WETLAND DELINEATION REPORT AND CRITICAL AREAS ASSESSMENT

Crude by Rail East Gate

Prepared for:

Shell Puget Sound Refinery 8505 South Texas Road Anacortes, WA 98248

November 6, 2013



1501 Fourth Avenue, Suite 1400 Seattle, WA 98101-1616 (206) 438-2700

33764101

EXECUTIVE SUMMARY

Shell Puget Sound Refinery (PSR) proposes to build a rail spur from the existing adjacent mainline onto Shell PSR property with equipment to pump oil from rail cars into the refinery. The purpose of the project is in support of the fundamental purpose and need of the Shell PSR to provide fuel to the Pacific Northwest region. The PSR is located approximately 3 miles southeast of Anacortes, in Skagit County, Washington. This report covers a wetland delineation conducted along potential alignment configurations for the rail on refinery property.

The study area for this project is approximately 166 acres. The majority of the study area is grazed pasture adjacent to the existing refinery. The pasture area contains buried pipelines, overhead transmission lines, security and barb wire fences, and several ditches. It is bisected by two roads and is partially adjacent to an existing rail spur. A large fill area and undeveloped forest are also present in the study area. Tidal salt marsh is present in the southeast corner of the study area.

Initial field investigations were performed in late January and early February 2013. The study area was subsequently expanded based on design considerations. These additional areas were investigated in early May 2013. An additional expansion of the study area included the Burlington Northern Santa Fe (BNSF) right-of-way and adjacent areas. These areas were investigated in August 2013. Twenty-one wetlands were delineated within the study area. Twelve of these are small, Category IV wetlands that contain grazed pasture. Four are small Category III wetlands that contains predominantly grazed pasture within the study area but includes forested areas outside of the study area. One is a large Category III wetland that contains grazed pasture, both within and outside of the study area. One is a large Category II wetland that contains grazed pasture within the study area but includes forested and scrub-shrub areas outside of the study area. Two wetlands rate as Category II based on the presence of tidal salt marsh.

One stream and thirteen ditches were also identified and mapped in the study area. The stream is fish bearing in its lower reach where there is tidal influence.

CONTENTS

1.0	INTR 1.1	ODUCTION	
2.0	METH 2.1 2.2	HODS OFFICE ASSESSMENT WETLAND DELINEATION 2.2.1 Wetland Hydrology	2 2
		2.2.2 Hydric Soil	3
		2.2.3 Hydrophytic Vegetation	3
		2.2.4 Wetland/Upland Mosaic	4
	2.3 2.4 2.5 2.6	WETLAND CLASSIFICATION AND FUNCTIONS ASSESSMENT ORDINARY HIGH WATER MARK HABITAT CONSERVATION AREAS WETLAND AND STREAM MAPPING	4 5
3.0	RESU	ILTS	
	3.1	STUDY AREA DESCRIPTION	
	3.2	CLIMATE AND WATER	
	3.3	SOIL TYPES	
	3.4 3.5	UPLAND PLANT COMMUNITIES NATIONAL WETLAND INVENTORY	
	3.5 3.6	PREVIOUS WETLAND STUDIES	
	3.0 3.7	WETLANDS DELINEATED IN THE STUDY AREA	
	3.8	ORDINARY HIGH WATER MARK	
	3.9	HABITAT CONSERVATION AREAS	
		3.9.1 Streams	
		3.9.2 Priority Habitat and Species	12
	3.10 3.11	OTHER DRAINAGE FEATURES OTHER CRITICAL AREAS	12
		3.11.2 Geologically Hazardous Areas	13
		3.11.3 Frequently Flooded Areas	13
4.0	REGU	JLATORY REQUIREMENTS	14
5.0	REFE	RENCES	15

TABLES

- 1 Wetland Functions Assessment Criteria
- 2 Summary of Normal and Recorded Precipitation: November to January
- 3 Summary of Normal and Recorded Precipitation: February to April
- 4 Wetlands in the Study Area

FIGURES

- 1 Site Vicinity
- 2 NRCS Soil Survey
- 3 National Wetland Inventory
- 4 Wetland, Stream, and Ditch Locations (Located in pocket of report cover)

APPENDICES

- A Wetland Description Summaries
- B Stream and Ditch Description Summaries
- C Wetland Delineation Sample Plot Summary Table and Sample Plot Data Forms
- D Washington State Department of Ecology Wetland Rating Forms and Matrix
- E List of Plant Species Observed in the Study Area

1.0 INTRODUCTION

Shell Puget Sound Refinery (PSR) is proposing to build a rail spur from the existing adjacent mainline onto Shell PSR property with equipment to pump oil from rail cars into the refinery (see **Figures 1** and **2**). The purpose of the project is in support of the fundamental purpose and need of the Shell PSR to provide fuel to the Pacific Northwest region. URS biologists conducted a wetland investigation in the project study area, which is approximately 166 acres. The study area surrounds possible rail alignment configurations and associated facilities. Initial field investigations were performed in late January and early February 2013. The study area was subsequently expanded based on design considerations. These additional areas were investigated in early May 2013. An additional expansion of the study area included the Burlington Northern Santa Fe (BNSF) right-of-way and adjacent areas. These areas were investigated in August 2013. This report documents the presence and geographic extent of wetlands and adjacent uplands, characterizes the wetlands and their features, and describes how wetlands were distinguished from uplands. Other potentially jurisdictional waters are also documented, including ditches and streams. This wetland delineation is subject to agency verification and approval.

