)	=Reduced LRRs, un S S L L L L L L	Matrix, CS=Covered or Coa less otherwise noted.) Gandy Redox (S5) Stripped Matrix (S6) oamy Mucky Mineral (F1) (e oamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7)	ted Sand Grains. xcept MLRA 1)	² Loc: Indica 2 2 F 2 V 2 C 3 Indic wa dii	PL=Pore Lining, M= ators for Problemat cm Muck (A10) Red Parent Material /ery Shallow Dark S Dther (Explain in Rei ators of hydrophytic etland hydrology mu	•Matrix. • ic Hydric Soils ³ : (TF2) urface (TF12) marks) vegetation and ist be present, unless tic
Cestrictive Type: Depth (Layer (if preser	nt):				Hydric soil present?		Yes 🛛	No 🗆
YDROLC	θGY								
Wetland Hy Primary Ind	drology Indicat cators (minimum	ors: of one	e require	ed: check a	all that apply)		Seco	ndary Indicators (2	or more required)
Surfac High W Satura Water Sedime Drift De Algal N Iron De Surfac Inunda Sparse	e water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) lat or Crust (B4) eposits (B5) e Soil Cracks (B6 tion Visible on Ad) 6) erial Im ncave \$	agery (Surface	B7) (B8)	Water-Stained Leaves (exc & 4B) (B9) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1 Oxidized Rhizospheres alon Presence of Reduced Iron Recent Iron Reduction in Ti Stunted or Stressed Plants Other (explain in remarks)	ept MLRA 1, 2, 4A) g Living Roots (C3) (C4) lled Soils (C6) (D1) (LRR A)		Water-Stained Lea 2, 4A & 4B) Drainage Patterns Dry-Season Water Saturation Visible of Geomorphic Posit Shallow Aquitard (FAC-Neutral Test Raised Ant Mound Frost-Heave Hum	aves (B9) (MLRA 1 , (B10) r Table (C2) on Aerial Imagery (C9 ion (D2) D3) (D5) Is (D6) (LRR A) mocks
Field Obse	rvations:								
Surface Wa Nater Table Saturation F	ter Present? Present? Present? pillary fringe)	Yes Yes Yes		lo ⊠ lo ⊠ lo ⊠	Depth (in): Depth (in): Depth (in):	Wetland Hyd Present	rology ?	Yes	⊠ No 🗆
Describe Re	ecorded Data (str	ream ga	auge, m	nonitoring v	vell, aerial photos, previous i	nspections), if availa	able:		



DP-26

Project/Site: Capitol Land Trust – Henderson Inlet		City/County: Thurston County Sampling date: 9/3/19
Applicant/Owner: Bob Droll		State: WA Sampling Point: DP-26
Investigator(s): L. Dougherty, G. Brennan		Section, Township, Range: S28 T19N R01W
Landform (hillslope, terrace, etc): Hillslope		Local relief (concave, convex, none): <u>Convex</u> Slope (%): <u>10</u>
Subregion (LRR): A Lat: -	Lor	ıg: Datum:
Soil Map Unit Name: Skipopa silt Ioam		NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of	of year	? 🛛 Yes 🛛 No (If no, explain in remarks.)
Are Vegetation $\Box,$ Soil $\Box,$ or Hydrology \Box significantly disturbed?		Are "Normal Circumstances" present on the site? \boxtimes Yes \Box No
Are Vegetation \Box , Soil \Box , or Hydrology \Box naturally problematic?		(If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing s	ampli	ng point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes 🗆 No	\boxtimes	
Hydric Soils Present? Yes 🗆 No	\boxtimes	Is the Sampled Area Yes 🗆 No 🛛

within a Wetland?

 \boxtimes

No

Remarks: Wetland M out-pit.

Wetland Hydrology Present?

VEGETATION – Use scientific names of plants.

Yes 🗆

		Absolute	Dominant	Indicator	Dominance Test worksheet:			
Tre	e Stratum (Plot size: 5-m diameter)	% Cover	Species?	Status	Number of Dominant Species			
1.	Pseudotsuga menziesii	50	Ý	FACU	that are OBL, FACW, or FAC:		1	(A)
2.	Acer macrophyllum	30	Y	FACU	Total Number of Dominant		_	• • •
3.					Species Across all Strata:		5	(B)
4.					Percent of Dominant Species			. /
		80	= Total Co	ver	that are OBL. FACW. or FAC:		20	(A/B)
			-					\·/
Sap	<u>iling/Shrub Stratum</u> (Plot size: 3-m diameter)	45	X	FAO	Prevalence Index worksheet	• 4 14 1		
1.	Rubus armeniacus	15	Y	FAC	Total % Cover of:	Multiply	<u>by:</u>	
2.					OBL species	x 1 = _		
3.					FACW species	x 2 =		_
4.					FAC species	x 3 =		
5.					FACU species	x 4 =		
		15	= Total Co	ver	UPL species	x 5 =		
Her	b Stratum (Plot size: 1-m diameter)		-		Column Totals:	(A)		(B)
1.	Pteridium aquilinum	50	Y	FACU	Drevelopeo Index - D/A -	(<i>'</i>		• •
2.	Rubus ursinus	25	Y	FACU	Prevalence index = B/A =			
3.					Hydrophytic Vegetation	Indicator	rs:	
4.					□ 1 – Rapid Test for Hydrop	hytic Veg	etation	
5.					□ 2 – Dominance Test is > 5	50%		
6.					□ $3 - Prevalence Index is ≤$	3.0 ¹		
7.					– 4 – Morphological Adapta	tions ¹ (Pro	ovide sup	porting
8.					data in Remarks or or	n a separa	ate sheet)	Pere 5
9.					5 – Wetland Non-Vascula	r Plants ¹		
10.					Problematic Hydrophytic V	Vegetatior	n ¹ (Explai	n)
11.					¹ Indicators of hydric soil and w	etland hv	droloav m	ust be
		75	= Total Co	ver	present, unless disturbed or pr	oblematio	C.	
Wa	ody Vine Stratum (Plot size: 3-m diameter)	-	-					
1					Hydrophytic			
2					Vegetation		No 🕅	
		0	= Total Co	ver	Present?	•		
% F	Sare Ground in Herb Stratum: 0*			VCI				
70 .								
Rei	marks: *Groundcover is duff.							

Profile Des Depth	scription: (Descri Matrix	ibe to the	depth need	ed to do	cument the indicator Redox Features	or confirm the at	osence	of indicators.)	
(inches)	Color (moist)	%	Color (r	noist)	% Type	e ¹ Loc ²	2	Texture	Remarks
0-12	10YR 4/3	98	7.5YR	4/6	2 C	М		Gravelly	
0.12	1011(4)0	00	7.011	0	2 0			sandy loam	
Type: C=C	Concentration D=I	Depletion	RM=Reduce	ed Matrix	CS=Covered or Coate	ed Sand Grains	² l oc:	PI =Pore Lining M:	=Matrix
lydric Soi	I Indicators: (Ap	plicable to	all LRRs, i	unless of	herwise noted.)		Indica	ators for Problema	tic Hydric Soils ³ :
Histos	ol (A1)			Sandy F	Redox (S5)		□ 2	cm Muck (A10)	
□ Histic	Epipedon (A2)			Stripped	Matrix (S6)			Red Parent Material	(TF2)
Black	Histic (A3)			Loamy N	/lucky Mineral (F1) (ex	cept MLRA 1)	□ V	ery Shallow Dark S	Surface (TF12)
Hydro	gen Sulfide (A4)			Loamy (Gleyed Matrix (F2)			Other (Explain in Re	marks)
Deple	ted Below Dark S	urface (A1	1) 🗌	Deplete	d Matrix (F3)				
Thick	Dark Surface (A1)	2)		Redox D	Oark Surface (F6)		³ Indic	ators of hydrophytic	vegetation and
Sandy	/ Mucky Mineral (S	51)		Deplete	d Dark Surface (F7)		We	etland hydrology mu	ust be present, un
Sandy	Gleyed Matrix (S)	4)		Redox D	Pepressions (F8)	1	dis	sturbed or problema	atic.
Restrictive	e Layer (if presen	t):				Hudria agil			
Type:						nresent?		Yes 🗌	No 🛛
Denth	(inches):					presenti			
YDROLO	DGY								
Netland H	ydrology Indicate	ors:	wired, check	coll that	angle ()		Saaa	nder / Indicators (2	or more required)
		of one rec	uirea. checi		appiy)		Seco		or more required)
☐ Surface ☐ High V	Vater Table (A2)			Water & 4B	-Stained Leaves (exce (B9)	pt MLRA 1, 2, 4A		Water-Stained Le. 2, 4A & 4B)	aves (B9) (MLRA
□ Satura	ation (A3)			Salt C	rust (B11)			Drainage Patterns	s (B10)
Water	Marks (B1)			Aquat	ic Invertebrates (B13)			Dry-Season Wate	r Table (C2)
Sedim	ent Deposits (B2)] Hydro	gen Sulfide Odor (C1)			Saturation Visible	on Aerial Imagery
Drift D	eposits (B3)			Oxidiz	ed Rhizospheres along	Living Roots (C3)		Geomorphic Posit	ion (D2)
Algal I	Mat or Crust (B4)			Prese	nce of Reduced Iron (C	(4)		Shallow Aquitard	(D3)
Iron D	eposits (B5)			Recer	t Iron Reduction in Till	ed Soils (C6)		FAC-Neutral Test	(D5)
Surfac	e Soil Cracks (B6)		Stunte	ed or Stressed Plants (I	D1) (LRR A)		Raised Ant Mound	ds (D6) (LRR A)
Inunda	ation Visible on Ae	erial Image	ry (B7) 🛛	Other	(explain in remarks)			Frost-Heave Hum	mocks
□ Spars	ely Vegetated Cor	ncave Surf	ace (B8)		· · · · ·				
ield Obse	ervations:								
Surface Wa	ater Present?	Yes 🗆	No 🛛	Depth	(in):	Wetland Hyd	Irology	,	
Vater Tabl	e Present?	Yes 🗆	No 🖂	Depth	(in):	Present	t?	Yes	
Saturation includes c	Present? apillary fringe)	Yes 🗆	No 🖂	Depth	(in):				
Describe R	ecorded Data (str	eam gaug	e, monitoring	g well, ae	rial photos, previous in	spections), if avail	able:		
Remarks:									



DP - 27

Project/Site: Capitol Land Trust – Henderson Inlet	City/County: Thu	urston County	Sampling	date: 2	/26/2020	
Applicant/Owner: Bob Droll		State:	WA Samplir	ng Point:	DP-27	
Investigator(s): G. Brennan, S. Payne	Section, Township, Ra	ange: <u>S28 T19</u>	N R01W			
Landform (hillslope, terrace, etc): Depression	Local relief (concave,	convex, none):	Concave	Slope (%): 0	
Subregion (LRR): A Lat: - Lon	ig:		Datum: -			
Soil Map Unit Name: Kapowasin silt loam	NWI c	classification:	None			
Are climatic / hydrologic conditions on the site typical for this time of year	r? ⊠ Yes □ No (If	no, explain in ren	narks.)			
Are Vegetation \Box , Soil \Box , or Hydrology \Box significantly disturbed?	Are "Normal Circur	mstances" presen	nt on the site? \boxtimes	Yes 🗆	No	
Are Vegetation \Box , Soil \Box , or Hydrology \Box naturally problematic?	(If needed, explain	any answers in F	Remarks.)			

