WESTECH COMPANY

Environmental Consulting ~ Site Permitting

WETLAND DELINEATION REPORT
HIGHWAY 101 AT FERN ROAD
PORT ANGELES, WASHINGTON 98362
ASSESSOR'S PARCEL # 053013-419245 AND #053013-419255
CLALLAM COUNTY, WASHINGTON

November 2011

G. Bradford Shea, Ph.D.
Charles Tanner
Anthony Grim

Submitted to:

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
OLYMPIC REGION REAL ESTATE SERVICES
P.O. Box 47440
Olympia, Washington 98504

Submitted by:

WESTECH COMPANY
P.O. Box 2876
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1.0 INTRODUCTION

The Property (Site) is located approximately 5.0 miles east of Port Angeles, Washington. The Property sits just north of Highway 101 and west of Fern Road. The address of the Parcel is listed as Highway 101 (Parcel #053013419245 and #053013419255), Port Angeles, Washington. The Property is owned by Brigita and Janis Vasilevskis whose address is listed as 3423 White Mountain Court, Reno, Nevada 89511. The Property is located in Section 13, Township 30 North, Range 5 West Willamette Meridian (W.M.), and is approximately 3.22 acres in size. (Western parcel- 2.35 acres, Eastern parcel-0.97 acres) (See Figures 1, 2 and 3)

This Wetland Delineation Report was produced for the Site. The Property (two parcels) was checked for environmentally sensitive areas by Westech Company (Westech) and was found to contain one wetland. The wetland had a combination of depressional and riverine features and extended to properties to the south and west by virtue of a common hydrology.

The Washington State Department of Transportation is planning to widen Highway 101 adjacent to this Property. Westech was contracted to delineate this wetland, rate it according to Washington State standards and determine and flag its buffer zones. Section 2.0 describes the methodology used to conduct this Wetland Delineation. Section 3.0 of this report contains results of the delineation.

Field investigations of the wetlands were conducted by Dr. G. Bradford Shea, Mr. Charles Tanner, and Mr. Anthony Grimm during October 2011. The wetland was classified as a Category II wetland with a buffer size of 75 feet for a minor new development and 150 feet for a major new development. The wetland boundary and buffer zone for a minor new development have been marked in the field.