This report also represents the Critical Areas Assessment Report in accordance with the Skagit County Critical Areas Ordinance. The report documents the location and nature of critical areas and their buffers in the study area, including wetlands, streams, and other fish and wildlife habitat conservation areas.

1.1 SITE LOCATION

The Shell PSR is located in Skagit County, Washington, between Fidalgo Bay and Padilla Bay approximately 3 miles southeast of Anacortes, Washington (**Figure 1**). The study area is on the east side of the main developed refinery area and mainly west of East March Point Road. It extends from South March Point Road in the south in a northwesterly direction approximately 5,500 feet to North Texas Road. The study area is located in Sections 33 and 34, Township 35 North, Range 2 East; and Sections 3 and 4, Township 34 North, Range 2 East on the Anacortes South U.S. Geological Survey quadrangle (USGS 1995).

2.0 METHODS

2.1 OFFICE ASSESSMENT

The following documents were reviewed to aid identification and determination of wetlands in the project vicinity:

- National Wetlands Inventory Map, Anacortes South Quadrangle (USFWS 2013)
- U.S. Geological Service (USGS) Topographic Map, Anacortes South, Washington Quadrangle (USGS 1995)
- National Wetland Plant List (Lichvar and Kartesz 2009)
- Washington State Wetland Plant List (Lichvar 2012)
- Soil Survey of Skagit County Area, Washington (NRCS 2013)
- SalmonScape online mapping application (WDFW 2013a)
- Aerial photographs publicly available via the internet

2.2 WETLAND DELINEATION

Wetland and upland conditions were identified on site by qualified wetland biologists following the standard protocol outlined in the following manuals:

- U.S. Army Corps of Engineers (USACE) Wetlands Delineation Manual (USACE 1987)
- USACE Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region, Version 2.0 (hereafter referred to as the "2010 Regional Supplement"); (USACE 2010)

The 2010 *Regional Supplement* provides technical guidance and procedures specific to the nonarid west. To maintain consistency between the state and federal delineations of wetlands, the Washington State Department of Ecology (Ecology) has repealed WAC 173-22-080 (the state delineation manual), and replaced it with a revision of WAC 173-22-035 that states delineations should be completed according to the currently approved federal manual and supplements (the 2010 *Regional Supplement*). The changes were effective March 14, 2011.

For regulatory purposes, wetlands are distinguished from uplands using hydrology, soil, and vegetative characteristics, or "indicators" as the manuals refer to them. A wetland requires "inundation or soil saturation long enough during the growing season to create an anaerobic condition sufficient to alter chemical and biological activity in the soil, soil microbes, and rooted vegetation" (USACE 1987). This anaerobic condition manifests itself via characteristics, or indicators, present in the soil profile and adaptations in the vegetative community. Descriptions of the delineated wetlands are found in **Appendix A**. Descriptions of streams and ditches, some of which are located in wetlands, are located in **Appendix B**.

The growing season is technically defined as the period when soil temperatures 12 inches below the ground surface (bgs) are greater than 5°C (41°F), according to the 2010 *Regional Supplement*. The 2010 *Regional Supplement* also states that the determination of growing season should take into account careful observations of evidence that active plant growth is occurring.

This evidence can include new or recent growth such as flowers, new shoots, new leaves, or swollen buds on plants. In the absence of active plant growth observations, the length of the growing season may be approximated by the beginning and ending dates of 28° F temperatures with 50 percent probability as estimated by the Natural Resource Conservation Service (NRCS). The estimated growing season for the study area occurs from **February 11 to December 1** (a total of 295 days) using NRCS WETS data for Anacortes, Washington (NRCS 2002). The study area investigations occurred both during and outside of the growing season.

A total of **88** recorded sample plots and numerous unrecorded check plots were used to investigate the study area (**Appendix C**). The sample plots are located in places that adequately represent the variation in vegetation, soils, and hydrologic regimes within the study area. The presence or absence of hydrophytic vegetation, hydric soil, and wetland hydrology indicators were documented for each sample plot to justify the delineated wetland boundaries.

2.2.1 Wetland Hydrology

To determine whether a vegetation community meets the wetland hydrology criterion, an area is examined for inundation, soil saturation, shallow groundwater tables, or other dry-season hydrology indicators defined in the 2010 *Regional Supplement*. An area in which soils are inundated or saturated within 12 inches of the soil surface continuously for at least 5 to 12.5 percent of the growing season meets the criterion for wetland hydrology per the 1987 Wetland Delineation Manual. The requirement per the 2010 *Regional Supplement* is 14 days of continuous saturation or inundation.

Seasonal changes in water levels and the effect of recent precipitation events must be considered when evaluating an area's hydrology, particularly outside of the growing season or during the dry summer months. Wetland hydrology can be determined during the summer months by documenting the presence of one primary indicator (such as watermarks on vegetation, drift deposits, sediment deposits, surface-scoured areas, algal mats, and oxidized root channels) or two secondary indicators (such as water-stained leaves, drainage patterns, geomorphic position, shallow aquitard, or FAC-Neutral Test).