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

Hydrophytic Vegetation Present?	Yes	\boxtimes	No			
Hydric Soils Present?	Yes	\boxtimes	No	Is the Sampled Area within a Wetland?	Yes 🛛	No 🗆
Wetland Hydrology Present?	Yes	\boxtimes	No			
Remarks: Wetland P in-pit						

<u>Tree Stratum</u> (Plot size: 5-m diameter) 1	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test workshee Number of Dominant Specie that are OBL, FACW, or FA	et: es C:	4	(A)
2.				Total Number of Dominant		5	
3				Species Across all Strata:			(В)
· · · · · · · · · · · · · · · · · · ·	0	- Total Co	vor	that are OBL_EACW_or EA	es C·	80	(Δ/B)
	0	10101 00	VCI		0.		(7,0)
Sapling/Shrub Stratum (Plot size: 3-m diameter)	20	V		Prevalence Index workshe	et:		
1. Fraxinus latifolia	20	Y	FACW	<u>I otal % Cover or:</u>		<u>/ by:</u>	
2. Rubus anneniacus	15	ř V			X =		_
	10	ř	FACU		$- \frac{x^2}{x^2}$		_
4					$- x_3 =$		_
o	45	Tatal Ca			X 4 =		_
Llorb Strotum (Dist size: 1 m diameter)	40		ver	OPL species	- x = (x)		(D)
1 Papunculus repens	20	V	FAC	Column Totals.	(A)		(D)
2 Pop sp	20	 	EAC*	Prevalence Index = B/A =			
2. <u>102 Sp.</u>	4	1	TAC	Hydronbytic Vegetatio	on Indicato	nrs:	
4				\square 1 – Rapid Test for Hydr	onhytic Ve	netation	
5				\boxtimes 2 – Dominance Test is	> 50%	gotation	
6				\square 3 – Prevalence Index is	$\leq 3.0^{1}$		
7.				4 – Morphological Adap	otations ¹ (P	rovide sup	porting
8				data in Remarks or	on a separ	rate sheet)	
9				5 – Wetland Non-Vasci	lar Plants	1 (,
10					c vegetatio	n' (Explair	ר)
11		T / 10		Indicators of hydric soil and	wetland h	ydrology m	ust be
	24	= 1 otal Co	ver	present, unless disturbed of	problemat	IC.	
<u>Woody Vine Stratum</u> (Plot size: 3-m diameter)				Line days as here the			
1				Hydropnytic		. –	
2	0	- Total Ca	vor	Procent?	es 🖂	NO 🗆	
% Baro Ground in Harb Stratum: 76	0		vei	Fresents			
Remarks: *presumed FAC							