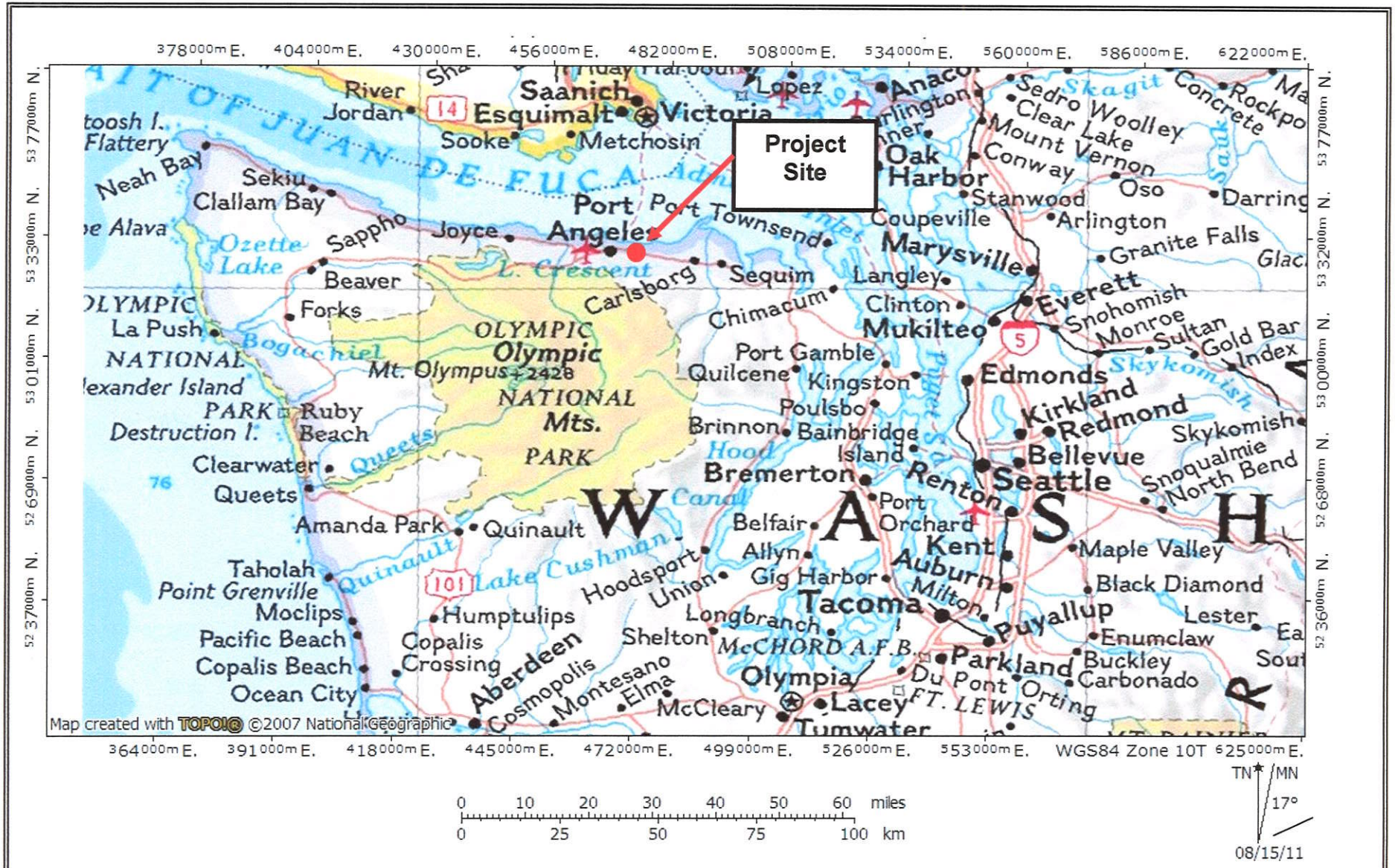

Figure 1. Location Map

Westech Company 2011

Source: National Geographic TOPO! 2007

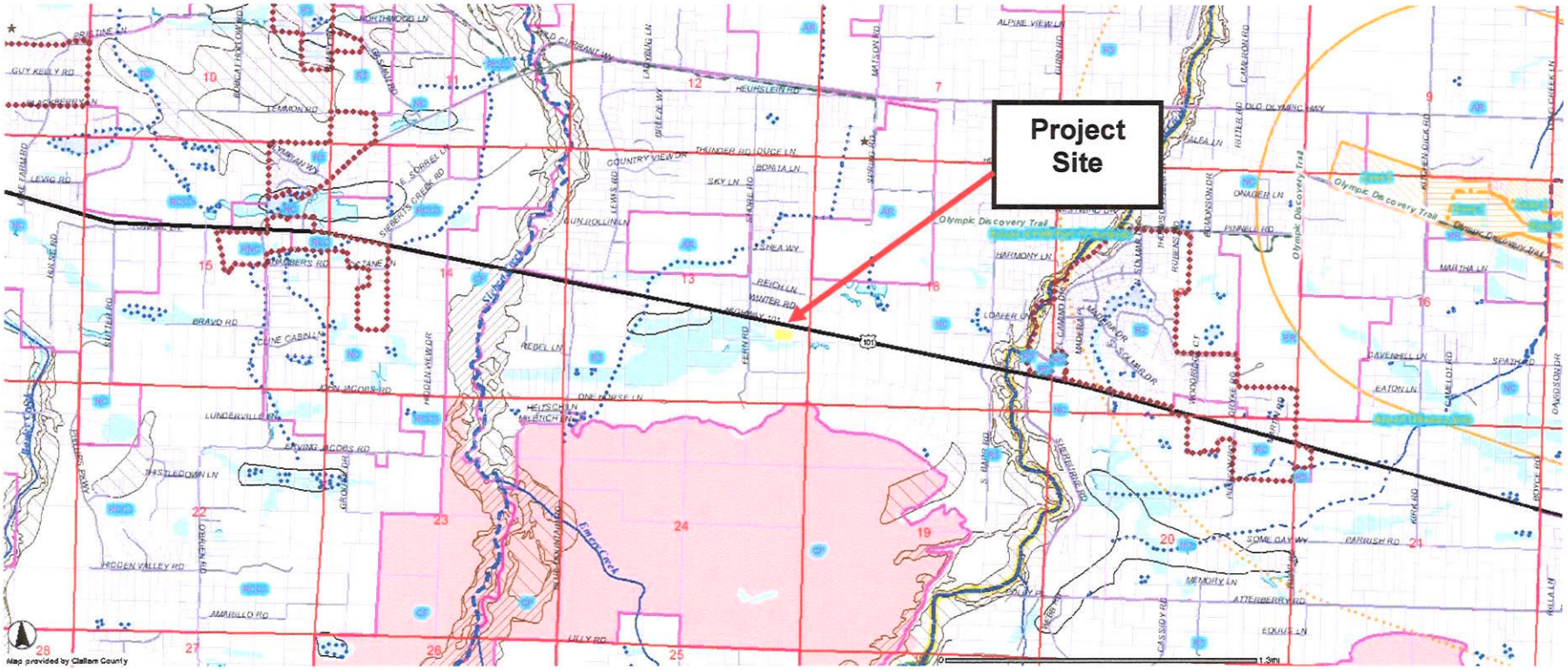

Figure 2. Vicinity Map

Westech Company 2011

Source: Clallam County Mapping 2011

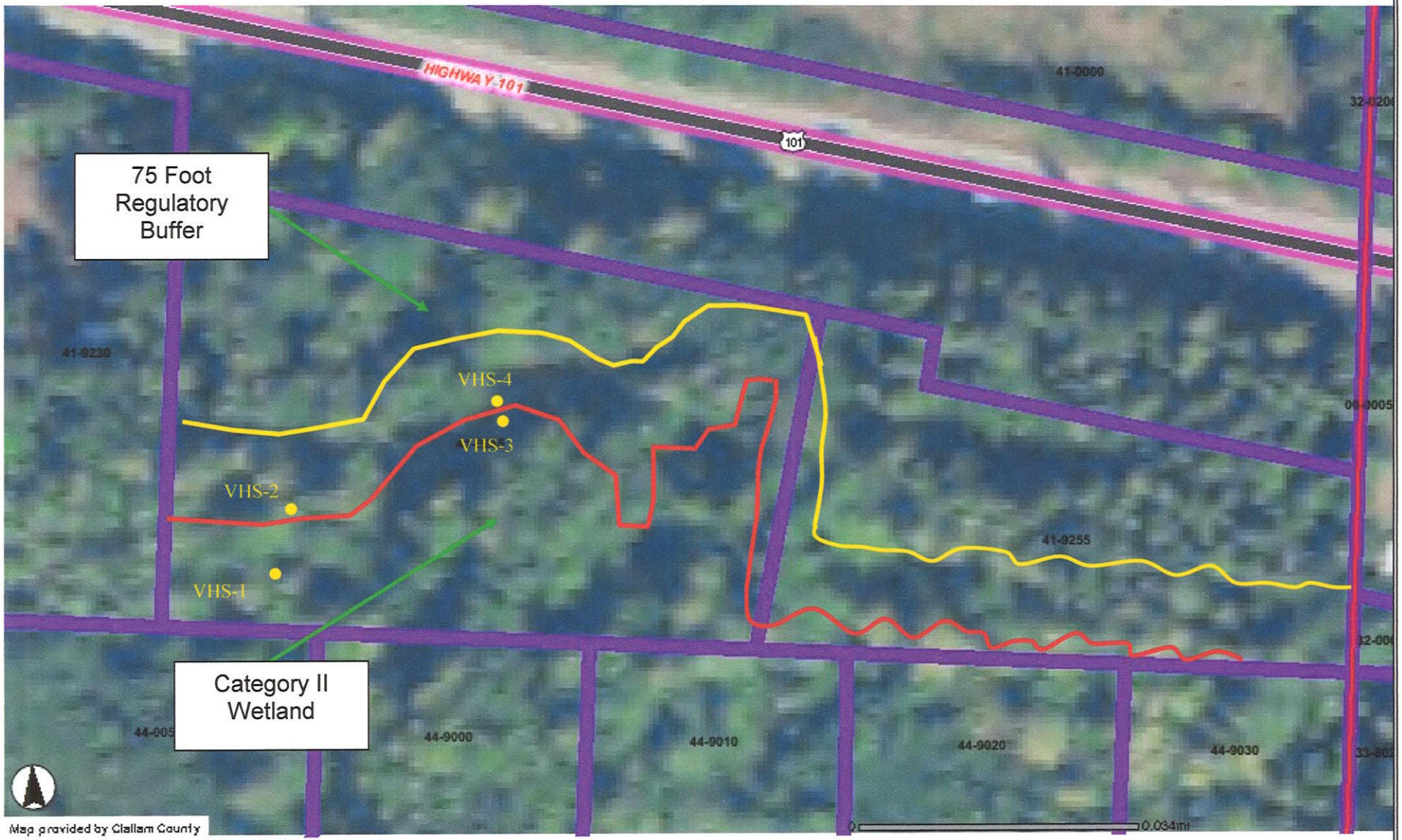

Figure 3. Site Map with On-Site Wetland Boundary and 75 Foot Buffer

Westech Company 2011

Source: Clallam County Mapping 2011

2.0 METHODS

The wetland was delineated and rated according to procedures required by the Clallam County Critical Areas Code (CCC). The CCC requires that wetlands be identified and delineated according to procedures in the 1997 Washington State Department of Ecology's Washington State Wetlands Identification and Delineation Manual (Ecology Publication No. 96-94 or as amended) (CCC 27.12.210). However, the Department of Ecology has recently repealed the use of its wetland delineation manual and now requires that wetlands be delineated according to the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual and applicable U.S. Army Corps Regional Supplement (WAC 173-22-080, WAC 173-22-035). This delineation was conducted according to the 1987 USACE manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Regions (Version 2.0) (USACE 2010). The wetland was rated using the revised 2006 Washington State Department of Ecology's (DOE) Wetland Rating System for Western Washington (Ecology Publication No. 04-06-025).