2.2.2 Hydric Soil

Soil pits were dug at sample plot centers to 16 or more inches bgs. Soil color and other characteristics were used to distinguish hydric versus non-hydric soils. The Munsell Soil Color Chart (X-Rite 2009), the *Soil Survey of Skagit County Area Washington* (NRCS 2013), the 2010 *Regional Supplement*, and the *Field Indicators of Hydric Soils in the United States*, version 7.0 (NRCS 2010) aided in the determinations.

2.2.3 Hydrophytic Vegetation

Sample plot centers were situated so that the plots best represented the vegetation present within the wetland or upland near the plot location. Plant species and their percent cover were recorded for each vegetative stratum generally using a 30-foot radius for trees, a 15-foot radius for shrubs, and a 5-foot radius for herbaceous plants and woody vines. Each species' wetland indicator status was recorded based on its listing in the Washington 2012 Final State Wetland Plant List

(Lichvar 2012). The plot's hydrophytic vegetation status was calculated per the delineation manual methods to determine whether a sample plot met the wetland vegetation criteria.

2.2.4 Wetland/Upland Mosaic

Site-specific techniques were used to document wetland/upland mosaic areas, as described in Chapter 5 of the 2010 Regional Supplement. These mosaic areas contain many small wetland pockets interwoven with upland areas in complex patterns that are best documented as a mosaic rather than a solid wetland area. The first step in the analysis of these areas was to establish a boundary between the upland and the wetland mosaic. Representative wetland and upland areas within the delineated mosaic were documented on sample plot forms. In addition to this data, wetland mosaic areas were further analyzed by traversing the width of the mosaic area across several transects estimating the amount of wetland and upland within the boundaries.

2.3 WETLAND CLASSIFICATION AND FUNCTIONS ASSESSMENT

Wetlands were classified using both the Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979) and the hydrogeomorphic (HGM) classification. A wetland rating was completed for each wetland using the *Washington State Wetland Rating* System for Western Washington Revised (Ecology Rating System) (Hruby 2004). Ecology recognizes four categories of wetlands based on their sensitivity to disturbance, rarity, the functions they provide, and difficulty of replacement. Rating forms are located in Appendix D.

Wetland delineators visited each wetland and determined wetland classes and categories using field observations and resources utilized during the preliminary data review process. A qualitative functions assessment was also conducted for the wetlands based on the Ecology Wetland Ratings. Hydrology, water quality, and habitat functions were evaluated based on the scores on the rating forms and the scoring criteria listed in **Table 1**. The breakdown into low, medium, and high functional categories is based on guidance provided in Ecology's Wetland Mitigation in Washington State Part 1 (Ecology et al. 2006).

Table 1. Wetland Functions Assessment Criteria	
	(

Wetland Functions	Low Score	Moderate Score	High Score
Water Quality Functions	1-12	13-23	24-32
Hydrology Functions	0-12	13-23	24-32
Habitat Functions	0-19	20-28	29-36

¹Low, medium, and high breakdown based on Ecology guidance in the *Wetland Mitigation in* Washington State Part 1 (Ecology et. al 2006).

2.4 **ORDINARY HIGH WATER MARK**

The OWHM on Padilla Bay was identified according to guidance from the Federal Register and Washington State Code. For the local and state jurisdictions the OHWM "on all lakes, streams, and tidal water is that mark that will be found by examining the bed and banks and ascertaining where the presence and action of waters are so common and usual, and so long continued in all ordinary years, as to mark upon the soil a character distinct from that of the abutting upland, in

respect to vegetation as that condition exists on June 1, 1971, as it may naturally change thereafter, or as it may change thereafter in accordance with permits issued by a local government or the department" (RCW 90.58.030).

For federal jurisdictions, the term "ordinary high water mark" means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas (33 CFR 328.3). The OHWM for the Corps in tidal systems is generally the mean higher high water (MHHW).

2.5 HABITAT CONSERVATION AREAS

Skagit County maintains jurisdiction over established fish and wildlife conservation areas, per their Critical Areas Ordinance (SCC Chapter 14.24). Habitat conservation areas are those areas identified as being of critical importance to the maintenance of certain fish, wildlife, and/or plant species. These areas are typically identified either by known point locations of specific species or by habitat area or both. Habitat conservation areas include streams regulated as shorelines of the state (WAC 173-18-310) or other fish-bearing streams that have known or potential use by anadromous or resident fish species. Habitat conservation areas may require buffers from their edges (SCC 14.24.530).

2.6 WETLAND AND STREAM MAPPING

Boundaries between wetland and upland areas were marked in the field with pink "Wetland Boundary" flagging or pin flags. Sample plots were marked with orange flagging or pin flags.

All wetland and sample plot flags were recorded using Trimble GeoExplorer 6000 GPS units and post-processed to achieve 1-meter positional accuracy under good conditions. In areas of dense canopy, GPS data generally achieved better than 2-meter accuracy. The data were collected using the Washington State Plane North NAD83 coordinate system.

Drainages were not flagged. The centerline of streams and ditches was recorded via GPS. The average width at ordinary high water was estimated using Olson and Stockdale (2010).

The GPS data were used to produce wetland maps.

3.0 **RESULTS**

3.1 STUDY AREA DESCRIPTION

The study area is approximately 166 acres and is bounded on the north by North Texas Road, on the south by South March Point Road, on the west by developed areas of the refinery (northern two-thirds) and undeveloped forest and pasture (southern one-third), and on the east by mainly grazed pasture, undeveloped forest, and East March Point Road.