Tionie Des	scription: (Descr	ibe to the	depth needed to c	locument the indica	tor or confirm	the abser	nce of indicators.)	
Depth (inches)	Color (moist)	%	Color (moist)	Redox Features	vne ¹	$l oc^2$	Texture	Remarks
0-6	10YR 3/2	70		70	ype	200	Clay loam	Remarks
0.40	0.5% 5/0	75		05	0	N.4	Clay loam	
6-16	2.5 ¥ 5/2	75	10YR 5/8	25	C	M	Clay loam	
	Concentration D	Dopletion	PM_Poducod Matr	iv CS-Covered or C	antad Sand Cr	oipo ² L	oo: DL-Doro Lining M-L	Motrix
	Undicators: (Ap	Depletion, i		otherwise noted)	Jaleu Sanu Gi	ainsLi	licators for Problemati	in Hydric Soils ³ :
Histos		plicable to	\Box Sandy	Redox (S5)			2cm Muck (A10)	c nyunc sons .
	Epipedon (A2)			ed Matrix (S6)			Red Parent Material (TF2)
Black	Histic (A3)		Loamy	/ Mucky Mineral (F1)	(except MLRA	1) 🗆	Very Shallow Dark Su	urface (TF12)
□ Hydro	gen Sulfide (A4)		Loamy	/ Gleyed Matrix (F2)			Other (Explain in Rem	narks)
Deplet	ted Below Dark S	urface (A11	1) 🛛 Deplet	ted Matrix (F3)		31		
	Dark Sufface (A1)	2) S1)		(Dark Sufface (F6) ted Dark Surface (F7		³ In	wetland hydrology mus	vegetation and
□ Sandy	Gleyed Matrix (S	54)		Depressions (F8)			disturbed or problemat	ic.
Restrictive	Laver (if preser	nt):		• • • •				
Type:		,			Hydr	ic soil	Ves X	
Dopth	(inches);				pres	sent?		
Depth	(inches).							
Remarks:								
HYDROLO	DGY							
HYDROLO	DGY ydrology Indicat	ors:						
HYDROLO Wetland H Primary Ind	DGY ydrology Indicat licators (minimum	o rs: of one req	juired: check all tha	it apply)		S	econdary Indicators (2 o	or more required)
HYDROLO Wetland H Primary Ind Surfac	DGY ydrology Indicat dicators (minimum se water (A1)	ors: a of one req	uired: check all tha	it apply) er-Stained Leaves (e 3) (Bo)	xcept MLRA 1	Si , 2, 4A	econdary Indicators (2 o	or more required) ves (B9) (MLRA 1,
HYDROLC Wetland H Primary Ind Surfac High V Satura	DGY ydrology Indicat dicators (minimum se water (A1) Vater Table (A2) ution (A3)	ors: a of one req	uired: check all tha □ Wat & 41 □ Salt	it apply) er Stained Leaves (e 3) (B9) Crust (B11)	xcept MLRA 1	Si , 2, 4A	econdary Indicators (2 o Water-Stained Lea 2, 4A & 4B)	or more required) ves (B9) (MLRA 1, (B10)
HYDROLC Wetland H Primary Ind Surfac High V Satura U Water	DGY ydrology Indicat dicators (minimum ce water (A1) Vater Table (A2) ation (A3) Marks (B1)	ors: a of one req	uired: check all tha Wat & 4I Salt Aqu	it apply) e r-Stained Leaves (e 3) (B9) Crust (B11) atic Invertebrates (B1	xcept MLRA 1	Si , 2, 4A	econdary Indicators (2 o Water-Stained Lea 2, 4A & 4B) Drainage Patterns Dry-Season Water	or more required) ves (B9) (MLRA 1, (B10) Table (C2)
HYDROLO Wetland H Primary Ind Surfac High V Satura Water Sedim	DGY ydrology Indicat dicators (minimum ee water (A1) Vater Table (A2) tition (A3) Marks (B1) uent Deposits (B2)	ors: a of one req	uired: check all tha Wat & 4 I Salt Aqu Hyd	it apply) er-Stained Leaves (e 3) (B9) Crust (B11) atic Invertebrates (B1 rogen Sulfide Odor (0	xcept MLRA 1 3) C1)	Si , 2, 4A	econdary Indicators (2 o Water-Stained Lear 2, 4A & 4B) Drainage Patterns Dry-Season Water Saturation Visible o	or more required) ves (B9) (MLRA 1, (B10) Table (C2) n Aerial Imagery (C9)
HYDROLO Wetland H Primary Ind Surfac High V Satura Water Sedim Drift D	DGY ydrology Indicat licators (minimum ee water (A1) Vater Table (A2) ation (A3) Marks (B1) eent Deposits (B2) leposits (B3)	ors: of one req	juired: check all tha Wat & 4 Salt Aqu Hyd Oxic	tt apply) er-Stained Leaves (e 3) (B9) Crust (B11) atic Invertebrates (B1 rogen Sulfide Odor (0 lized Rhizospheres al	xcept MLRA 1 3) C1) Dong Living Roo	Si , 2, 4A ts (C3)	econdary Indicators (2 o Water-Stained Lear 2, 4A & 4B) Drainage Patterns Dry-Season Water Saturation Visible o Geomorphic Positio	or more required) ves (B9) (MLRA 1, (B10) Table (C2) n Aerial Imagery (C9) on (D2)
HYDROLO Wetland H Primary Ind Surfac High V Satura Water Sedim Drift D Algal N	DGY ydrology Indicat dicators (minimum ee water (A1) Vater Table (A2) ation (A3) Marks (B1) Marks (B1) Marks (B3) Mat or Crust (B4)	ors: o of one req	uired: check all tha Wat & 41 Salt Aqu Hyd Oxic Pres	t apply) er-Stained Leaves (e B) (B9) Crust (B11) atic Invertebrates (B1 rogen Sulfide Odor (0 lized Rhizospheres al sence of Reduced Iro	xcept MLRA 1 3) C1) ong Living Roo n (C4)	<u>Si</u> , 2, 4A ts (C3)	econdary Indicators (2 o Water-Stained Lea 2, 4A & 4B) Drainage Patterns Dry-Season Water Saturation Visible o Geomorphic Positio Shallow Aquitard (I	or more required) ves (B9) (MLRA 1, (B10) Table (C2) n Aerial Imagery (C9) on (D2) O3)
HYDROLO Wetland H Primary Ind Surfac High V Satura Water Sedim Drift D Algal M Surfac	DGY ydrology Indicat licators (minimum re water (A1) Vater Table (A2) tition (A3) Marks (B1) nent Deposits (B2) peposits (B3) Mat or Crust (B4) eposits (B5)	ors: of one req	uired: check all tha Wat & 4I Salt Aqu Hyd Oxic Pres Rec Stur	tt apply) er-Stained Leaves (e 3) (B9) Crust (B11) atic Invertebrates (B1 rogen Sulfide Odor (0 lized Rhizospheres al sence of Reduced Iro ent Iron Reduction in	xcept MLRA 1 3) 21) ong Living Roo n (C4) Tilled Soils (C	St , 2, 4A ts (C3) 6)	econdary Indicators (2 o Water-Stained Lea 2, 4A & 4B) Drainage Patterns Dry-Season Water Saturation Visible o Geomorphic Positio Shallow Aquitard (I FAC-Neutral Test (or more required) ves (B9) (MLRA 1, (B10) Table (C2) n Aerial Imagery (C9) on (D2) O3) D5) o (D6) (LBD A)
HYDROLO Wetland H Primary Ind Surfac High V Satura Water Sedim Drift D Algal N Iron D Surfac	DGY ydrology Indicat dicators (minimum se water (A1) Vater Table (A2) ation (A3) Marks (B1) eent Deposits (B2) eeposits (B3) Mat or Crust (B4) eposits (B5) se Soil Cracks (B6	ors: o of one req)) arial Image	juired: check all tha Wat & 4I Salt Aqu Hyd Oxic Pres Rec Stur ry (B7)	tt apply) er-Stained Leaves (e 3) (B9) Crust (B11) atic Invertebrates (B1 rogen Sulfide Odor ((dized Rhizospheres al sence of Reduced Iro ent Iron Reduction in the or Stressed Plan	3) 21) 21) 210 Dong Living Roo n (C4) Tilled Soils (C ts (D1) (LRR 4	Si , 2, 4A ts (C3) 6))	econdary Indicators (2 o Water-Stained Lear 2, 4A & 4B) Drainage Patterns Dry-Season Water Saturation Visible o Geomorphic Positio Shallow Aquitard (I FAC-Neutral Test (Raised Ant Mounds Frost-Heave Humo	or more required) ves (B9) (MLRA 1 , (B10) Table (C2) n Aerial Imagery (C9) on (D2) O3) D5) s (D6) (LRR A) pocks
HYDROLO Wetland H Primary Ind Surfac High V Satura Water Sedim Drift D Algal N Iron D Surfac Inunda Sparse	DGY ydrology Indicat dicators (minimum ee water (A1) Vater Table (A2) ation (A3) Marks (B1) lent Deposits (B2) leposits (B3) Mat or Crust (B4) eposits (B5) ee Soil Cracks (B6 ation Visible on Ae ely Vegetated Con	ors: of one req) erial Image ncave Sufa	juired: check all tha Wat & 41 Salt Aqu Hyd Oxic Pres Rec Stur ry (B7) Othe ace (B8)	tt apply) er-Stained Leaves (e 3) (B9) Crust (B11) atic Invertebrates (B1 rogen Sulfide Odor (0 dized Rhizospheres al sence of Reduced Iro ent Iron Reduction in the or Stressed Plan er (explain in remarks	3) 21) 21) ong Living Roo n (C4) Tilled Soils (C ts (D1) (LRR 4)	Si , 2, 4A ts (C3) 6) ()	econdary Indicators (2 o Water-Stained Lear 2, 4A & 4B) Drainage Patterns Dry-Season Water Saturation Visible o Geomorphic Positio Shallow Aquitard (I FAC-Neutral Test (Raised Ant Mounds Frost-Heave Humm	or more required) ves (B9) (MLRA 1 , (B10) Table (C2) n Aerial Imagery (C9) on (D2) O3) D5) s (D6) (LRR A) nocks
HYDROLO Wetland H Primary Ind Surfac High V Satura Satura Water Sedim Drift D Algal N Iron D Surfac Inunda Sparse Field Obse	DGY ydrology Indicat dicators (minimum e water (A1) Vater Table (A2) ation (A3) Marks (B1) ment Deposits (B2) Mat or Crust (B4) eposits (B5) e Soil Cracks (B6 ation Visible on Ac ely Vegetated Con- ervations:	ors: of one req) b) erial Imagen ncave Surfa	uired: check all tha Wat & 41 Salt Aqu Hyd Oxic Pres Rec Stur ry (B7) Othe ace (B8)	tt apply) er-Stained Leaves (e 3) (B9) Crust (B11) atic Invertebrates (B1 rogen Sulfide Odor (f lized Rhizospheres al sence of Reduced Iro ent Iron Reduction in inted or Stressed Plan er (explain in remarks	xcept MLRA 1 3) C1) ong Living Roo n (C4) Tilled Soils (C ts (D1) (LRR 4)	Si , 2, 4A ts (C3) 6)	econdary Indicators (2 o Water-Stained Lear 2, 4A & 4B) Drainage Patterns Dry-Season Water Saturation Visible o Geomorphic Positic Shallow Aquitard (I FAC-Neutral Test (Raised Ant Mounds Frost-Heave Humn	or more required) ves (B9) (MLRA 1, (B10) Table (C2) n Aerial Imagery (C9) on (D2) O3) D5) s (D6) (LRR A) nocks
HYDROLO Wetland H Primary Ind Surface High V Satura Water Sedim Surfac Inunda Sparse Field Obse Surface Wa	DGY ydrology Indicat dicators (minimum re water (A1) Vater Table (A2) ation (A3) Marks (B1) leeposits (B3) Mat or Crust (B4) eposits (B5) re Soil Cracks (B6) ation Visible on Ae ely Vegetated Con ervations: ater Present?	ors: of one req of one req) erial Imagel ncave Surfa Yes ⊠	juired: check all tha Wat & 41 Salt Aqu Hyd Oxic Pres Rec Stur ry (B7) Othe ace (B8)	tt apply) er-Stained Leaves (e 3) (B9) Crust (B11) atic Invertebrates (B1 rogen Sulfide Odor (i dized Rhizospheres al sence of Reduced Iro ent Iron Reduction in the or Stressed Plan er (explain in remarks h (in): 3"	xcept MLRA 1 3) C1) ong Living Roo n (C4) Tilled Soils (C ts (D1) (LRR 4)	St , 2, 4A ts (C3) 6) 4)	econdary Indicators (2 o Water-Stained Lear 2, 4A & 4B) Drainage Patterns Dry-Season Water Saturation Visible o Geomorphic Positio Shallow Aquitard (I FAC-Neutral Test (Raised Ant Mounds Frost-Heave Humn	or more required) ves (B9) (MLRA 1 , (B10) Table (C2) n Aerial Imagery (C9) on (D2) D3) D5) s (D6) (LRR A) nocks
HYDROLO	DGY ydrology Indicat dicators (minimum e water (A1) Vater Table (A2) ation (A3) Marks (B1) ment Deposits (B2) Mat or Crust (B4) eposits (B5) e Soil Cracks (B6) ation Visible on Ac ely Vegetated Con- ervations: ater Present? e Present?	ors: of one req of one req) erial Imager ncave Surfa Yes ⊠ Yes ⊠	juired: check all tha Wat & 41 Salt Aqu Hyd Oxic Pres Rec Stur ry (B7) Othe ace (B8) No Dept No Dept	tt apply) er-Stained Leaves (e 3) (B9) Crust (B11) atic Invertebrates (B1 rogen Sulfide Odor (f lized Rhizospheres al sence of Reduced Iro ent Iron Reduction in hted or Stressed Plan er (explain in remarks h (in): <u>3</u> " h (in):	xcept MLRA 1 3) C1) ong Living Roo n (C4) Tilled Soils (C ts (D1) (LRR 4) Wetlan	Si , 2, 4A ts (C3) 6) () nd Hydrold Present?	econdary Indicators (2 o Water-Stained Lear 2, 4A & 4B) Drainage Patterns Dry-Season Water Saturation Visible o Geomorphic Positio Shallow Aquitard (I FAC-Neutral Test (Raised Ant Mounds Frost-Heave Humn	or more required) ves (B9) (MLRA 1 , (B10) Table (C2) n Aerial Imagery (C9) on (D2) D3) D5) s (D6) (LRR A) nocks
HYDROLC Wetland H Primary Ind Surfac High V Satura Water Sedim Drift D Algal N Iron D Surfac Sparse Surface Wa Water Table Saturation	DGY ydrology Indicat dicators (minimum e water (A1) Vater Table (A2) ation (A3) Marks (B1) eent Deposits (B2) eeposits (B3) Mat or Crust (B4) eposits (B5) ee Soil Cracks (B6) ation Visible on Ae ely Vegetated Con ervations: ater Present? e Present?	ors: o of one req) erial Imager ncave Surfa Yes ⊠ Yes ⊠ Yes ⊠	uired: check all tha Wat & 41 Salt Aqu Hyd Oxic Pres Rec Stur ry (B7) Othe ace (B8) No Dept No Dept No Dept	It apply) er-Stained Leaves (e 3) (B9) Crust (B11) atic Invertebrates (B1 rogen Sulfide Odor (i dized Rhizospheres al sence of Reduced Iro ent Iron Reduction in ted or Stressed Plan er (explain in remarks h (in): <u>3"</u> h (in): <u>1</u>	3) C1) ong Living Roo n (C4) Tilled Soils (C ts (D1) (LRR 4)) Wetlai	Si , 2, 4A ts (C3) 6)) nd Hydrold Present?	econdary Indicators (2 o Water-Stained Lear 2, 4A & 4B) Drainage Patterns Dry-Season Water Saturation Visible o Geomorphic Positio Shallow Aquitard (I FAC-Neutral Test (Raised Ant Mounds Frost-Heave Humm	or more required) ves (B9) (MLRA 1, (B10) Table (C2) n Aerial Imagery (C9) on (D2) D3) D5) s (D6) (LRR A) mocks
HYDROLO	DGY ydrology Indicat dicators (minimum water (A1) Vater Table (A2) ation (A3) Marks (B1) marks (B1) Marks (B1) Marks (B3) Mat or Crust (B4) eposits (B5) wat or Crust (B4) eposits (B5) eposits (B5)	ors: of one req of one req) erial Imager ncave Surfa Yes ⊠ Yes ⊠ Yes ⊠	juired: check all tha Wat 8.41 Salt Aqu Hyd Oxic Pres Rec Stur ry (B7) Othe ace (B8) No Dept No Dept No Dept	tt apply) er-Stained Leaves (e 3) (B9) Crust (B11) atic Invertebrates (B1 rogen Sulfide Odor (f lized Rhizospheres al sence of Reduced Iro ent Iron Reduction in the or Stressed Plan er (explain in remarks h (in):	3) 21) ong Living Roo n (C4) Tilled Soils (C ts (D1) (LRR 4) Wetla	Si , 2, 4A ts (C3) 6) 1) nd Hydrold resent?	econdary Indicators (2 o Water-Stained Lear 2, 4A & 4B) Drainage Patterns Dry-Season Water Saturation Visible o Geomorphic Positio Shallow Aquitard (I FAC-Neutral Test (Raised Ant Mounds Frost-Heave Humn	or more required) ves (B9) (MLRA 1, (B10) Table (C2) n Aerial Imagery (C9) on (D2) O3) D5) s (D6) (LRR A) nocks
HYDROLO	DGY ydrology Indicat dicators (minimum water (A1) Vater Table (A2) ation (A3) Marks (B1) went Deposits (B2) veposits (B3) Mat or Crust (B4) eposits (B5) we Soil Cracks (B6) ation Visible on Action ely Vegetated Con- ervations: ater Present? Present? Present? apillary fringe) ecorded Data (str	ors: of one req of one req)))))))))))))	uired: check all tha Wat & 41 Salt Aqu Aqu Hyd Oxic Pres Rec Stur ry (B7) Othe ace (B8) No Dept No Dept No Dept No Dept	tt apply) er-Stained Leaves (e 3) (B9) Crust (B11) atic Invertebrates (B1 rogen Sulfide Odor ((dized Rhizospheres al sence of Reduced Iro ent Iron Reduction in nted or Stressed Plan er (explain in remarks h (in): h (in): aerial photos, previou	xcept MLRA 1 3) 21) 20ng Living Roo n (C4) Tilled Soils (C ts (D1) (LRR 4) Wetla F s inspections),	Si , 2, 4A ts (C3) 6) h d Hydrold Present? if available	econdary Indicators (2 o Water-Stained Lear 2, 4A & 4B) Drainage Patterns Dry-Season Water Saturation Visible o Geomorphic Positic Shallow Aquitard (I FAC-Neutral Test (Raised Ant Mounds Frost-Heave Humn	or more required) ves (B9) (MLRA 1, (B10) Table (C2) n Aerial Imagery (C9) on (D2) D3) D5) s (D6) (LRR A) nocks
HYDROLC Wetland H Primary Ind Surfac High V Satura Water Sedim Drift D Algal N Iron Du Surfac Surface Surface Wa Water Table Saturation I (includes ca Describe R	DGY ydrology Indicat dicators (minimum re water (A1) Vater Table (A2) ation (A3) Marks (B1) leeposits (B3) Mat or Crust (B4) eposits (B5) re Soil Cracks (B6) ation Visible on Ac ely Vegetated Con ervations: ater Present? e Present? Present? apillary fringe) ecorded Data (str	ors: of one req of one req)) erial Imagel ncave Surfa Yes ⊠ Yes ⊠ Yes ⊠ Yes ⊠ Yes ⊠	uired: check all tha Wat & 41 Salt Aqu Hyd Oxic Pres Rec Stur ry (B7) Othe ace (B8) No Dept No Dept No Dept No Dept o, monitoring well, a	It apply) er-Stained Leaves (e 3) (B9) Crust (B11) atic Invertebrates (B1 rogen Sulfide Odor (i dized Rhizospheres al sence of Reduced Iro ent Iron Reduction in the dor Stressed Plan er (explain in remarks h (in): h (in): h (in): aerial photos, previou	xcept MLRA 1 3) 21) ong Living Roo n (C4) Tilled Soils (C ts (D1) (LRR 4) Wetlai F s inspections),	Si , 2, 4A ts (C3) 6) h d Hydrold resent?	econdary Indicators (2 o Water-Stained Lear 2, 4A & 4B) Drainage Patterns Dry-Season Water Saturation Visible o Geomorphic Positio Shallow Aquitard (I FAC-Neutral Test (Raised Ant Mounds Frost-Heave Humn	or more required) ves (B9) (MLRA 1, (B10) Table (C2) n Aerial Imagery (C9) on (D2) D3) D5) s (D6) (LRR A) nocks
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HYDROLO	DGY ydrology Indicat dicators (minimum water (A1) Vater Table (A2) ation (A3) Marks (B1) ment Deposits (B2) peposits (B3) Mat or Crust (B4) eposits (B5) we Soil Cracks (B6) ator Visible on Ac- ely Vegetated Con- ervations: ater Present? Present? Present? apillary fringe) ecorded Data (str	ors: of one req of one req)) erial Imagen ncave Surfa Yes ⊠ Yes ⊠ Yes ⊠ Yes ⊠ ream gauge	uired: check all tha Wat & 41 Salt Aqu Hyd Oxic Pres Rec Stur ry (B7) Othe ace (B8) No Dept No Dept No Dept No Dept	tt apply) er-Stained Leaves (e 3) (B9) Crust (B11) atic Invertebrates (B1 rogen Sulfide Odor (f lized Rhizospheres al sence of Reduced Iro ent Iron Reduction in hted or Stressed Plan er (explain in remarks h (in): h (in): h (in): aerial photos, previou	xcept MLRA 1 3) 21) ong Living Roo n (C4) Tilled Soils (C ts (D1) (LRR 4) Wetla F s inspections),	Si , 2, 4A ts (C3) 6) hd Hydrold Present? if available	econdary Indicators (2 o Water-Stained Lear 2, 4A & 4B) Drainage Patterns Dry-Season Water Saturation Visible o Geomorphic Positic Shallow Aquitard (I FAC-Neutral Test (Raised Ant Mounds Frost-Heave Humn	or more required) ves (B9) (MLRA 1, (B10) Table (C2) n Aerial Imagery (C9) on (D2) D3) D5) s (D6) (LRR A) nocks