The USACE Wetland Delineation Manual (DOE 1997) defines wetlands as those "areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (USACE 1997). Wetlands are defined by the following three criteria (USACE 1997, USACE 2010):

1. Vegetation: Prevalent vegetation consisting of macrophytes adapted to areas with wetland hydrologic and soil conditions.

2. Hydric soils: Soils that are histosols, in aquic suborders or that show certain characteristics associated with poor draining, very poor draining or ponding for a long duration during the growing season.

3. Hydrology: Evidence that the area is inundated or saturated to the surface between 5 and 12.5 percent of the growing season in most years.

Evidence of at least one wetland indicator from each of these three categories is generally required to identify an area as a wetland (USACE 1997, USACE 2010).

Preliminary data gathering consisted of the use of USGS maps, county parcel and critical areas maps, topographic maps, aerial photographs and NRCS soil surveys (USACE 1997). Because (1) these sources were insufficient to make a determination, (2) additional information for site vegetation, soils and hydrology was unavailable, and (3) the Site did not appear to have the complexity to require a comprehensive determination, a Routine determination with On-site Inspection was used (USACE 1997).

The Army Corps Wetland Delineation Manual uses a system of sampling transects for delineating wetland "Areas Greater Than 5 Acres". While the wetland described in this report was greater than five acres, the off-Site portion of the Wetland was not

accessible at the level necessary to carry the method recommended by USACE. For this reason, the method for "Areas Equal To or Less Than 5 Acres in Size" was used. This method was supplemented by observations of off-Site portions of the wetland from a distance; similarities and differences between the on-Site and off-Site portions of the wetland were noted. This overall methodology is compatible with the flexibility described in the Army Corps' manual that allows adaptation to the specific circumstances of a site (USACE 1987, USACE 2010).

The wetland and its boundaries were initially estimated by noting likely areas of topographic and vegetative distinction between wetlands and uplands. The routine method for delineating wetlands begins with the identification of plant communities, as uplands and wetlands are often occupied by different assemblages of species determined by combinations of environmental influences (USACE 1997).

Plant communities were identified and evaluated for the presence or absence of hydrophytic vegetation. The wetland indicator status of the dominant species is used to determine the presence of hydrophytic vegetation. Each species has an indicator status defined according to the U.S. Army Corps of Engineers (USACE 2011). A species indicator status refers to the relative frequency at which the species occurs in jurisdictional wetlands. Wetland plant species (OBL, FACW and/or FAC) must constitute greater than 50 percent of the dominant vegetation to meet DOE criterion for hydrophytic vegetation (DOE 1997).

To estimate percent cover for each species, 20 by 20 foot plots for shrubs and herb layers, and 50 by 50 foot plots for tree layers, were selected at the site of each soil test pit. Plant coverage in these areas was visually estimated. Additional plants found in the wetland but not located in this test area were visually estimated for the wetland as a whole and total percent cover adjusted accordingly (DOE 1997).

Wetland plants were primarily identified in the field, with subsequent collection and keying when necessary. Plants were identified using the following sources:

Pojar and MacKinnon 1994
Guard 1995
Cooke 1997
Hitchcock and Cronquist 1973
Lyons 1997
Taylor 1995

Keying of plants using magnifying lenses and dissecting microscope was used as necessary. Determination of wetland indicator status utilized regional keys published by U.S. Army Corps of Engineers (USACE 2011).

Areas with plant communities dominated by hydrophytic vegetation were then evaluated for wetland hydrology and hydric soils. Wetland Hydrology refers to "all hydrological characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season" These are areas with evidence that the "presence of water has an overriding influence on the characteristics of vegetation and soils due to anaerobic and reducing conditions" (USACE 1997). An area has wetland hydrology if it is inundated or saturated to the surface continuously for at least five percent of the growing season in most years. The level of inundation can range from permanently inundated to irregularly inundated/saturated. The level of inundation/saturation can be impacted by precipitation, topography and soil characteristics (USACE 1997, USACE 2010).

Hydrology is often the least exact of the parameters used to delineate wetland edges because it is the most ephemeral and leaves the least reliable traces in the landscape after water tables or floods have receded. Therefore, indicators of wetland hydrology are sometimes difficult to find in the field. However, it is essential that a wetland area is periodically inundated or has saturated soils for a sufficient duration during the growing season (USACE 1997, USACE 2010).

Based on USACE recommendations, Westech staff noted areas with evident characteristics of wetland hydrology (USACE 1997, USACE 2010). In general, places with wetland hydrology show evidence that the presence of water has had an overriding influence on characteristics of vegetation and soils due to anaerobic and chemically-reducing conditions.

Hydrologic conditions were determined through examination of topographic relief and drainage patterns. Soil moistness was determined by hand and, in the event of standing water, depth to standing water was noted. Field indicators of wetland hydrology include such features as watermarks, historic records, and visual observation of saturated soils or inundation (USACE 1997, USACE 2010).

Evidence of hydric soils was checked along the apparent wetland boundary. These are soils that formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper layers. These soils are identified in the field mainly by morphological features such as color patterns, organic matter accumulation, and observation of inundation (USACE 1997, USACE 2010).

Soils were sampled to depths of up 20 or more inches using a wetland shovel. Soil consistency was determined by feeling for grain size and texture. Soil moisture was determined at that time. Soil color was determined through comparison of field samples with standard Munsell Color Charts (Munsell 1994). Soil was also examined for presence of redoximorphic features, gley and other indicators of anaerobic soil oxidation (USACE 1997, USACE 2010). If one or more of these indicators was present in the wetlands, the soil was considered hydric (USACE 1997, USACE 2010).

Wetlands were determined based on the Routine On-Site Field Method used by U.S. Army Corps of Engineers (USACE 1987) using a combination of vegetation, soil and hydrology indicators. The boundaries of the wetland were determined by first mapping each plant community area as wetland or non-wetland and photographic documentation was acquired (Appendix A).

The general wetland boundary was determined by the interface of these upland and wetland mapping units (USACE 1997). These boundaries were confirmed and the boundary locations narrowed down by sampling specific transects along wetland boundaries. Various points were sampled for vegetation, soil and hydrology in order to pinpoint the location of wetland boundaries. Appendix B contains data forms for four sample points (two wetland and two upland) from typical areas in and near the on-Site portion of the wetland.

Wetland boundaries were indicated in the field by the use of pink "Wetland Delineation Boundary" flagging tape tied to the wooden stakes (24" or 48") or to trees as appropriate. All boundaries were staked and/or flagged every 25-30 feet. Buffer zones were determined based on Clallam County Codes. The recommended buffers were marked by the placement of orange and black striped flagging at the appropriate distance every 30-40 feet.