Fourth Street, a gated refinery access road, bisects the southern half of the study area. South Texas Road, a gravel access road, crosses the study area near the south end. Two buried pipelines (Kinder Morgan Pipeline and Olympic Pipeline) occur within the study area. A pipeline pump station is located adjacent to the extreme northeastern corner of the study area. Electrical transmission lines are also present on the south half of the study area. A refinery security fence is present along much of the west side and north end of the study area. Numerous barbed wire fences are present throughout the study area. A clean spoils pile (approximately 50 feet tall by 750 feet long by 500 feet wide) is present near the north end of the study area.

South of 4th Street, the land slopes gently to the southeast at a gradient of 3 to 5 percent. North of 4th Street, the land slopes gently to the east at a 0 to 3 percent gradient. The forested areas in the north have very undulating slopes. Elevations range from approximately 120 feet at the top of the clean spoils pile near the north end of the study area, to sea level at Padilla Bay. Thirteen ditches and one stream occur in the study area. All of these eventually drain into Padilla Bay.

The majority of the study area is moderately grazed pasture with some scattered, undeveloped forest patches at the edges. An existing compensatory wetland mitigation site is present just south of 4th Street. Wetland and upland plant communities are described below. A list of plant species observed in the study area, with common and scientific names, nativity, and wetland indicator status, is provided in **Appendix E**.

3.2 CLIMATE AND WATER

Climatic conditions for Anacortes are characterized by 27 inches of average annual rainfall, 41°F average winter air temperature, 61°F average summer air temperature, and typically about 247 frost-free days per year (NRCS 2002). As with most of western Washington, the highest monthly precipitation occurs between October 1 and March 31, with summer showers accounting for about 30 percent of annual precipitation.

Table 2 provides antecedent rainfall recorded near the study area for the 3 months prior to the initial field investigations, as well as monthly averages and normal rainfall (30 and 70 percentiles). Both monthly rainfall, and rainfall for the current water year (beginning October 1), were clearly normal at the time of the site investigations. Water table and saturation depths recorded in the data sheets (and summarized in **Appendix C**) are therefore expected to be representative of long term averages for the study area.

Category ¹	November 2012	December 2012	January 2013	Total Water Year to Date
Recorded Precipitation	4.31	3.61	3.84	15.17
Precipitation Average	4.93	3.96	4.04	15.86
Monthly Normal				
30% Chance Less Than	3.33	2.99	2.65	10.90
30% Chance More Than	5.89	4.62	4.84	18.86

 Table 2. Summary of Normal and Recorded Precipitation Between November 2012 and

 January 2013 near Shell PSR (inches)

¹Recorded data is for Burlington, WA (approximately 6 miles east of Shell PSR). Average and normal data is for Mount Vernon, WA (approximately 7 miles southeast of Shell PSR).

Table 3 provides climate data for the 3 months prior to the early May field investigations of the expanded study area. Rainfall was slightly more than normal in February, normal in March, and significantly above normal in April. The amount for the water year was still normal, however. In addition, there was only 0.24 inch of rainfall in the 2 weeks preceding the May field investigations. Based on measurements from shallow monitoring wells installed in Wetland D, the water table in the area fell significantly during this 2 week period. The water table was not found within 16 inches anywhere on the expanded study area during the May investigations.

 Table 3. Summary of Normal and Recorded Precipitation Between February and April

 2013 near Shell PSR (inches)

Category ¹	February	March	April	Total Water Year to Date
Recorded Precipitation	3.92	2.84	5.66	27.59
Precipitation Average	2.87	2.81	2.48	24.02
Monthly Normal				
30% Chance Less Than	2.19	2.17	2.07	17.33
30% Chance More Than	3.34	3.26	2.80	28.26

¹Recorded data is for Burlington, WA (approximately 6 miles east of Shell PSR). Average and normal data is for Mount Vernon, WA (approximately 7 miles southeast of Shell PSR).

The main sources of water for the on-site wetlands appear to be direct precipitation, surface runoff from adjacent developed refinery areas or grazed pasture, channelized flow in streams and ditches, and shallow subsurface flow. Shallow groundwater aquitards are common in the wetland areas. These are dense or contrasting soil layers that cause water to move laterally over them. Wetlands adjacent to Padilla Bay also have inundation and a water table that is tidally influenced. Surface saturation and/or ponding were present in all delineated wetlands during the January/February field investigations.

3.3 SOIL TYPES

According to the *Soil Survey of the Skagit County Area Washington* (NRCS 2013), four dominant soil map units are mapped for the study area—(18) Bow gravelly loam, low precipitation, 0 to 3 percent slopes is mapped over approximately 90 percent of the study area; (35) Coveland gravelly loam, 0 to 3 percent slopes is mapped in the southern end of the study area; (72) Hydraquents, tidal is mapped in the southeast corner, and (165) Xerorthents, 0 to 5 percent slopes is mapped along the western edge of the northern half of the study area (**Figure 2**). Bow, Coveland, and Hydraquents, tidal are listed as hydric soils on the NRCS hydric soils list

for Skagit County and Washington State (NRCS 2012). Xerorthents are not listed hydric soils; however, they typically have 5 percent of hydric soil inclusions.