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

DP - 28

Project/Site: Capitol Land Trust – Henderson Inlet	City/County: Thurs	ston County	Sampling	g date: 2	/26/2020			
Applicant/Owner: Bob Droll		State:	WA Sampl	ling Point:	DP-28			
Investigator(s): G. Brennan, S. Payne	Section, Township, Rang	ge: <u>S28 T19</u>	9N R01W					
Landform (hillslope, terrace, etc): Hillslope	Local relief (concave, co	onvex, none):	None	Slope ((%): 5			
Subregion (LRR): A Lat: - Lon	g:		Datum: -					
Soil Map Unit Name: Kapowasin silt loam	NWI clas	ssification:	None					
Are climatic / hydrologic conditions on the site typical for this time of year? 🛛 Yes 🛛 No (If no, explain in remarks.)								
Are Vegetation \Box , Soil \Box , or Hydrology \Box significantly disturbed?	Are "Normal Circums	stances" presei	nt on the site?	⊠Yes □	No			
Are Vegetation \Box , Soil \Box , or Hydrology \Box naturally problematic?	(If needed, explain ar	ny answers in	Remarks.)					

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

Hydrophytic V	egetation Present?	Yes	\boxtimes	No						
Hydric Soils Present?		Yes		No	\boxtimes	Is the Sampled Area within a Wetland?	Yes 🗌 No 🗌			
Wetland Hydrology Present?		Yes		No	\boxtimes					
Remarks:	Click here to enter text.									

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5-m diameter) 1. Pseudotsuga menziesii 2. Alnus rubra 3.	Absolute % Cover 35 15 50	Dominant Species? Y Y = Total Co	Indicator Status FACU FAC	Dominance Test worksheet: Number of Dominant Species that are OBL, FACW, or FAC: Total Number of Dominant Species Across all Strata: Percent of Dominant Species that are OBL, FACW, or FAC:	3 (A) 5 (B) 60 (A/E	B)
Sapling/Shrub Stratum (Plot size: 3-m diameter) 1. Rubus armeniacus 2. Alnus rubra 3.	10 20	Y Y	FAC FAC	Prevalence Index worksheet Total % Cover of: OBL species FACW species FAC species FAC species	: <u>Multiply by:</u> x 1 = x 2 = x 3 =	
 <u>Herb Stratum</u> (Plot size: 1-m diameter) <u>Polystichum munitum</u> Rubus ursinus 	<u> </u>	= Total Cov Y N	FACU	UPL species Column Totals: Prevalence Index = B/A =	x 4 = x 5 = (A) (B	В)
3.	65	= Total Co	ver	Hydrophytic Vegetation □ 1 – Rapid Test for Hydrop ☑ 2 – Dominance Test is > 5 □ 3 – Prevalence Index is ≤ □ 4 – Morphological Adaptated □ data in Remarks or or □ 5 – Wetland Non-Vascular □ Problematic Hydrophytic N ¹Indicators of hydric soil and w present, unless disturbed or pr	Indicators: hytic Vegetation 50% 3.0 ¹ tions ¹ (Provide supporting a separate sheet) r Plants ¹ /egetation ¹ (Explain) etland hydrology must be oblematic.	ng ne
1.	0	_ = Total Co	ver	Hydrophytic Vegetation Yes Present?	s 🖾 No 🗆	

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Color (moist)	%	Color (m	oist) <u>Redox Fe</u>	atures Type	¹ Loc ²	Texture	Remarks
0-10	10YR 3/2	100		,	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		Clav loam	
10.16	2.57 4/2	100					Clay loam	
10-10	2.51 4/2	100					Ciay Ioani	
¹ Type: C=0	Concentration. D=	Depletion.	RM=Reduce	d Matrix. CS=Cove	red or Coate	d Sand Grains.	² Loc: PL=Pore Lining	a. M=Matrix.
Hydric So	I Indicators: (Ap	plicable to	all LRRs, u	nless otherwise n	oted.)		Indicators for Probl	ematic Hydric Soils ³ :
□ Histos	sol (A1)	•		Sandy Redox (S5)			□ 2cm Muck (A10)
□ Histic	Epipedon (A2)			Stripped Matrix (Se	6)		Red Parent Mat	erial (TF2)
□ Black	Histic (A3)			Loamy Mucky Mine	eral (F1) (exc	ept MLRA 1)	Very Shallow Data Other (Eventsin in	ark Surface (TF12)
	ted Below Dark S	Surface (A11)	Depleted Matrix (F:	3)			r Remarks)
□ Thick	Dark Surface (A1	2)	, 🗆	Redox Dark Surfac	e (F6)		³ Indicators of hydrop	hytic vegetation and
□ Sandy	/ Mucky Mineral (S1)		Depleted Dark Sur	face (F7)		wetland hydrolog	y must be present, unless
□ Sandy	Gleyed Matrix (54)		Redox Depression:	s (F8)			
Restrictive	e Layer (if prese	nt):				Hydric soil		
Type:						present?	Yes	
Depth	(inches):							
Remarks:								
Wetland H	ydrology Indica	tors:						
Primary Inc	dicators (minimun	n of one req	uired: check	all that apply)			Secondary Indicator	s (2 or more required)
□ Surfac	e water (A1)			Water-Stained Lo	eaves (exce l	ot MLRA 1, 2, 4A	□ Water-Staine	d Leaves (B9) (MLRA 1,
□ High \ □ Satura	Vater Table (A2)			& 4B) (B9) Salt Crust (B11)			2, 4A & 4B)	terns (B10)
□ Uater	Marks (B1)			Aquatic Inverteb	rates (B13)		Drv-Season V	Vater Table (C2)
□ Sedim	ient Deposits (B2)		Hydrogen Sulfide	e Odor (C1)		Saturation Vis	sible on Aerial Imagery (C9)
Drift D	eposits (B3)			Oxidized Rhizosp	oheres along	Living Roots (C3)	Geomorphic I	Position (D2)
□ Algal	Mat or Crust (B4)			Presence of Red	luced Iron (C	4) 	Shallow Aqui	tard (D3)
□ Iron D	eposits (B5) Se Soil Cracks (Bi	6)		Stunted or Stress	uction in Tille and Plants (F	a Solis (C6)	FAC-Neutral Raised Ant M	I est (D5) ounds (D6) (I RR A)
	ation Visible on A	erial Imager	v (B7)	Other (explain in	remarks)		□ Frost-Heave	Hummocks
□ Spars	ely Vegetated Co	ncave Surfa	ce (B8)		,			
Field Obse	ervations:							
Surface Wa	ater Present?	Yes 🗆	No 🛛	Depth (in):				
Water Tabl	e Present?	Yes 🗆	No 🛛	Depth (in):		Wetland Hydr Present	rology ? Ye	es 🗌 No 🛛
Saturation	Present?	Yes 🗆	No 🖂	Depth (in):				
(includes c	apillary fringe)			· · · /				
Describe R	ecorded Data (st	ream gauge	, monitoring	well, aerial photos,	, previous ins	spections), if availa	able:	
Remarke	Dry to 16							
nomanto.	51, 10 10							