Site visits were carried out in October 2011 by Dr. G. Bradford Shea, Mr. Charles Tanner and Mr. Anthony Grim. Exploration of the Property involved noting Site characteristics such as hydrology and soil conditions. A botanical study involving identification of the plant species found growing on the Site was also conducted. The wetland edge was then delineated. Measurements for mapping purposes were made using a fiberglass tape measure.

3.0 WETLAND DELINEATION RESULTS

3.1 Existing Conditions

The Site is a partially developed parcel of land located in Clallam County (Figures 1, 2 and 3). The Property lies approximately 5.0 miles east of Port Angeles, Washington south of and adjacent to Highway 101. The Property is approximately 1.1 miles east of Siebert Creek and 1.6 miles south of the Strait of Juan de Fuca.

County maps indicate that the Site sits at an elevation between 340 and 360 feet above mean sea level (msl). The overall landscape descends from about 400 feet above msl from the south, before leveling out at approximately 350 feet above msl across most of the Property. The wetland itself largely sits within a depression within this level landscape. The eastern parcel has an east-west ridge which rises about 50 feet in elevation about the wetland.

The western parcel has been previously partially developed. Two small buildings are located toward the western edge of the property. These appear to have been abandoned, though they may be use for material storage. The eastern parcel has not been developed.

Two distinct plant communities are found in this wetland. The on-Site portion of the wetland is a wooded wetland community dominated by red alder (*Alnus rubra*) and western red cedar (*Thuja plicata*) in the tree layer; salmon berry (*Rubus spectabilis*) and Hooker's willow (*Salix hookeriana*) in the shrub layer; and lady fern (*Arthyrium filix-femina*), skunk cabbage (*Lysichiton americanum*) and piggy-back plant (*Tolmiea menziesii*) in the herb layer. Other herbaceous plants present include common horsetail (*Equisetum arvense*), duckweed (*Lemna minor*), water parsley (*Oenanthe sarmentosa*) and creeping buttercup (*Ranunculus repens*).

Trees in the adjacent upland area include western red cedar, red alder and big leaf maple (*Acer macrophylum*) in the tree layer. Shrubs in this area include trailing blackberry (*Rubus ursinus*), red elderberry (*Sambucus racemosa*), bitter cherry (*Prunus emargenta*) and Himalayan blackberry (*Rubus discolor*). Herbaceous plants in the upland area are dominated by sword fern (*Polystichum munitum*) and also include stinging nettle (*Urtica dioica*) and common horsetail.

A second portion of the wetland is connected to the on-Site portion by a drainage that flows beneath Fern Road to the west. This part of the wetland includes several large pockets of cattail (*Typha latifolia)*, Nootka rose (*Rosa nutkana*), various willow species (*Salix spp)*, and common horsetail (*Equisetum arvense*).

While Westech's field investigation identified portions of this wetland on either side of Fern Road, the focus of this report is the on-Site section of the wetland. This was done because the section of the wetland west of Fern Road was on private property and was inaccessible for detailed study. In addition, the on-Site portion of the wetland was the most important for determining the wetland boundaries pertinent to the study. However, the

section of the wetland west of Fern Road was also used when rating the overall wetland because its functions were linked to the on-Site portion. However, the inclusion of this section of the wetland did not significantly affect the analysis and rating of the overall wetland.

Wetland boundaries (Figure 3) were determined by first noting likely areas of topographic and vegetative distinction between wetland and uplands areas. The on-Site vegetation was found to transition from wetland to upland in a distinct fashion. While some variation in vegetation patterns was observed in the wetland, wetland vegetation was more uniform than that in the upland areas. The transition from wetland to upland was generally associated with a steep incline of 10 to 20 percent or an increase in elevation of one to two feet, and a clear change in the vegetation. The herbaceous layer was the most obvious marker and was used to initially determine the boundaries for testing. The western part of the wetland was noted by a change from the lady fern, piggy-back plant and skunk cabbage to sword fern. Upland shrubs also provided readily visible signs of transition. Key upland shrubs in different parts of the wetland included bitter cherry, red elderberry and Himalayan blackberry.

Soil characteristics and hydrologic influences were also used to determine the boundaries of the wetland. Evidence of hydric soils was checked along the apparent wetland boundaries. The dominant soil noted throughout most of the on-Site wetland was a black, greasy, organic soil that extended to at least 23 inches in depth. Another soil consisted of a dark layer over a reduced matrix with visible redox features. Wetland hydrology was also apparent. Standing water was observed across much of the interior of the wetland while the water table was present in the root zone at the edges of the wetland.

The vegetation, soils, and hydrology of the Site are described in more detail in the following subsections. Data forms for these three factors at four test pit locations (two in the wetland and two in the upland) are contained in Appendix B.

Vegetation

Two samples were taken in two different locations to determine the wetland boundaries in areas with slightly different wetland plant communities. Data sheets for these wetland areas are found in Appendix B. Because vegetation varied somewhat across the wetland, particularly along its boundaries, these sample areas were combined with visual observations of the wetland as a whole to carry out an overall Dominance Test using the 50/20 rule for plant selection. The results of this test are shown in Table 1.

As this table shows, dominant species across the wetland indicate the presence of wetland vegetation. Dominant tree species in the wetland include red alder (FAC) and western red cedar (FAC); dominant shrubs in the wetland include Hooker's willow (FACW) and salmonberry (FAC); and dominant herbaceous plants include lady fern (FAC), skunk cabbage (OBL) and piggy-back plant (FAC). Of the seven dominant species in the wetland, 100 percent are FAC, FACW or OBL. This meets the Dominance Test (Indicator 2) criterion for wetland vegetation (USACE 2010).

TABLE 1. DOMINANCE TEST USING 50/20 RULE FOR PLANT SELECTION (Complete On-Site Wetland)

STRATUM	SCIENTIFIC NAME	WETLAND INDICATOR STATUS	ABSOLUTE PERCENT COVER	DOMINANT?
Tree	*Alnus rubra*	FAC	40%	Yes
	Thuja plicata	FAC	25%	Yes
		Total cover	65%	
		50/20 Thresholds 50% total cover = 32.5% 20% total cover = 13%		
Shrub	*Salix hookeriana*	FACW	5	Yes
	Rubus spectabilis	FAC	5	Yes
		Total cover	10%	
		50/20 Thresholds 50% total cover = 5%. 20% total cover = 2%		
Herb	*Arthyrium filix-femina*	FAC	50%	Yes
	Lysichiton americunum	OBL	15%	Yes
	Tolmiea menziesii	FAC	15%	Yes
	Oenanthe sarmentosa	OBL	4%	No
	Ranunculus repens	FACW	2%	No
	Equisetum arvense	FAC	<2%	No
	Lemna minor	OBL	<1%	No
		Total cover	88%	
		50/20 Thresholds: 50% total cover = 44%. 20% total cover = 17.6%		
Hydrophytic Vegetation Determination	Total number of dominant species across all strata = 7 Percent of dominant species that are OBL, FACW or FAC = 100% Therefore, the community is hydrophytic by Indicator 2 (Dominance Test)			

As noted above, the transition from wetland to upland areas on the Site were distinct. Dominant upland trees for the overall area adjacent to the wetland included western red cedar (FAC), red alder (FAC), big leaf maple (FACU); dominant shrubs included bitter cherry (FACU), red elderberry (FACU) and Himalayan blackberry (FACU); and the dominant herbaceous plant was sword fern (FACU). Of the seven upland dominants, 28 percent were FAC, FACW or OBL. This does not meet the Dominance Test criterion for wetland vegetation.