Bow gravelly loam consists of deep, somewhat poorly drained soils formed in gravelly glacial drift over glaciolacustrine material with a mantle of volcanic ash. Bow soils are on broad glaciated terraces and till plains. Typically they have a dark brown (10YR 3/3) or very dark grayish-brown (10YR 3/2) gravelly loam surface layer that is 7 inches thick. The subsoil is a brown (7.5YR 4/4) very gravelly loam that is 10 inches thick. The upper 14 inches of the substratum is an olive gray (5Y 5/2) clay loam with clay films on ped faces and pore linings. The lower part of the substratum to a depth of 60 inches is olive-gray silty clay. Redoximorphic concentrations and depletions are present immediately below the surface horizon. The volcanic ash influence is 10 to 17 inches thick.

Coveland gravelly loam consists of deep, somewhat poorly drained soils formed in glacial drift underlain by dense glaciomarine deposits. Coveland soils are in valleys and outwash plains. Typically they have a very dark gray (10YR 3/1) or very dark grayish-brown (10YR 3/2) gravelly loam surface layer that is 9 inches thick. The subsoil is dark grayish-brown (10YR 4/2) very gravelly sandy loam that is 5 inches thick. The upper 24 inches of the substratum is a dark grayish-brown (2.5Y 4/2) silt loam or silty clay loam with clay films on ped faces and pore linings. The lower part of the substratum to a depth of 60 inches is olive-brown (2.5Y 4/3) dense sandy loam. Redoximorphic concentrations are present immediately below the surface horizon.

Hydraquents, tidal consist of very deep, poorly drained soils on tidelands. They formed in alluvium. Slope is 0 to 1 percent. No single profile is representative of these soils, but one commonly observed in the study area is covered with a mat of dead grass about 1 inch thick. The surface layer is dark gray fine sandy loam 6 inches thick. The underlying material to a depth of 60 inches or more is gray and olive gray stratified silt loam, very fine sandy loam, and fine sandy loam. In some areas the profile is silty clay loam. Included in this unit are areas of soils that are devoid of vegetation. These soils are subject to frequent, brief periods of flooding during daily high tides.

Xerorthents consist of soils developed in human transported and disturbed material. They lack defined horizons or consistent identifying features. Included in this soil series may be small areas of other local soil profiles. Soil characteristics and interpretations are extremely variable depending on the source of the fill material or the nature of the disturbance.

3.4 UPLAND PLANT COMMUNITIES

The upland herbaceous communities are dominated by non-native pasture grasses and forbs. The vegetation in the uplands is very similar to that found in the grazed wetlands and includes velvetgrass (*Holcus lanatus*), colonial bentgrass (*Agrostis capillaris*), creeping bentgrass (*A. stolonifera*), tall fescue (*Festuca arundinacea*), crested dogtail (*Cynosurus cristatus*), Kentucky bluegrass (*Poa pratensis*), meadow fescue (*Festuca rubra*), meadow foxtail (*Alopecurus pratensis*), white clover (*Trifolium repens*), subterranean clover (*Trifolium subterraneum*), hairy cat's-ear (*Hypochaeris radicata*), dandelion (*Taraxacum officinale*), birds-foot trefoil (*Lotus corniculatus*), Canada thistle (*Cirsium arvense*), garden vetch (*Vicia sativa*), hairy vetch (*Vicia hirsuta*), mouse-ear chickweed (*Cerastium glomeratum*), reed canarygrass (*Phalaris*)

arundinacea), and wheatgrass (*Agropyron* sp.). Filled areas and other disturbed areas also contain coastal wormwood (*Artemisia suksdorfii*), bull thistle (*Cirsium vulgare*), Fuller's teasel (*Dipsacus fullonum*), common St. John's wort (*Hypericum perforatum*), and lesser hawkbit (*Leontodon saxatilis*).

Dominant tree species in the forested uplands include red alder (*Alnus rubra*), black cottonwood (*Populus balsamifera*), paper birch (*Betula papyrifera*), western redcedar (*Thuja plicata*), Douglas fir (*Pseudotsuga menziesii*), bigleaf maple (*Acer macrophyllum*), quaking aspen (*Populus tremuloides*), and grand fir (*Abies grandis*). Common shrubs in the forested uplands include salmonberry (*Rubus spectabilis*), Himalayan blackberry (*Rubus armeniacus*), trailing blackberry (*Rubus ursinus*), snowberry (*Symphoricarpos albus*), Indian plum (*Oemleria cerasiformis*), tall Oregon grape (*Mahonia aquifolium*), red elderberry (*Sambucus racemosa*), Pacific crabapple (*Malus fusca*), red huckleberry (*Vaccinium parvifolium*), vine maple (*Acer circinatum*), oceanspray (*Holodiscus discolor*), and coast black gooseberry (*Ribes divaricatum*).

Herbaceous species in the understory include sword fern (*Polystichum munitum*), northern woodfern (*Dryopteris expansa*), bracken fern (*Pteridium aquilinum*), stinging nettle (*Urtica dioica*), fringecup (*Tellima grandiflora*), Siberian miner's lettuce (*Claytonia sibirica*), common bedstraw (*Galium aparine*), and bittercress (*Cardamine* sp.).

3.5 NATIONAL WETLAND INVENTORY

One large wetland complex and one small emergent wetland are indicated to occur in the study area per the National Wetlands Inventory (NWI) (**Figure 3**). The wetland complex includes palustrine forested (PFOC), palustrine scrub-shrub (PSSC), and palustrine emergent (PEMC) seasonally flooded wetlands, and an estuarine wetland adjacent to Padilla Bay. It covers most of the south half of the study area and much of the north half (south of the forested area). The small emergent wetland is mapped in the field between the clean spoils pile and North Texas Road.