Appendix D

BOND QUANTITY WORKSHEET

<form> Entropy of the set of the</form>	17	Department of Permitting and		Critical Ar	eas Mitigat	ion	C2	4 09/09/2015		
	Environmental Review Bond Quantity Wor					hoot	le-wk	ls-wks-sensareaBO xls		
	Ĩ.	35030 SE Douglas Str. Suite 21	• Դ	Sona Quan		lieet	15-101			
	King County	Spoqualmie WA 98065-926	8				IS-W	s-sensareaBQ.pdf		
	King Councy	206 206 6600 TTV Pelay: 71	1							
Project Name Impling Kids Preserv Date 2 sAug. 2 Project With K Kalh K Project Name Project Description April 2000 110 mm / mom / mm / mm / mm / mm / mm / mm		200-290-0000 111 Relay. 71	1							
Processor Processor <td>Project Name:</td> <td>Inspiring Kids Preserv</td> <td>/e</td> <td>Date:</td> <td>25-Aug-23</td> <td>Prepared by:</td> <td>Kahlo, R</td> <td></td> <td></td>	Project Name:	Inspiring Kids Preserv	/e	Date:	25-Aug-23	Prepared by:	Kahlo, R			
rayor. Protectamenta in the problem of the proble	Drojaat Numbar		Project Dec	orintion						
Part result Part result Pa	Project Number	•	Project Des	cription.						
Current of the first of the firs	Location: Hond	orson Inlot Thurston Cou	otv	Applicant	Capitol Land		Phono			
Image in the set of the s		erson met, murston cou	ity	Applicant:	Capitor Land	linuse	Phone:			
Impage in the proof of the proof	ΡΙ ΑΝΤ ΜΑΤΕ	RIALS (includes labor cost for								
TypeUP NoUP Not NoUP Not No. No. NoSector<	plant installation)				l l					
HAMB Same j and i and i Alba Same j Same	Туре		Unit Price	Unit	t Quantity	Description		Cost		
n.Xn Sotune 1gks, main and NNS Gaten 2gks, mai	PLANTS: Potted, 4"	diameter, medium	\$5.00	Each	3262.00)		\$ 16,310	0.00	
RAYS Graver 2 jeta medianasi 5000 For S S HAYS Sorder 2 jeta medianasi 6300 For S S HAYS Sorder 2 jeta medianasi 6300 For S S HAYS Sorder 2 jeta medianasi 6300 For S S HAYS Sorder 2 jeta medianasi 1200 For S S S HAYS Sorder 2 jeta medianasi 1200 For S S S HAYS Sorder 2 jeta medianasi 1200 For S S S HAYS Sorder 2 jeta medianasi 1200 For S S S HAYS Sorder 2 jeta medianasi 1200 For S S S Sorder 2 jeta medianasi 1200 For S S S S HAYS Sorder 2 jeta medianasi 1300 HA S<	PLANTS: Container,	1 gallon, medium soil	\$11.50	Each	6686.00)		\$ 76,889	9.00	
μ A/B Sorging right radius of a star of a st	PLANTS: Container, 2	2 gallon, medium soil	\$20.00	Each	1			\$	-	
μAmis Solid Solid Solid Image <	PLANTS: Container,	5 gallon, medium soil	\$36.00	Each				\$	-	
Function of the funct	PLANTS: Seeding, b	by hand	\$0.50	SY	2032.00			\$ 1,016	5.00 2.00	
Control Control S S S S S NUM13: resplay 12:00 Exc S	PLANTS: Slips (Willo	w, rea-osier)	\$2.00	Each	5934.00			\$ 11,808	5.00	
JAUNG BADD I	PLANTS: Stakes (wi	llow)	\$2.00	Each				ֆ Տ	-	
Installation Image	PLANTS: Flats/plugs	S	\$2.00	Each	1			\$	-	
INSTALLATION COSTS (LABOR, EQUIPMENT, & OVERHEAD) Type Unit Price Unit Cost Corpens_magnation for the and register 53.78 CY 5 - Decembering tithunder, mader, 92 cepth 11.37 CY 5 - Decembering tithunder, mader, 92 cepth 11.37 CY 5 - Inder gene findensing of the an artistation 50.00 HB 5 - Inder gene findensing of the an artistation 50.00 HB 5 - Inder genes findensing of the an artistation 50.00 HB 5 - State genes findensing of the an artistation 50.00 HB 5 - State genes findensing of the an artistation 50.00 HB 5 - State genes findensing of the an artistation 50.00 HAB 5 - State genes findensing of the an artistation 50.00 HAB 5 - State genes findensing of the an artistation 50.00 HAB 5 - State genes findensing of the an artistation<			1	1	ı	•	TOTAL	\$ 106.083	3.00	
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Type Unit Unit Unit Unit Control. Control. Control. Control. S ² S S		IN COSIS (LADUK, EQUI	- WIEINI, & UN		1	1				
Campa2 supplies advanced on yourd \$57.88 CY I I - Decropacing Monitary nodes, b7 gettyph \$15 CY I I - Becompacing Monitary nodes, b7 gettyph \$100 III III IIII IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Туре		Unit Price	Unit	t 			Cost		
	Compost, vegetable,	delivered and spread	\$37.88	CY				\$	-	
instance in a star in	Decompacting till/har	apan, medium, to 6" depth	\$1.57	CY	,			ቅ ፍ	-	
Intercent Image	Decompacting till/han	upan, medium, to 12" depth	\$1.57 \$0.51	CY SV	,	+		φ \$	-	
iabo pread incrementary 94000 HB S S iabo consulario, nelle edison 95600 HB S S iabo consulario, nelle edison 95600 HB S S iabo consulario, nelle edison 95600 HB S S iabo consulario, nelle edison 95000 HB S S iabo consulario, nelle edison 95000 HB S S iamo consulario, nelle edison 95000 HB S S S iamo consultario, nelle edison 95000 Acre S S S irrigation -segnity 43.0000 Acre S S S S HEMS Junt Cost Marce S	Labor. general (lands	caping other than plant installation)	\$40.00	HR	2			\$	-	
Laber Canalladin sequencing 950.00 HR S Date Canalladin sequencing 950.00 HR S Stati Canalladin Sequencing 950.00 HR S Stati Canalladin Sequencing 950.00 HR S Stati Canalladin Sequencing 957.00 Each S Stati Canalladin Sequencing 957.00 HR S Stati Canalladin Sequencing 957.00 HR S Stati Canalladin Sequencing 957.00 HR S Stati Canalladin Sequencing 95.00 Acre S Stati Canalladin Sequencing 95.00 Acre S Tiggtor- Linnol \$100.00 Bach S S Tiggtor- Linnol \$100.00 Each S S Tiggtor- Linnol \$100.00 Each S S Ti	Labor, general (cons	truction)	\$40.00	HR	ł.			\$	-	
ihbt Coulor (no size deligit) 950.00 HR S S S Stati of corregating mathers 8 gamma 547.00 GV S	Labor: Consultant, su	ipervising	\$55.00	HR				\$	-	
Rend documparing machiney à domain \$7:00 HR \$ \$ Stating matrix (atting the first) \$7:00 Each \$ Stating matrix (atting the first) \$7:00 Each \$ Stangery, Inde grade \$250:00 HR \$ \$ Stating matrix (atting the first), forst (attting the first), forst (atting the first), forst (atting the fir	Labor: Consultant, on	n-site re-design	\$95.00	HR	2			\$	-	
Sind: quencing loop for this Sampary inter Source with a set of the set of	Rental of decompacti	ng machinery & operator	\$70.00	HR				\$	-	
Salong mutani late per rel, Sarveying in daga 5 0.00 FR \$ Striveying in daga \$220.00 FR \$ Striveying in daga \$220.00 FR \$ Striveying in daga \$220.00 FR \$ Striveying in daga \$3.000.00 Acre \$ Infigion turing on daga \$3.000.00 Acre \$ Infigion turing on daga \$10.00 Acre \$ HABIT STRUCTURES' \$ \$ TEMS Unit Cost Unit \$ \$ uga devis (wit dag, 192" dam., 20 mg \$10.000.00 Each \$ \$ uga devis (wit dag, 192" dam., 20 mg \$40.00 Each \$ \$ uga devis (wit dag, 192" dam., 20 mg \$40.00 Each \$ \$ uga devis (wit dag, 192" dam., 20 mg \$10.000 Each	Sand, coarse builder	s, delivered and spread	\$42.00	CY				\$	-	
Longing Long parts Source S Marting 10* and a loss \$2000 HB \$ \$ Marting 10* and a loss of the loss \$3.000.00 Acra \$ \$ Infigitar - formats \$3.000.00 Acra \$ \$ \$ Infigitar - formats \$1.02 \$ \$ \$ \$ \$ Infigitar - formats \$ <td< td=""><td>Staking material (set</td><td>per tree)</td><td>\$7.00</td><td>Each</td><td></td><td></td><td></td><td>ቅ ፍ</td><td>-</td></td<>	Staking material (set	per tree)	\$7.00	Each				ቅ ፍ	-	
Water (0) Tasker hole \$ 4.52 MSF \$	Surveying, line & grad	lical	\$250.00	HR	2			\$	-	
Impace - humber of the second of t	Watering, 1" of water,	, 50' soaker hose	\$3.62	MSF	*			\$	-	
implicit §4,8000 Arc Implicit § Intro yood, dischare, 4/3 oog §7 S S HABITAT STRUCTURES' Imi Imit S S TEMS Unit Cot Unit Unit S S Inge toda/y on codd, 10:4 dim, 30 org \$1,000.00 Each S Inge toda/y on codd, 10:4 dim, 30 org \$2450.00 Each S Inge toda/y on codd, 10:4 dim, 30 org \$2450.00 Each S Inge and codd, 10:4 dim, 30 org \$2450.00 Each S Inge and codd, 10:4 dim, 30 org \$2450.00 Each S Rocks, ore ran \$1000.00 Each S Rocks, ore ran \$1000.00 Each S Wer - Spatible \$1000.00 Each S<	Irrigation - temporary	, ,	\$3,000.00	Acre				\$	-	
Timing tanks, 20° prator, 4-0° erap \$ 102 \$ N \$ N TOTAL \$ N \$ N NOTAL \$ N NOTAL \$ N NOTAL \$ N Searce (noto) \$ 200 Each \$ N Implementation (N * 100 mono) Each \$ N Implementation (N * 100 mono) Each \$ N Nota (N * 100 mono) \$ N Nota (N * 100 mono) Each \$ N	Irrigation - buried		\$4,500.00	Acre				\$	-	
HABITA STRUCTURES* Cost TEMS Unit Cost Unit Cost 1 rescine following \$ 0.000 Each \$ 0.000 1 spic todar's rows fit 724" dam. 30" \$ 0.000.00 Each \$ 0.000.00 1 spic todar's rows fit 724" dam. 30" \$ 0.000.00 Each \$ 0.000.00 1 spic todar's rows fit 724" dam. 30" \$ 0.000.00 Each \$ 0.000.00 1 spic todar's rows fit 724" dam. 30" \$ 0.000.00 Each \$ 0.000.00 1 spic todar works fit 724" dam. 30" \$ 0.000.00 Each \$ 0.000.00 1 spic todar works fit 724" dam. 30" \$ 0.000.00 Each \$ 0.000.00 1 codar works fit 724" dam. 30" \$ 0.000.00 Each \$ 0.000.00 1 codar works fit 724" dam. 30" \$ 0.000.00 Each \$ 0.000.00 1 codar works fit 724" dam. 30" \$ 0.000.00 Each \$ 0.000.00 1 codar works fit 724" dam. 30" \$ 0.000.00 Each \$ 0.000.00 1 codar works fit 724" dam. 30" \$ 0.000.00 Each \$ 0.000.00 1 codar works fit 724" dam. 30" \$ 0.000.00	Tilling topsoil, disk harro	ow, 20hp tractor, 4"-6" deep	\$1.02	SY				\$	-	
HABAT STRUCTURES' Unit Cost Unit Cost Unit Cost Unit Cost Cost TERMS Unit Cost S 2.03 Each S Lags (cordy, wind sets, 15° 24 dan, 20' org \$1,000.00 Each S S Lags (wordy wind sets, 15° 24 dan, 20' org \$400.00 Each S S Lags wind sets, 15° 24 dan, 20' org \$460.00 Each S S Lags wind sets, 15° 24 dan, 20' org \$460.00 Each S S Lags wind sets, 15° 24 dan, 20' org \$460.00 Each S S Rods, how runn \$150.00 Each S S Rods, how runn \$150.00 Each S S Wer - og dijebble \$100.00 Each S S Sugs on alls \$100.00 Each S <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>TOTAL</td><td>\$</td><td>-</td></td<>							TOTAL	\$	-	