Soils

"Hydric soils" is a name for soils commonly found in wetlands. These soils are identified mainly by morphological features such as color patterns, organic matter accumulation, or observation of inundation. A soil may be considered hydric if it is inundated (flooded or ponded) for at least one continuous week during the growing season in most years (Schneider and Sprecher 2000). Westech staff looked for field indicators of hydric soil conditions as recommended by the U.S. Army Corps of Engineers Regional Supplement (USACE 2010). When one or more of these indicators was present in the wetlands, the soil was considered hydric (USACE 2010).

Westech first examined existing Natural Resource Conservation Service (NRCS) soil surveys of the Site. Only one soil type mapped on the Site; is Clallam gravelly sandy loam, 0 to 15 percent slopes (12). This soil is associated with elevations of 40 to 1,800 feet and slopes of 0 to 15 percent. This soil derives from a parent material of till and is associated with hillslopes. This is a moderately well drained soil with a depth to water table of about 18 to 36 inches, no frequency of flooding or ponding and a very low available water capacity (about 2.4 inches). This soil is listed on the NRCS hydric soils list for Clallam County in association with depressions.

A second soil, Mukilteo muck (43), is mapped at the far western edge of the portion of the wetland west of Fern Road. This soil is associated with an elevation of 0 to 500 feet and slopes of 0 to 1 percent. This soil derives from parent material that includes mixed organic material and is found in association with depressions. It is a very poorly drained soil with a depth to the water table of about 0 to 10 inches. This soil has no frequency of flooding, a high frequency of ponding and a very high available water capacity (about 26.9 inches). This soil appears on the NRCS hydric soils list for Clallam County.

Hoypus gravelly sandy loam, 0 to 15 percent slopes, has been mapped across Highway 101 from the Site and to the southwest of the Site. This soil is associated with 50 to 1,000 feet elevations and is a somewhat excessively drained soil. It has a depth to water table of more than 80 inches and has no frequency of flooding or ponding.

Because NRCS soil surveys do not capture small scale variation, Westech staff conducted additional field studies of the soils. Westech field studies found evidence of hydric soils. Figure 3 shows the location of data collection stations for vegetation, soil, and hydrology (VHS) parameters. A soil shovel was used to dig soil pits to a depth of 20 or more inches.

Results of Westech soil tests are shown in Table 2. As this table shows, two types of wetland soils were observed in the Wetland (VHS-1 and VHS-2, Figure 3). The most prominent of these soils (Figure 3, VHS-1), appearing to be present throughout the interior and most of the edge of the wetland, was a black (10YR 2/1), greasy soil to at least 23 inches that matched the USACE field test for organic soils. As per the field test, these soils were gritty when rubbed a first and second time and then became greasy upon continued rubbing. The soils remained greasy and did not feel "gritty or plastic" upon further rubbing. This field examination indicated that these soils were compatible with USACE indictors for either Histosols or Black Histic soils. Field determination was not able to distinguish between these soils as laboratory tests are generally required to do so (USACE 2010).

Soils in the adjacent upland area (VHS-2) were not wetland soils. These soils were dry to 12 inches. They were inaccessible below that point because of a limiting layer of hardpan, probably glacial till. The soils were dark brown (10YR 3/3). These soils showed no signs of redox features.

Soils at VHS-3 were also wetland soils. To depths of six inches these soils had a very dark grey (7.5YR 3/1) matrix with a sandy silt loam texture. From six to 20 inches, the soil matrix was brown (10YR 4/2). These sandy silt loam soils also possessed redox features, with about 10% soft masses of 10YR 4/6. These criterions fit the USACE hydric soils indicator for Depleted Matrix (F3) soils.

The adjacent upland soils (VHS-4) were not wetland soils. These soils were a sandy silt to 20 inches. The matrix was brown across this depth (10YR 4/3). While these soils showed some indication of redox features between eight and 12 inches deep, the redox features were less than two percent. These soils indicate some inundation, but not enough to qualify as having a depleted matrix. They are not wetland soils.

TABLE 2. SITE SOILS

Location/Depth	Texture	Matrix Color	Matrix Value/Chroma	Redox features
Plot #VHS1 (Wetland A)				
0-23"	Greasy, organic	Black	2/1 (10YR)	None
Plot# VHS-2 (Upland A)				
0-12"	Sandy silt loam (dry)	Light brown	4/3 (10YR)	None
12+"	Hardpan, inaccessible	N/A	N/A	None
Plot #VHS-3 (Wetland B)				
0-6"	Sandy silt loam	Very Dark Grey	3/1 (7.5 YR)	None
6-20"	Sandy silty loam	Brown	4/2 (10 YR)	10% Soft masses, 10YR 4/6
Plot # VHS-4 (Upland B)				
0-8"	Sandy silty loam	Brown	4/3 (10 YR)	None
8-12"	Sandy silty loam	Brown	4/3 (10 YR)	<2% soft masses, 10YR 4/6
13-20"	Sandy silty loam	Brown	4/3 (10 YR)	None

Hydrology

Numerous factors (e.g., precipitation, topography, soil permeability, and plant cover) influence the wetness of an area. The wetland at this Site has a complex hydrology. The major portion of the on-Site wetland lies in depression that exhibits many areas with visible standing water. Both soil pits in wetland zones (VHS-1 and VHS-3) had standing water at or near the root zone. The soil pit at VHS-1 had a water table visible at six inches below the surface. Areas of the wetland within five feet of VHS-1 had visible standing water. The soil pit at VHS-3 had a water table visible at about 14 inches. The latter soil pit was located on a slightly elevated plain within five feet of a depression. The portion of the wetland in the depression had visible standing water. Water tables at or above the root zone are positive indicators of wetland hydrology (USACE 2010).

The portion of the Wetland immediately to the south to the Site appeared to have the same hydrologic conditions as the on-Site portion. Standing water was frequently visible in this area. In addition to visible standing water, the far eastern portion of the wetland had a narrow, flowing drainage that appeared to flow underneath Highway 101. The western side of the wetland (visible from Fern Road) drained into a pipe that appeared to go under Fern Road and onto the portion of the wetland to the west of Fern Road. This area was less accessible, though appeared to have several areas of standing water or saturated soils where cattail was visible. The two portions of the wetland, however, shared a common hydrology.