Several other similar wetlands are indicated to occur within one-quarter mile of the study area. Since NWI maps only show a rough estimate of the presence and geographic extent of wetland communities in a given area, NWI data should not be considered an accurate depiction of the wetland communities on the study area. Highly seasonal wetlands and forested wetlands, in particular, are often underestimated by the NWI.

3.6 PREVIOUS WETLAND STUDIES

Portions of the Shell PSR rail alignment were previously investigated for wetlands in 2012 (Hart Crowser 2012). This was a reconnaissance-level investigation and not a delineation of wetland boundaries. A sketch map of the approximate wetland area was included in the letter-report, but no wetland data forms or rating forms were completed. This investigation identified one large contiguous wetland covering most of the alignment.

3.7 WETLANDS DELINEATED IN THE STUDY AREA

Field investigations confirmed the presence of twenty-one wetlands in the study area (**Figure 4**), labeled Wetlands A, D, E, E3, E4, E5, E6, I1, I2, J, N, O, Q, R, S, T, U, V, W, Y, and Z for purposes of this report. The characteristics defining each wetland as well as representative photos are provided in the wetland description summaries (**Appendix A**). Wetland sample plot datasheets are provided in **Appendix C**. For larger wetlands with sinuous boundaries, multiple paired sample plots were collected to aid in determining the wetland boundary.

The northern forested portions of **Wetland D** meet the definition of a **wetland/non-wetland mosaic** according to the 2010 *Regional Supplement* (USACE 2010). These are landscapes "where wetland and non-wetland components are too closely associated to be easily delineated or mapped separately. These areas often have complex microtopography, with repeated small changes in elevation occurring over short distances." These portions of the study area have likely never been cleared or leveled for agriculture. They have a very complex hummocky topography, with wetlands in the swales and uplands on many of the hummocks. Using methods described in Section 2.2.4, wetlands were determined to make up approximately **70 percent** of the mosaic area.

Table 4 provides a summary of wetland characteristics in the study area. Wetland category is based on the Ecology rating forms (**Appendix E**). Hydrologic connection of the wetlands is described in the summary sheets for each wetland (**Appendix A**). Wetland sizes were calculated using AutoCAD.

3.8 ORDINARY HIGH WATER MARK

The OHWM for Padilla Bay was determined for the southeastern corner of the study area. This area is a low energy environment where the action of waves and currents is not sufficient to prevent vegetation establishment below mean higher high tide. As such, the OHWM is coincident with the landward limit of salt tolerant vegetation. "Salt tolerant vegetation" means vegetation which is tolerant of interstitial soil salinities greater than or equal to 0.5 parts per thousand. The landward limit of salt tolerant vegetation is quite distinct with pickleweed (*Sarcocornia perennis*), saltgrass (*Distichlis spicata*), and atriplex (*Atriplex* sp.) below the OHWM.

		s in the Study Area			Wetland	Buffer
Wetland	l Wetland		HGM	Hydrologically	Size	Width
Name	Category	Cowardin Classification	Classification	Isolated?	$(acres)^1$	(feet)
А	IV	Emergent	Depressional / Slope	No	2.02	50
D	III	Forested/Scrub- shrub/Emergent	Depressional / Slope	No	38.41	150
D	III	Forested Mosaic	Depressional / Slope	No	7.45	150
E	III	Forested/Emergent	Depressional / Slope	No	10.75	150
E3	IV	Emergent	Depressional	No	0.17	50
E4	IV	Emergent	Depressional	No	0.05	50
E5	IV	Emergent	Depressional	No	0.18	50
E6	IV	Emergent	Depressional	No	0.20	50
I1	Π	Forested/Scrub- shrub/Emergent/Estuarine	Depressional / Slope /Tidal Fringe	No	2.48	300
I2	IV	Emergent	Slope	No	0.35	50
J	IV	Emergent	Depressional / Slope	No	0.13	50
Ν	II	Estuarine Emergent	Tidal Fringe	No	0.04	300
0	III	Emergent	Depressional	No	0.18	150
Q	III	Forested/Scrub-shrub	Depressional	No	1.01	150
Ŕ	IV	Emergent	Depressional	No	0.10	50
S	II	Forested/Scrub- shrub/Emergent	Depressional / Slope	No	0.86	300
Т	III	Forested	Depressional	Yes	0.12	150
U	IV	Emergent	Depressional	No	0.24	50
V	IV	Emergent	Depressional / Slope	No	1.07	50
W	III	Forested	Depressional	No	0.06	150
Y	IV	Emergent	Depressional / Slope	No	0.42	50
Z	IV	Emergent	Depressional / Slope	No	0.64	50

Table 4. Wetlands in the Study Area

¹Includes only the area of the wetlands within the study area and only the wetland portion of the wetland/upland mosaics.

3.9 HABITAT CONSERVATION AREAS

3.9.1 Streams

The USGS topographic map does not indicate any streams occurring in the study area. However, field investigations revealed the presence of one stream (**Figure 4**), labeled Stream S for purposes of this report. Stream characteristics and representative photos are provided in the summary sheets in **Appendix B**. The upper reach of the stream has been highly disturbed due to channelization and trampling from cattle and provides poor aquatic habitat. The lower 450 feet

of stream flow through tidal salt marsh. This lower reach of Stream S is accessible to fish, and some were observed during field surveys in August 2013. Stream S is not listed as utilized by anadromous species on the SalmonScape website (WDFW 2013a). Potential fish passage is blocked at South Texas Road due to a non-passable culvert.