TEMS Unit Cost Unit Facense (wilow) S Cost Facense (wilow) \$ 2.00 Each \$ Log (edsti, wiret wase, 10° 24° dam, 30° org \$1,000,00 Each \$ Log (edsti, wiret wase, 10° 24° dam, 30° org \$400,00 Each \$ Log, wordt wase, 10° 24° dam, 30° org \$400,00 Each \$ Log, wordt wase, 10° 24° dam, 30° org \$400,00 Each \$ Bods, one-ran \$50,000 Each \$ \$ Bods, stoer-ran \$1500,00 Each \$ \$ Somaring gravel, type A \$122,00 Each \$ \$ Weri-log \$1500,00 Each \$ \$ \$ Songa - on site \$\$00,00 Each \$ \$ \$ Rest water digitatifier \$4,000 Each \$ <t< td=""><td>HABITAT STR</td><td>RUCTURES*</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	HABITAT STR	RUCTURES*								
Fescines (willow) \$ 2.00 Each \$	ITEMS		Unit Cost	Unit	t			Cost		
Log. (antr), wirze wesk, 19:24° dam. 30° torg \$1000.00 Each \$	Fascines (willow)		\$ 2.00	Each	1			\$	-	
Lage both who ave whit. 19-24 dam. 30 \$400.00 Each \$ - Lage wir out wate, 18-24 dam. 30 mg \$245.00 Each \$ - Lage wir out wate, 18-24 dam. 20 mg \$4460.00 Each \$ - Rods, two man \$800.00 Each \$ - Rods, two man \$120.00 Each \$ - Rods wate \$120.00 Each \$ - Rods wate \$103.00 Each \$ - Weir -log lable \$220.00 CY \$ \$ - Weir -log lable \$220.00 CY \$ \$ - Weir -log lable \$220.00 Each \$ - \$ - Weir -log lable \$200.00 Each \$ \$ - \$ - \$ - - Stage - or atle \$200.00 Each \$ \$ - \$ - - - \$ - - Cost	Logs, (cedar), w/ root wa	ads, 16"-24" diam., 30' long	\$1,000.00	Each	1			\$	-	
Log. vio xx visit. 10-24 dm., 37 long \$245.00 Each \$ - Log. vio xx visit. 10-24 dm., 37 long \$60.00 Each \$ - Rocks, one-man \$120.00 Each \$ - Rocks, two-man \$120.00 Each \$ - Rocks, two-man \$120.00 Each \$ - Rock wads \$130.00 Each \$ - Spewring gaveil, type A \$22.00.00 Each \$ - Weir - lag, type A \$22.00.00 Each \$ - Woody durits, large \$150.00 Each \$ - Nody durits, large \$150.00 Each \$ - Stags - and two \$50.00 Each \$ - - Nody durits, large \$150.00 Each \$ - - - Stags - and two \$50.00 Each \$ - - - - - Stags - and two \$ <td< td=""><td>Logs (cedar) w/o root wa</td><td>ads, 16"-24" diam., 30'</td><td>\$400.00</td><td>Each</td><td>)</td><td></td><td></td><td>\$</td><td>-</td></td<>	Logs (cedar) w/o root wa	ads, 16"-24" diam., 30'	\$400.00	Each)			\$	-	
Log with or web, 16°.24° am, 32′ krog \$460.00 Each \$ - Rocks, one-man \$120.00 Each \$ - Rocks, two-man \$120.00 Each \$ - Rock wads \$183.00 Each \$ - Rock wads \$183.00 Each \$ - Weir - algistable \$22.00 CY \$ - Weir - algistable \$22.00 OCY \$ - Weir - algistable \$22.00 Each \$ - Weir - algistable \$22.00 Each \$ - Neder - algistable \$22.00 Each \$ - Sings - nahowd \$400.00 Each \$ - - ''Al costs incluse delivery and installation \$ 1 \$ - - ''Al costs incluse delivery and installation \$ 4.89 CY \$ > - TEMS Unit Cost Unit \$ \$ -	Logs, w/o root wads, 16	"-24" diam., 30' long	\$245.00	Each	1			\$	-	
Roots, non-man 360,00 Each S . Roots, two-man \$1200 Each S . Roots, two-man \$1200 Each S . Roots, two-man \$1200 Each S . Root wads \$1500,00 Each S . Weir-log \$11500,00 Each S . Weir-log \$11600,00 Each S . Stags - onsla \$2,000,00 Each S . Stags - onsla \$500,00 Each S . Stags - imported \$800,00 Each S . *All costs induce delivery and installation \$30,00 CY \$. TERS Unit Cost Unit Cost \$. Backfil and Compaction-embankment \$4,89 CY \$. Datching \$7,03 CY \$. . Jubting \$7,03 CY \$ </td <td>Logs w/ root wads, 16"-2</td> <td>24" diam., 30' long</td> <td>\$460.00</td> <td>Each</td> <td>1</td> <td></td> <td></td> <td>\$</td> <td>-</td>	Logs w/ root wads, 16"-2	24" diam., 30' long	\$460.00	Each	1			\$	-	
Autor, Movinal 3 12:00 Each 3 Spearing gravel, type A \$ 22:00 CY \$ Spearing gravel, type A \$ 22:00 CY \$ Wer - adjustable \$ 15:00.00 Each \$ Wer - adjustable \$ 22:00.00 Each \$ Noted, debris, targe \$ 163:00 Each \$ Snags - on sile \$ 500:00 Each \$	Rocks, one-man		\$60.00	Each				\$	-	
Total and Comparison Construct of the second	Rocks, two-man		\$120.00	Each				ֆ Տ	-	
Weir - log d S1,500.00 Each S . Weir - log duptable \$2,000.00 Each \$. Weir - dagustable \$2,000.00 Each \$. Snags - anchorad \$400.00 Each \$. Snags - anchorad \$400.00 Each \$. Snags - anchorad \$800.00 Each \$. Snags - anchorad \$800.00 Each \$. 'All costs include delivery and installation \$. . TOTAL \$ TEROSION CONTROL Unit Cost Unit Cost \$. . Backfil and Compaction-ambankment \$ 4.89 CY \$ \$. Cushed surfacing, 114' minus \$30.00 CY \$ \$. . Cushed surfacing, 114' minus \$30.00 CY \$ \$. . Ush desh \$1.085 \$ \$. . .	Spawning gravel, type	e A	\$22.00	CY	r			\$	-	
Weir - adjustable \$2,000.00 Each \$ - Wordy debris, large \$183.00 Each \$ - Snage - anthored \$400.00 Each \$ - Snage - anthored \$50.00 Each \$ - Snage - imported \$50.00 Each \$ - 'All costs include delivery and installation \$ - \$ - TOTAL \$ \$ - Cost include delivery and installation TOTAL \$ - Cost Backfill and Compacton-embankment \$ 4.49 CY \$ - Costaled surfacing, 114/r innus \$30.00 CY \$ - - Datching \$7.03 CY \$ \$ - Just Mesh \$1.60 LF \$ \$ - Just Mesh \$1.26 SY \$ - - Muich, by hand, straw, 2' deep	Weir - log		\$1,500.00	Each	1			\$	-	
Woody debns, large \$163.00 Each S Snags - anchored \$400.00 Each \$ S <t< td=""><td>Weir - adjustable</td><td></td><td>\$2,000.00</td><td>Each</td><td>)</td><td></td><td></td><td>\$</td><td>-</td></t<>	Weir - adjustable		\$2,000.00	Each)			\$	-	
Snage-anchored \$400.00 Each \$. Snage-anchored \$800.00 Each \$. Snage-inported \$800.00 Each \$. 'All costs include delivery and installation TOTAL \$. . TEMOSION CONTROL Unit Cost Unit Cost . . . Backfill and Compaction-embankment \$ 4.89 CY Diching \$30.00 CY . \$.	Woody debris, large		\$163.00	Each)			\$	-	
shage - in site Sb0.00 Each S - Snage - in pinded \$600.00 Each \$ - 'All costs include delivery and installation TOTAL \$ - EROSION CONTROL Unit Cost Unit Cost \$ - Backfill and Compaction embankment \$ 4.89 CY \$ - Backfill and Compaction embankment \$ 4.89 CY \$ - Ditching \$7.03 CY \$ \$ - Excavation, bulk \$4.00 CY \$ \$ - Fence, sit \$1.26 SY \$ - \$ Jule Mesh \$1.26 SY \$ - \$ - Much, by mandi, straw, 2' deep \$3.25 SY \$ - \$ - Piping, temporary, CPP, 6' \$9.30 LF \$ - \$ - Piping, temporary, CPP, 6' \$14.00 LF \$ -	Snags - anchored		\$400.00	Each				\$	-	
Image impound impound <thimpound< th=""> impound impound<</thimpound<>	Snags - on site		\$50.00	Each				\$ \$	-	
All closes includes delivery and installation I/O/AL \$ - Unit Cost Unit Cost \$ Unit Cost Backfill and Compaction-embankment \$ 4.89 CY \$ - Conside durations, 11/4" minus \$30.00 CY \$ - - Ditching \$7.03 CY \$ - - Excavation, bulk \$4.00 CY \$ - - Fence, sit \$1.60 LF \$ -	Snags - Imported	All appades (re-lands) die 0.5 militärie eine eine	φουυ.υυ		1	I	TOTAL	Ψ •	-	
EROSION CONTROL ITEMS Unit Cost Unit Cost Backfill and Compaction-embankment \$ 4.89 CY \$ Crushed surfacing, 11/4' minus \$ 30.00 CY \$ Ditching \$ 7.03 CY \$ Excavation, bulk \$ 40.00 CY \$ Excavation, bulk \$ 40.00 CY \$ Jute Mesh \$ 1.26 SY \$ Much, by hand, straw, 2' deep \$ 1.27 SY 855.00 Much, hy hand, straw, 2' deep \$ Piping, temporary, CPP, 6'' \$ 30.32 SY \$ \$ Much, by hand, straw, 1' deep \$ 0.32 SY \$ \$ Piping, temporary, CPP, 6'' \$ 0.32 SY \$ \$ Piping, temporary, CPP, 8'' \$ 1.400 LF \$ \$ Piping, temporary, CPP, 12' \$ 114.00 LF \$ \$ Piping, temporary, CPP, 12' \$ 114.00 LF \$ \$ R	Α*	an costs include delivery and installation					IUTAL	\$	-	
ITEMS Unit Cost Unit Cost Backfill and Compaction-embankment \$ 4.89 CY \$ - Cnsthed surfacing, 11/4" minus \$30.00 CY \$ - Ditching \$7.03 CY \$ - Excavation, bulk \$4.00 CY \$ - Excavation, bulk \$4.00 CY \$ - Jute Mesh \$1.60 LF \$ - Jute Mesh \$1.26 SY \$ - Much, by hand, staw, 2" deep \$1.27 SY 855.00 Mulch rings for container plants \$ 1,085.85 Much, by nachine, straw, 1" deep \$0.32 SY \$ - - Piping, temporary, CPP, 6" \$ \$ 3.00 LF \$ - - Piping, temporary, CPP, 12" \$ \$18.00 LF \$ - - Piping, temporary, CPP, 12" \$ \$18.00 LF \$ - - Rok Constr. Entrance 100x15x1' \$ \$ 3.000.00 Each \$ - - Rok Constr. Entrance 50x15x1' \$ \$ 1.000.00 Each \$ -	EROSION CO	NTROL						-		
Backfill and Compaction-embankment \$ 4.89 CY \$ Crushed surfacing, 11/4" minus \$30.00 CY \$ Ditching \$7.03 CY \$ Excavation, bulk \$4.00 CY \$ Fence, silt \$1.60 LF \$ Jute Mesh \$1.26 SY \$ Mutch, by hand, straw, 2" deep \$1.27 SY 855.00 Mutch rings for container plants \$ 1,085.85 Mutch, by machine, straw, 1" deep \$0.32 SY \$ \$ Piping, temporary, CPP, 6" \$9.30 LF \$ \$ Piping, temporary, CPP, 6" \$9.30 LF \$ \$ Piping, temporary, CPP, 6" \$14.00 LF \$ \$ Piping, temporary, CPP, 6" \$13.00 Each \$ \$ Piping, temporary, CPP, 6" \$14.00 LF \$ \$ Piping, temporary, CPP, 12" \$14.00 LF <td>ITEMS</td> <td></td> <td>Unit Cost</td> <td>Unit</td> <td></td> <td></td> <td></td> <td>Cost</td> <td></td>	ITEMS		Unit Cost	Unit				Cost		