The upland soils adjacent to the two wetlands VHS site did not display wetlands hydrology. These soils were dry at VHS-2 and moist at VHS-4, but the soil pits in these areas lacked standing water in the root zone.

3.2 Description of Wetlands

The wetland on this Site is part of a larger wetland that extends at least to adjacent properties to the south and west. This wetland is linked by a shared hydrology in which water flows from the on-Site and southern portion of the wetland and through a drainage that runs beneath Fern Road to the adjacent lot to the west. Wetlands further to the west may be more connected to waters from by Siebert Creek.

The on-Site wetland is largely located in a depression that extends across most of the Site. On-site, this depression is bounded by sharp inclines (10-20 percent) to the north on the western end of the property; a similar incline is found on the eastern end of the western parcel. A combination of an elevated plateau (2-3 feet) and 10-20 percent inclines bound the wetland across the central portion of the western parcel. A human-made elevated driveway cuts into the wetland toward its eastern end (See Figure 3). On the eastern parcel, the wetland occupies the southern edge of the parcel.

The wetland is also drained by two narrow ditches. One is located at the far eastern end of the western parcel, appearing to run to Highway 101. This area has produced a small wetland area with riverine qualities. A second drainage appears to run behind the adjacent

properties to the west and to Fern Road, where it is channeled into a drainage pipe and runs to the property to the west of Fern Road. The wetland on the Fern Road side has a hydrology and vegetation pattern distinct from that of the on-Site wetland. It appears to be a slope wetland located in a field that has been previously cleared. Dominate vegetation consists of pockets of cattail, grasses and willow trees. Some horsetail and Nootka rose were also observed in this portion of the wetland. This area was not studied in the same detail as the on-Site wetland because it appeared to be private property.

3.3 Land Uses and Habitat Values

The Site is currently a partially developed property (western parcel). A gated entrance on the northwest end of the property connects a driveway and a short access road. Two dilapidated buildings are located on the property along the northwest boundary of the wetland. These appear to no longer be in use. The property is bounded on its western side by a developed property with a home on it. The wetland also extends onto the Property behind the home.

Wetlands are transitional areas between upland and aquatic environments where water is present long enough to form distinct soils and where specialized, water-tolerant plants grow. Wetlands serve a variety of functions such as transferring surface water into the ground, thereby recharging groundwater supplies. Wetlands also trap water along with sediments and pollutants providing stormwater detention as well as wildlife habitat.

Buffers also are important because they reduce the adverse impacts of adjacent land uses on wetlands. The buffers serve to stabilize soil and prevent erosion, filter suspended solids, nutrients and toxic substances, moderate impacts of stormwater runoff, and reduce noise disturbance and light intrusion. They also provide important habitat for wildlife living in and around the wetland.

The proximity of the wetland to Siebert Creek and a county-mapped intermittent stream indicates that the wetland may play a role in filtering water that might reach these creeks. This may contribute to improved water quality. The wetland is also likely to provide flood protection. Despite the outflow observed from drainages to the east and west of the on-Site wetland, the depression in which the majority of the on-Site and southern part of the wetland sits appears to provide considerable flood storage capacity and flood protection for Highway 101 and adjacent properties.

The wetland also provides good habitat. It contains a number of valuable habitat features, including large snags, downed woody debris and variable hydrological regimes. It likely provides habitat to a wide range of mammal and bird species. A deer was observed on-Site during field investigations. The wetland also has more than 0.25 acres of wide-stemmed vegetation in areas that are permanently and seasonally flooded. This provides habitat for amphibian species. Pacific tree frog (*Pseudacris regilla*) vocalizations were heard during the course of field studies. The multiple level canopy in the wetland will provide a range of niches for bird species.

3.4 Wetland Types and Buffers

The buffer sizes to be applied at this Site are governed by the Clallam County Critical Areas Code (CCC 27.12.215). In order to establish buffer sizes, Clallam County requires that wetlands be rated using the Washington State Department of Ecology's Wetland Rating System for Western Washington (DOE 2006, Ecology Publication No. 04-06-025). In this system, wetland ratings are based on:

1) Water Quality Function (i.e., Does the wetland have the ability to improve water quality?)

2) Hydrologic Function (i.e., Does the wetland decrease flooding and/or erosion?)

3) Habitat Function (i.e., Does the wetland provide habitat for many species?)

In Washington, wetland rating categories are based on the rarity of the type of wetland, our ability to replace it, its sensitivity to adjacent human disturbances, and the functions it performs. The objective of the rating system is to divide wetlands into groups that have similar needs for protection.

The wetland received a rating score of 63, making it a Category II wetland. It was categorized as such due to a water quality rating of 22, a hydrologic rating of 20 and a habitat rating of 21. The Clallam County Code specifies buffer sizes for wetlands based on their ratings and the intensity of the development (CCC 27.12.215). A "minor new development" requires buffers of 75 feet for Category II wetlands while a "major new development" requires 150 foot buffers. (CCC 27.12.215). Seventy-five foot buffers have been flagged with orange and black tape on this wetland since a "minor new development" or a single family residence is the most likely use of the Property.

3.5 Clallam County Wetland Map

This Site has been mapped by the County as including the northwest portion of a much larger wetland to the south and east (Clallam County 2011). Field observations indicate that the County's on-Site mapping of the wetland is roughly accurate, with some adjustments shown in Figure 3. The wetland also appears to extend onto the properties to the south and west, reaching across Fern Road where it is linked by common hydrology to a slope/depressional wetland in the adjacent field. The extent to which this wetland extends further to the west is unclear, as that portion of the wetland to the west may have a hydrologic regime more closely linked to Siebert Creek. Further investigation would need to be done to determine the full extent of the wetland.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusions

The two parcels were confirmed to contain a wetland that extends to adjacent properties to the south and west. The on-Site portion of the wetland lies along the southern edge in a depression that runs the length of the Property. On the line between the parcels, the wetland has some riverine features as it follows a narrow drainage toward Highway 101. This wetland has been rated according to state guidelines and classified as Category II wetlands. Clallam County requires buffer widths of 75 feet for these types of wetlands with minor new developments. Wetland and buffer zone boundaries have been flagged in the field.

4.2 Recommendations

Westech recommends that any construction on this Property be conducted outside permitted buffer zones. Any construction should also employ erosion control technologies to stop the flow of any sediment or other matter into the on-Site wetlands. These technologies can include silt fencing, straw matting, or other recognized erosion control methods. Monitoring for erosion should take place during construction and additional measures taken if any sheet or rill erosion is observed.

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APPENDICIES

APPENDIX A

SITE PHOTOGRAPHS

1) View of Vegetation in On-Site Wetland

2) View of On-Site Wetland Vegetation

3) View of Highway 101 Adjacent to Wetland.