3.9.2 Priority Habitat and Species

Based on a review of existing documentation from the Washington Department of Fish and Wildlife (WDFW 2013b) and the Washington Natural Heritage Program (WNHP 2013), no federal- or state-listed threatened or endangered plant or terrestrial animal species are known to occur in the study area. Several listed fish species are present in Padilla Bay. Two active and one abandoned bald eagle (*Haliaeetus leucocephalus*) nests were observed within the study area. Bald eagles are a State Sensitive species and also protected under the Bald Eagle and Golden Eagle Protection Act.

3.10 OTHER DRAINAGE FEATURES

Thirteen ditches occur within the study area, labeled Ditch A1, A2, A3, B, D1, D2, D3, D4, E1, E2, E3, I, and Q for purposes of this report. They are indicated on **Figure 4**. Characteristics of the ditches and representative photos are provided in the summary sheets in **Appendix B**. These ditches are assumed to have "relatively permanent flow" (e.g., seasonal continuous flow). Since they all eventually drain to Padilla Bay (Puget Sound), the ditches are assumed to be jurisdictional under the Clean Water Act.

Ditches D3 and D4 appear to have the most flow in the study area. They are located in a pasture in Wetland D in the center of the study area. Both drainages receive water from the refinery through a permitted National Pollutant Discharge Elimination System (NPDES) outfall. The water at this outfall originates as both stormwater and steam condensate from refinery processes. The water is tested regularly as part of the NPDES permit. Ditch D3 is not known to be accessible to fish due to the lack of a continuous defined channel connecting to Padilla Bay. Ditch D4 is not likely to be accessible to fish due to the disturbed nature of the channel, impassable culverts and limited flows. Culverts under East March Point Road drain the water from Ditches D3 and D4 to Padilla Bay. These culverts are several feet above the tideline of the Bay and therefore are impassable to fish.

3.11 OTHER CRITICAL AREAS

The study area was investigated for other critical areas as designated in SCC 14.24.

3.11.1 Aquifer Recharge Areas & Flow-Sensitive Basins

Aquifer recharge areas are areas determined to be critical in maintaining both groundwater quantity and quality. SCC 14.24 specifies regulatory requirements for development within these areas, including prohibited activities, site assessment requirements, and impact mitigation. Category I aquifer recharge areas are shown on the aquifer recharge area map (Skagit County GIS 2010a). Potential Sea Water Intrusion Areas are included on the map as Category I areas.

All of the study area is a Potential Sea Water Intrusion Area due to its proximity to Padilla Bay. Site assessment and mitigation requirements will be determined in consultation with Skagit County.

The study area is not within a designated flow-sensitive basin.

3.11.2 Geologically Hazardous Areas

These are areas that may not be suited to development consistent with public health, safety, or environmental standards, because of their susceptibility to erosion, sliding, earthquake, or other geological events. Types of geologically hazardous areas include: erosion, landslide, seismic, mine, and volcanic hazards. Known and suspected hazard areas are indicated on the Potential Landslide and Erosion Areas Map (Skagit County GIS 2009). None of the study area is located in a mapped geologically hazardous area.

Natural slopes across the area are well below 15 percent gradient. There is a man-made slope (clean spoils pile in the northwest corner of the study area) that exceeds 15 percent (**Figure 4**). The spoils pile is approximately 40 feet high, with side slopes that are at a gradient of 40 percent.

3.11.3 Frequently Flooded Areas

These are lands in the floodplain subject to a 1 percent or greater chance of flooding in any given year, and those lands that provide important flood storage, conveyance, and attenuation functions. These areas are designated on the Federal Emergency Management Agency (FEMA) Q3 100 Year Floodplain Map (Skagit County GIS 2010b). None of the study area is within the 100 year floodplain, with the exception of the tidal salt marsh portion of Wetland I1 in the southeast corner. Development within a frequently flooded area must conform to construction standards listed in SCC 14.34 (Flood Damage Prevention). Most development activities within such areas will require a floodplain development permit issued by Skagit County.

4.0 **REGULATORY REQUIREMENTS**

The presence of several on-site wetlands and their associated buffers may constrain the development potential within the project area. Any development plans must address impacts to the wetlands, waterways, and their associated buffers, and permits will be required to fill or modify wetlands or other waters of the U.S. The Corps regulates "Waters of the U.S." including wetlands, through Section 404 of the U.S. Clean Water Act of 1972. Ecology regulates water quality, and thereby wetlands and other waters, through Section 401 of the U.S. Clean Water Act. In addition, the State Water Pollution Control Act (Chapter 90.48 RCW), which is administered by Ecology, applies to pollution of and discharges into all waters of the state, including wetlands. Skagit County also administers wetland permits via their Critical Areas Ordinance. All three of the regulatory agencies require that a wetland fill permit applicant demonstrate that wetlands have been avoided or impacts minimized to the maximum extent practicable.

Stream S is regulated and protected by a 100-foot buffer under the Skagit County Critical Areas Ordinance (Skagit County 2012). Impacts to streams are mitigated on a case-by-case basis. A Hydraulic Project Approval (HPA) may be required by the Washington State Department of Fish and Wildlife where streams or other waterways are being crossed or filled by a proposed project. Impacts to ditches are generally considered self-mitigating as long as the water conveyance function of the ditch is maintained.