Crushed surfacing, 11/4" minus \$30.00 CY \$ - Ditching \$7.03 CY \$ - Excavation, bulk \$4.00 CY \$ - Fence, silt \$11.60 LF \$ - Jute Mesh \$11.26 SY \$ - Mulch, by hand, straw, 2" deep \$1.27 SY 855.00 Mulch rings for container plants \$ 1.085.85 Mulch, by machine, straw, 1" deep \$0.32 SY \$ - - Piping, temporary, CPP, 6" \$9.90 LF \$ - - Piping, temporary, CPP, 6" \$9.90 LF \$ - - Piping, temporary, CPP, 6" \$9.90 LF \$ - - Piping, temporary, CPP, 6" \$9.90 LF \$ - - Piping, temporary, CPP, 6" \$9.90 LF \$ - - - - - - - - - - - - - - - - - - -	Backfill and Compact	tion-embankment	\$ 4.89	CY				\$	-	
Ditching \$7.03 CY \$ - Excavation, bulk \$4.00 CY \$ - Fence, silt \$1.60 LF \$ - Jute Mesh \$1.26 SY \$ - Mulch, by hand, straw, 2" deep \$1.27 SY 855.00 Mulch rings for container plants \$ 1,085.85 Mulch, by machine, straw, 1" deep \$0.32 SY \$ - \$ - Piping, temporary, CPP, 6" \$3.25 SY \$ - \$ - - Piping, temporary, CPP, 6" \$3.32 SY \$ - <td< td=""><td>Crushed surfacing, 1</td><td>1/4" minus</td><td>\$30.00</td><td>CY</td><td>·</td><td></td><td></td><td>\$</td><td>-</td></td<>	Crushed surfacing, 1	1/4" minus	\$30.00	CY	·			\$	-	
Excavation, bulk \$4.00 CY \$ - Fence, silt \$1.60 LF \$ - Jute Mesh \$1.26 SY \$ - Mulch, by hand, straw, 2" deep \$1.27 SY 855.00 Mulch rings for container plants \$ 1,085.85 Mulch, by hand, wood chips, 2" deep \$3.25 SY \$ - Mulch, by machine, straw, 1" deep \$0.32 SY \$ - Piping, temporary, CPP, 6" \$9.30 LF \$ - Piping, temporary, CPP, 8" \$14.00 LF \$ - Piping, temporary, CPP, 8" \$14.00 LF \$ - Piping, temporary, CPP, 8" \$14.00 LF \$ - Piping, temporary, CPP, 12" \$18.00 LF \$ - Plastic covering, 8mm thick, sandbagged \$2.00 SY \$ - Rock Constr. Entrance 100x15x1' \$3.00.00 Each \$ - S - Sediment trap, 5' high berm \$1.655.7 LF \$ - S - S </td <td>Ditching</td> <td></td> <td>\$7.03</td> <td>CY</td> <td></td> <td> </td> <td></td> <td>\$</td> <td>-</td>	Ditching		\$7.03	CY				\$	-	
Prince, sint \$1.00 P \$ \$ \$ Jute Mesh \$1.26 SY \$	Excavation, bulk		\$4.00	CY	-			\$ ¢	-	
Mulch, by hand, straw, 2" deep \$1.27 SY 855.00 Mulch rings for container plants \$1,085.85 Mulch, by hand, wood chips, 2" deep \$3.25 SY \$50.00 Mulch rings for container plants \$1,085.85 Mulch, by machine, straw, 1" deep \$0.32 SY \$50.00 Mulch rings for container plants \$1,085.85 Piping, temporary, CPP, 6" \$9.30 LF \$ - Piping, temporary, CPP, 8" \$144.00 LF \$ - Piping, temporary, CPP, 8" \$144.00 LF \$ - Piping, temporary, CPP, 8" \$144.00 LF \$ - Plastic covering, 6mm thick, sandbagged \$2.00 SY \$ - Plastic covering, 6mm thick, sandbagged \$2.00 SY \$ - Rip Rap, machine placed, slopes \$3.398 CY \$ \$ - Rock Constr. Entrance 100x15x1' \$3.000.00 Each \$ - \$ - Sediment trap, 5' high berm \$15.57 LF \$ - <	rence, silt		\$1.60 \$1.26		,	+		Φ \$	-	
Mulch, by hand, wood chips, 2" deep \$3.25 SY \$ - Mulch, by machine, straw, 1" deep \$0.32 SY \$ - Piping, temporary, CPP, 6" \$9.30 LF \$ - Piping, temporary, CPP, 8" \$14.00 LF \$ - Piping, temporary, CPP, 8" \$14.00 LF \$ - Piping, temporary, CPP, 12" \$18.00 LF \$ - Plastic covering, 6mm thick, sandbagged \$2.00 SY \$ - Plastic covering, 6mm thick, sandbagged \$2.00 SY \$ - Rip Rap, machine placed, slopes \$33.98 CY \$ - Rock Constr. Entrance 100x15x1' \$3.000.00 Each \$ - Rock Constr. Entrance 50x15x1' \$1.500.00 Each \$ - Sediment trap, 5' high berm \$16.95.11 Each \$ - Sediment trap, 5' high berm \$15.57 LF \$ - Sedding, 1" deep, level ground \$5.24 SY \$ - Sodding, 1" deep, sloped ground \$6.48<	Mulch, by hand, straw	v, 2" deep	\$1.20	SY	855.00	Mulch rinas for co	ntainer plants	\$ 1.085	5.85	
Mulch, by machine, straw, 1" deep \$0.32 SY \$ - Piping, temporary, CPP, 6" \$9.30 LF \$ - Piping, temporary, CPP, 8" \$14.00 LF \$ - Piping, temporary, CPP, 8" \$14.00 LF \$ - Piping, temporary, CPP, 12" \$18.00 LF \$ - Plastic covering, 6mm thick, sandbagged \$2.00 SY \$ - Plastic covering, 6mm thick, sandbagged \$2.00 SY \$ - Rip Rap, machine placed, slopes \$33.98 CY \$ - Rock Constr. Entrance 100%15%1' \$3,000.00 Each \$ - Rock Constr. Entrance 50%15%1' \$1,695.11 Each \$ - Sediment trap, 5' high berm \$1,695.11 Each \$ - Sediment trap, 5' high berm \$15.57 LF \$ - Sodding, 1" deep, level ground \$5.24 SY \$ - Sodding, 1" deep, sloped ground \$6.48 SY \$ - Straw bales, place and remove \$600.00	Mulch, by hand, wood	d chips, 2" deep	\$3.25	SY	/			\$	-	
Piping, temporary, CPP, 6" \$9.30 LF \$ - Piping, temporary, CPP, 8" \$14.00 LF \$ - Piping, temporary, CPP, 8" \$18.00 LF \$ - Piping, temporary, CPP, 12" \$18.00 LF \$ - Plastic covering, 6mm thick, sandbagged \$2.00 SY \$ - Rip Rap, machine placed, slopes \$33.98 CY \$ - Rock Constr. Entrance 100'x15'x1' \$3,000.00 Each \$ - Rock Constr. Entrance 50'x15'x1' \$1,600.00 Each \$ - Sediment pond riser assembly \$1,695.11 Each \$ - Sediment trap, 5' high berm w/spillway incl. riprap \$50.60 LF \$ - Sodding, 1" deep, level ground \$52.24 SY \$ - Sodding, 1" deep, level ground \$64.48 SY \$ - Hauling and disposal \$20.00 CY \$ - Topsoil, delivered and spread \$35.73	Mulch, by machine, s	traw, 1" deep	\$0.32	SY	·			\$	-	
Piping, temporary, CPP, 8" \$14.00 LF \$ - Piping, temporary, CPP, 12" \$18.00 LF \$ - Plastic covering, 6mm thick, sandbagged \$2.00 SY \$ - Rip Rap, machine placed, slopes \$33.98 CY \$ - Rock Constr. Entrance 100x15x1' \$3,000.00 Each \$ - Rock Constr. Entrance 50x15x1' \$1,600.00 Each \$ - Sediment pond riser assembly \$1,695.11 Each \$ - Sediment trap, 5' high berm \$15.57 LF \$ - Sediment trap, 5' high berm w/spillway incl. riprap \$59.60 LF \$ - Sodding, 1" deep, level ground \$5.24 SY \$ - Straw bales, place and remove \$600.00 TON \$ - Hauling and disposal \$20.00 CY \$ - Topsoil, delivered and spread \$35.73 CY \$ -	Piping, temporary, CF	PP, 6"	\$9.30	LF				\$	-	
Figure, temporary, CFP, 12 \$ 18.00 LF \$ - Plastic covering, 6mm thick, sandbagged \$2.00 SY \$ - Rip Rap, machine placed, slopes \$33.98 CY \$ - Rock Constr. Entrance 100'x15'x1' \$3,000.00 Each \$ - Rock Constr. Entrance 50'x15'x1' \$1,500.00 Each \$ - Sediment pond riser assembly \$1,695.11 Each \$ - Sediment trap, 5' high berm \$1,557 LF \$ - Sediment trap, 5' high berm v/spillway incl. riprap \$59.60 LF \$ - Sodding, 1" deep, level ground \$5.24 SY \$ - Sodding, 1" deep, sloped ground \$6.48 SY \$ - Straw bales, place and remove \$600.00 TON \$ - - Hauling and disposal \$20.00 CY \$ - - Topsoil, delivered and spread \$35.73 CY \$ - - Topsoil, delivered and spread \$35.73 CY \$ - -	Piping, temporary, CF	P, 8"	\$14.00	LF · -	:			\$ ¢	-	
Instructione placed, slopes \$2.00 \$1	Piping, temporary, CF	-r, 12" n thick, candbaccad	\$18.00		/			ወ ፍ	-	
Tap range motor protect or protect	Rin Ran, machine pla	n unich, sanubayyeu aced, slopes	\$2.00 \$33.98		·			Ψ \$	-	
Rock Constr. Entrance 50'x15'x1' \$1,500.00 Each \$ Sediment pond riser assembly \$1,695.11 Each \$ - Sediment trap, 5' high berm \$1,695.11 Each \$ - Sediment trap, 5' high berm \$15.57 LF \$ - Sediment trap, 5' high berm w/spillway incl. riprap \$59.60 LF \$ - Sodding, 1" deep, level ground \$5.24 SY \$ - Sodding, 1" deep, sloped ground \$6.48 SY \$ - Straw bales, place and remove \$600.00 TON \$ - Hauling and disposal \$20.00 CY \$ - Topsoil, delivered and spread \$35.73 CY \$ - TOTAL \$ 1.085.85 1.085.85 1.085.85	Rock Constr. Entrance	xe 100'x15'x1'	\$3,000.00	Each	1			\$	-	
Sediment pond riser assembly \$1,695.11 Each \$ - Sediment trap, 5' high berm \$15.57 LF \$ - Sediment trap, 5' high berm w/spillway incl. riprap \$59.60 LF \$ - Sodding, 1" deep, level ground \$5.24 SY \$ - Sodding, 1" deep, sloped ground \$6.48 SY \$ - Straw bales, place and remove \$600.00 TON \$ - Hauling and disposal \$20.00 CY \$ - Topsoil, delivered and spread \$35.73 CY \$ - TOTAL \$ 1085.85 \$ \$ 1085.85	Rock Constr. Entranc	ce 50'x15'x1'	\$1,500.00	Each	1			\$	-	
Sediment trap, 5' high berm \$15.57 LF \$ - Sediment trap, 5' high berm w/spillway incl. riprap \$59.60 LF \$ - Sodding, 1" deep, level ground \$52.4 SY \$ - Sodding, 1" deep, sloped ground \$5.24 SY \$ - Sodding, 1" deep, sloped ground \$6.48 SY \$ - Straw bales, place and remove \$600.00 TON \$ - Hauling and disposal \$20.00 CY \$ - Topsoil, delivered and spread \$35.73 CY \$ - TOTAL \$ 1085.85 1085.85 1085.85	Sediment pond riser a	assembly	\$1,695.11	Each)			\$	-	
Sediment trap, 5' high berm w/spillway incl. riprap\$59.60LF\$-Sodding, 1" deep, level ground\$5.24SY\$\$-Sodding, 1" deep, sloped ground\$6.48SY\$\$-Straw bales, place and remove\$600.00TON\$\$-Hauling and disposal\$20.00CY\$-\$-Topsoil, delivered and spread\$35.73CY\$1085.85TOTAL\$1085.85	Sediment trap, 5' high	n berm	\$15.57	LF				\$	-	
Sodding, 1" deep, level ground \$5.24 SY \$ - Sodding, 1" deep, sloped ground \$6.48 SY \$ - Straw bales, place and remove \$600.00 TON \$ - Hauling and disposal \$20.00 CY \$ - Topsoil, delivered and spread \$35.73 CY \$ - TOTAL \$ 1085.85 1085.85 1085.85	Sediment trap, 5' high b	erm w/spillway incl. riprap	\$59.60	LF				\$	-	
Straw bales, place and remove \$600.00 TON \$ - Hauling and disposal \$20.00 CY \$ - Topsoil, delivered and spread \$35.73 CY \$ - TOTAL \$ 1085.85	Sodding, 1" deep, lev	rei ground	\$5.24 \$6.49	SY ev	,			ቅ \$	-	
Hauling and disposal \$20.00 CY \$ - Topsoil, delivered and spread \$35.73 CY \$ -	Straw bales place an	nd remove	^{40.48} \$600 م					\$	-	
Topsoil, delivered and spread \$35.73 CY \$ - Topsoil, delivered and spread \$35.73 CY \$ 1 085 85	Hauling and disposal		\$20.00	CY	·	1		\$	-	
TOTAL \$ 1 085 85	Topsoil, delivered and	d spread	\$35.73	CY	·			\$	-	
							TOTAL	\$ 1.085	5.85	