4) Portion of Wetland West of Fern Road

APPENDIX B

ROUTINE WETLAND DETERMINATION FORMS

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

Project/Site: Highway 101 wetland City/County: Clallam County Sampling Date: 10/17/11, 10/26/11

Applicant/Owner: State: WA Sampling Point: VHS-1

Investigator(s): Charles Tanner Section, Township, Range:

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): none Slope (%): 0-2

Subregion (LRR): LRR-A Lat: Long: Datum:

Soil Map Unit Name: Clallam gravelly sandy loam, 0 to 15 percent NWI classification:

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 50x50 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rubra	35	Yes	FAC
2. Thuja plicata	15	Yes	FAC
3.			
4.			
	50%	= Total Cover	
Sapling/Shrub Stratum (Plot size: 20x20ft)			
1. Rubus spectabilis	5	Yes	FAC
2.			
3.			
4.			
5.			
	5	= Total Cover	
Herb Stratum (Plot size: 20x20ft)			
1. Athyrium Filix-femina	50	Yes	FAC
2. Lysichiton americanum	15	Yes	OBL
3. Tolmiea menziesii	15	Yes	FAC
4. Equisetum arvense	2	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	82	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes X No

Remarks: The tree stratum sample was expanded to accurately capture the vegetative cover

SOIL

Sampling Point: VHS-1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-23	10YR 2/1	100	none				greasy	Organic soils

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: not observed at 23 inches or higher

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks: These are organic soils according to field indicators (greasy texture after 4-5 rubs). However, distinguishing between organic soils in the field is difficult.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes X No ___ Depth (inches): 12 inches

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 6 inches

Wetland Hydrology Present? Yes X No ___

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

Remarks:

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

Project/Site: Highway 101 Wetland City/County: Clallam County Sampling Date: 10/17/11, 10/26/11

Applicant/Owner: State: WA Sampling Point: VHS-2

Investigator(s): Charles Tanner Section, Township, Range:

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 10-15%

Subregion (LRR): LRR-A Lat: Long: Datum:

Soil Map Unit Name: Clallam gravelly sandy loam, 0 to 15 percent NWI classification:

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

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

Are Vegetation , Soil , or Hydrology naturally problematic? No (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 50x50 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Thuja plicata	60	Yes	FAC
2. Acer macrophyllum	10	No	FACU
3.			
4.			
	70%	= Total Cover	
Sapling/Shrub Stratum (Plot size: 20x20 ft)			
1. Rubus ursinus	40	Yes	FACU
2. Prunus emarginata	15	Yes	FACU
3. Equisetum ar			
4.			
5.			
		= Total Cover	
Herb Stratum (Plot size: 20x20 ft)			
1. Polystichum munitum	30	Yes	FACU
2. Equisetum arvense	3	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	33	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 65%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes No X

Remarks:

SOIL

Sampling Point: VHS-2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/3	100	none				Sandy silt	Hardpan below 12in.

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: Hardpan, probably glacial till

Depth (inches): 12 in.

Hydric Soil Present? Yes ___ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): 0-12 in.

Water Table Present? Yes ___ No X Depth (inches): 0-12 in.

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): 0-12 in.

Wetland Hydrology Present? Yes ___ No X

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

Remarks: Soil showed no signs of regular inundation.

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

Project/Site: Highway 101 Wetland City/County: Clallam County Sampling Date: 10/17/11, 10/26/11

Applicant/Owner: State: WA Sampling Point: VHS-3

Investigator(s): Chantel Tanner Section, Township, Range:

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): none Slope (%): 0-1%

Subregion (LRR): LRR-A Lat: Long: Datum:

Soil Map Unit Name: Clallam gravelly sandy loam, 0 to 15 percent NWI classification:

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

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

Are Vegetation , Soil , or Hydrology naturally problematic? No (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 50x50ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rubra	40	Yes	FAC
2. Thuja plicata	30	Yes	FAC
3.			
4.			
	70% = Total Cover		
Sapling/Shrub Stratum (Plot size: 20x20ft)			
1. Salix hookeriana	5	Yes	FACW
2. Rubus spectabilis	5	Yes	FAC
3.			
4.			
5.			
	10% = Total Cover		
Herb Stratum (Plot size: 20x20ft)			
1. Athyrium filix-femina	50	Yes	FAC
2. Lysichiton americanum	10	Yes	OBL
3. Equisetum arvense	10	Yes	FAC
4. Tolmiea menziesii	10	Yes	FAC
5. Oenanthe sarmentosa	5	No	OBL
6. Ranunculus repens	3	No	FACW
7.			
8.			
9.			
10.			
11.			
	= Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	88% = Total Cover		

% Bare Ground in Herb Stratum

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes X No

Remarks: Equisetum is transitional between wetland and upland in this plot. Its presence in the larger wetland is much less than 10%.

SOIL

Sampling Point: VHS-3

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6"	7.5YR 3/1	100	none				Sandy silt	
6-20"	10YR 4/2	90%	10YR 4/6	10			Sandy silt	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: none observed to 20 in.

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks: Soils within 5 feet of this soil pit are greasy, organic soils like those at VHS-1. VHS-3 soils appear regularly inundated while the adjacent organic soils appear to be permanently inundated

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes X No ___ Depth (inches): 12"

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

Wetland Hydrology Present? Yes X No ___

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

Remarks: Standing water is visible about 5 feet from this soil pit. The area at the soil pit appears regularly inundated.

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

Project/Site: Highway 101 Wetland City/County: Clallam County Sampling Date: 10/17/11, 10/26/11
Applicant/Owner: State: WA Sampling Point: VHS-4
Investigator(s): Charles Tanner Section, Township, Range:
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 5%
Subregion (LRR): LRR-A Lat: Long: Datum:
Soil Map Unit Name: Clallam gravelly sandy loam, 0 to 15 percent NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes X No
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 50x50)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer macrophyllum	40	Yes	FACU
2. Thuja plicata	10	Yes	FAC
3.			
4.			
	50	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30x30)			
1. Rubus procerus (discolor)	40	Yes	FACU
2. Sambucus racemosa	10	Yes	FACU
3. Prunus emarginata	15	Yes	FACU
4.			
5.			
	65	= Total Cover	
Herb Stratum (Plot size: 30x30)			
1. Equisetum arvense	20	Yes	FAC
2. Pteridium aquilinum	5	Yes	FACU
3. Urtica dioica	5	Yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	30%	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 8 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 37.5% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species ____	x 1 =	____
FACW species ____	x 2 =	____
FAC species ____	x 3 =	____
FACU species ____	x 4 =	____
UPL species ____	x 5 =	____
Column Totals: ____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
___ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ____

Remarks: Species from outside the 30x30 foot plot to best represent the distribution in the upland area surrounding VHS-4

SOIL

Sampling Point: VtlS-4

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/3	100					Sandy silt	
8-12	10YR 4/3	98	10YR 4/6	2			Sandy silt	
12-20	10YR 4/3	100					Sandy silt	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: none to 20 inches

Depth (inches): ___

Hydric Soil Present? Yes ___ No X

Remarks: Some redox features were found in the 8-12 inch layer, but they were not widespread enough to indicate frequent inundation

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): 0-20

Water Table Present? Yes ___ No X Depth (inches): 0-20

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): 0-20

Wetland Hydrology Present? Yes ___ No X

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

Remarks:

APPENDIX C

WETLAND RATINGS FORMS

Wetland name or number Hwy 101

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Hwy 101 wetland Date of site visit: 10/16/11

Rated by Charles Tanner Trained by Ecology? Yes X No___ Date of training 2010

SEC: 15 TWNSHP: ____ RNGE: ____ Is S/T/R in Appendix D? Yes___ No___

Map of wetland unit: Figure ____ Estimated size _____

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III___ IV___

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

Score for Water Quality Functions	22
Score for Hydrologic Functions	20
Score for Habitat Functions	21
TOTAL score for Functions	63

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply___

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

Summary of basic information about the wetland unit

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

Wetland name or number SWY 101

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

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

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

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

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

Wetland name or number RWY101

Classification of Wetland Units in Western Washington

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

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

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

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

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
NO – go to 3 **YES** – The wetland class is **Flats**

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

3. Does the entire wetland unit **meet both** of the following criteria?
___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
___At least 30% of the open water area is deeper than 6.6 ft (2 m)?
NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?
X The wetland is on a slope (*slope can be very gradual*),
___The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
___The water leaves the wetland **without being impounded**?
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*
NO – go to 5 **YES** – The wetland class is **Slope**

Wetland name or number HW4 101

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

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

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

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

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

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

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

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

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

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

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

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

Wetland name or number Hwy 101

		Points (only 1 score per box)
D	**Depressional and Flats Wetlands** **WATER QUALITY FUNCTIONS** - Indicators that the wetland unit functions to improve water quality	
D	**D 1. Does the wetland unit have the potential to improve water quality?**	*(see p.38)*
D	D 1.1 Characteristics of surface water flows out of the wetland: Unit is a depression with no surface water leaving it (no outlet) points = 3 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* Provide photo or drawing	Figure ___ 2
D	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES points = 4 NO points = 0	4
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class) Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5 Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	Figure ___ 5
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0 Map of Hydroperiods	Figure ___ 0
D	**Total for D 1** *Add the points in the boxes above*	11
D	**D 2. Does the wetland unit have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Grazing in the wetland or within 150 ft X Untreated stormwater discharges to wetland Highway 101 — Tilled fields or orchards within 150 ft of wetland — A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential, urban areas, golf courses are within 150 ft of wetland — Wetland is fed by groundwater high in phosphorus or nitrogen — Other _____ **YES** multiplier is **2** **NO** multiplier is **1**	*(see p. 44)* multiplier 2
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by D2 ***Add score to table on p. 1***	22

Wetland name or number Hwy 101

	D Depressional and Flats Wetlands HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation	**Points** (only 1 score per box)
	D 3. Does the wetland unit have the potential to reduce flooding and erosion?	*(see p.46)*
D	D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet (points = 2) Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 0	2
D X	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 The wetland is a "headwater" wetland" points = 5 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet (points = 5) Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 Unit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft points = 0	5
D X	D 3.3 Contribution of wetland unit to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of unit points = 5 The area of the basin is 10 to 100 times the area of the unit (points = 3) The area of the basin is more than 100 times the area of the unit points = 0 Entire unit is in the FLATS class points = 5	3
D	**Total for D 3** *Add the points in the boxes above*	10
D	**D 4. Does the wetland unit have the opportunity to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* X Wetland is in a headwater of a river or stream that has flooding problems X Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems — Other Could flood Hwy 101 **YES** multiplier is **2** **NO** multiplier is **1**	*(see p. 49)* multiplier 2
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 ***Add score to table on p. 1***	20

Wetland name or number HW101

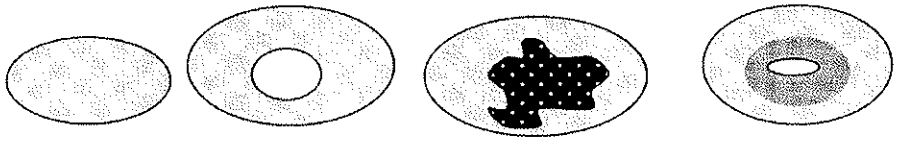
These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat	**Points** (only 1 score per box)
H 1. Does the wetland unit have the potential to provide habitat for many species?	
H 1.1 Vegetation structure *(see p. 72)* *Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.* ___ Aquatic bed _X_ Emergent plants _X_ Scrub/shrub (areas where shrubs have >30% cover) _X_ Forested (areas where trees have >30% cover) *If the unit has a forested class check if:* _X_ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon *Add the number of vegetation structures that qualify. If you have:* 4 structures or more points = 4 3 structures points = 2 2 structures points = 1 1 structure points = 0 Map of Cowardin vegetation classes	Figure ___ 4
H 1.2. Hydroperiods *(see p. 73)* *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)* _X_ Permanently flooded or inundated ___ Seasonally flooded or inundated _X_ Occasionally flooded or inundated ___ Saturated only 4 or more types present points = 3 3 types present points = 2 2 types present point = 1 1 type present points = 0 ___ Permanently flowing stream or river in, or adjacent to, the wetland _X_ Seasonally flowing stream in, or adjacent to, the wetland ___ ***Lake-fringe wetland*** **= 2 points** ___ ***Freshwater tidal wetland*** **= 2 points** Map of hydroperiods	Figure ___ 2
H 1.3. Richness of Plant Species *(see p. 75)* Count the number of plant species in the wetland that cover at least 10 ft^2. (*different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species.* *Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle* If you counted: > 19 species points = 2 *List species below if you want to:* 5 - 19 species points = 1 < 5 species points = 0	1

Total for page 7

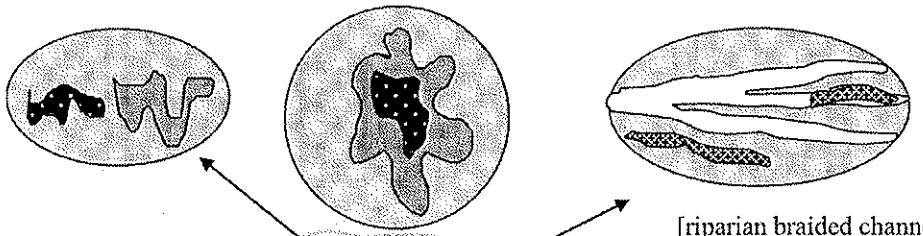
Wetland name or number Hwy 101

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

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



None = 0 points Low = 1 point Moderate = 2 points



High = 3 points [riparian braided channels]

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

3

H 1.5. Special Habitat Features: *(see p. 77)*

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

X Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).

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

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

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

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

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

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

4

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

7

Comments

Wetland name or number HW#01

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

Total for page 3

Wetland name or number HWY01

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

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

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

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

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

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

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

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

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

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

____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).*

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

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

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

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

If wetland has **3 or more** priority habitats = **4 points**
If wetland has **2** priority habitats = **3 points**
If wetland has **1** priority habitat = **1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

Wetland name or number Hwy 101

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)*** There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5 There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3 The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	14
TOTAL for H 1 from page 14	7
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	21