GENERAL ITEMS							
ITEMS	Unit Cost	Unit				Cost	
Fencing, chain link, 6' high	\$18.89	LF				\$	-
Fencing, chain link, corner posts	\$111.17	Each				\$	-
Fencing, chain link, gate	\$277.63	Each				\$	-
Fencing, split rail, 3' high (2-rail)	\$10.54	LF				\$	-
Fencing, temporary (NGPE)	\$1.20	LF				\$	-
Signs, sensitive area boundary (inc. backing, post, install)	\$28.50	Each				\$	-
					TOTAL	\$	-
OTHER				(Construction C	ost Subtotal)	\$	107,168.85
	Percentage						
ITEMS	Of Construction	1.1				Crat	
		Unit				Cost	
Mobilization	10%	1				\$	10,716.89
Contingency	30%	1				\$	32,150.66
					TOTAL	\$	42,867.54
MAINTENANCE AND MONITORING	NOTE: Project monitoring ard development anywhere fro	cts with multiple nd maintenance t applications. Mo m 5 to 10 years.	permit requiremen erms. This will be nitoring and maint	ts may be required to evaluated on a case- tance ranges may be) have longer by-case basis for assessed		
Maintenance, annual (by owner or consultant)							
Less than 1,000 sq.ft. and buffer mitigation only	\$ 1.08	SF		(3 X SF total for 3 a Includes monitoring	annual events; g)	\$	-
Less than 1,000 sq.ft. with wetland or aquatic area mitigation	\$ 1.35	SF		(3 X SF total for 3 annual events; Includes monitoring)		\$	-
Larger than 1,000 sq. ft. but less than 5,000 sq.ft. of buffer mitigation	\$ 180.00	EACH		(4hr @\$45/hr)		\$	-
Larger than 1,000 sq. ft. but less than 5,000 sq.ft. of wetland or aquatic area mitigation	\$ 270.00	EACH		(6hr @\$45/hr)		\$	_
Larger than 5,000 sq.ft. but < 1 acre -buffer mitigation only	\$ 360.00	EACH		(8 hrs @ 45/hr)		\$	-
Larger than 5,000 sq.ft. but < 1 acre with wetland or aquatic area mitigation	\$ 450.00	EACH		(10 hrs @ \$45/hr)		\$	-
Larger than 1 acre but < 5 acres - buffer and / or wetland or aquatic area mitigation	\$ 1,600,00		40.00			\$	64 000 00
Larger than 5 acres - buffer and / or wetland or aquatic area	¢ 1,000.00	D/(I				Ψ	01,000.00
mitigation	\$ 2,000.00	DAY		(1.25 X WEC crew)	\$	-
Monitoring, annual (by owner or consultant)							
Larger than 1,000 sq.ft. but less than 5,000 wetland or buffer mitigation	\$ 720.00	EACH		(8 hrs @ 90/hr)		\$	-
Larger than 5,000 sq.ft. but < 1 acre with wetland or aquatic area impacts	\$ 900.00	EACH		(10 hrs @ \$90/hr)		\$	-
Larger than 1 acre but < 5 acres - buffer and / or wetland or aquatic area impacts	\$ 1,440.00	DAY	12.00	(16 hrs @ \$90/hr)		\$	17,280.00
Larger than5 acres - buffer and / or wetland or aquatic area impacts	\$ 2,160.00	DAY		(24 hrs @ \$90/hr)		\$	-
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						Φ	81,280.00
					Total		\$231,316.39