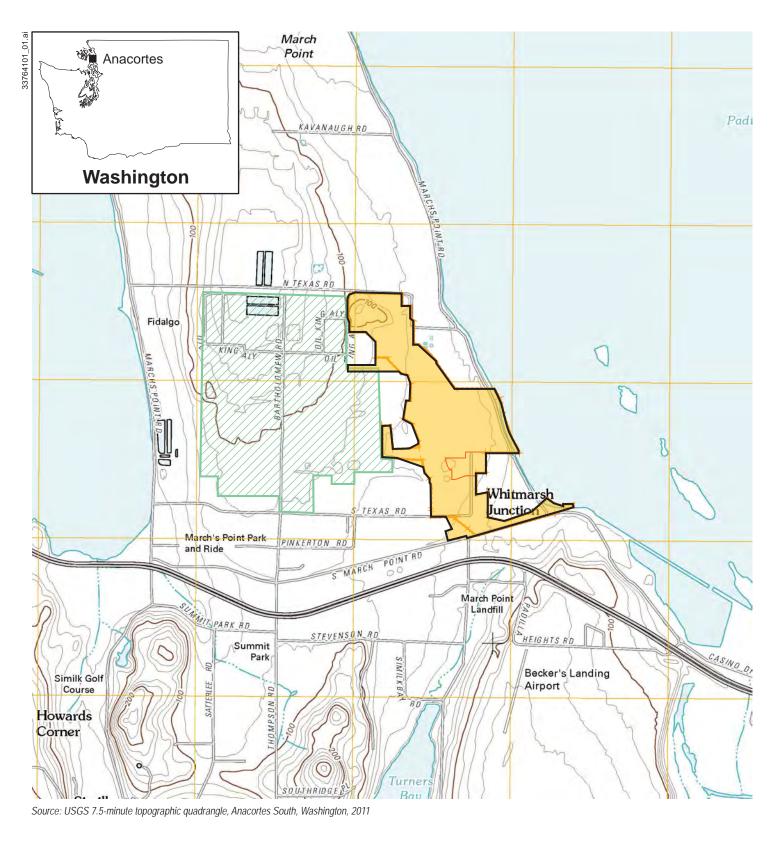
5.0 **REFERENCES**

- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. Publication FWS/OBS-79/31. U.S. Fish and Wildlife Service, Office of Biological Services, Washington, DC.
- Hart Crowser. 2012. Wetland Reconnaissance Site Visit: Crude Rail Logistics Project, Anacortes, Washington. Prepared for Shell Puget Sound Refinery. December 13, 2012.
- Hruby, T. 2004. *Washington State Wetland Rating System for Western Washington Revised.* Washington State Department of Ecology Publication # 04-06-025.
- Lichvar, Robert W. 2012. *The National Wetland Plant List*. ERDC/CRREL TR-12-11. Hanover, NH: U.S. Army Corps of Engineers, Cold Regions Research and Engineering Laboratory. Available at: <u>http://acwc.sdp.sirsi.net/client/search/asset:asset?t:ac=\$N/1012381</u>
- Lichvar, Robert W. and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (<u>https://wetland_plants.usace.army.mil</u>). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC.
- Natural Resources Conservation Service (NRCS). 2013. Soil Survey of Skagit County Area, Washington. Web Soil Survey, available at: <u>http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx</u>
 - —. 2012. Hydric Soils List, Skagit County, Washington. In cooperation with the National Technical Committee for Hydric Soils. Available at: <u>http://www.wa.nrcs.usda.gov/technical/soils/technical_soil_services.html</u>
- 2002. WETS database. United States Department of Agriculture. National Water and Climate Center. Available at: <u>http://www.wcc.nrcs.usda.gov/ftpref/support/climate/wetlands/wa/53057.txt</u>
- Olson, P. and E. Stockdale. 2010. *Determining the Ordinary High Water Mark on Streams in Washington State*. Second Review Draft. Washington State Department of Ecology, Shorelands & Environmental Assistance Program, Lacey, WA. Ecology Publication # 08-06-001.
- Skagit County. 2012. Skagit County Critical Areas Ordinance. Skagit County Code Chapter 14.24. Available at: http://www.codepublishing.com/wa/skagitcounty/
- Skagit County GIS. 2009. Potential Landslide and Erosion Areas Map T34N R1 & R2; T35N R1 & R2. February 1, 2009. Accessed at: <u>ftp://ftp.skagitcounty.net/GIS/Documents/GeoHazard/t34r1_2.pdf</u> and <u>ftp://ftp.skagitcounty.net/GIS/Documents/GeoHazard/t35r1_2.pdf</u>

—.2010a. Aquifer Recharge Area Map – Category I Areas. SCC 14.24.310. January 11, 2010. Accessed at:

http://www.skagitcounty.net/GIS/ftpfiles/Documents/Critical_Areas/Category%201%20 Areas%20Aquifer%20Recharge%20Map.pdf

- ———. 2010b. FEMA Q3 100 Year Floodplain Map. Accessed at: <u>http://www.skagitcounty.net/GIS/ftpfiles/Documents/Flood/FEMA%20Q3%20100%20Y</u> <u>ear%20Floodplain%20Map.pdf</u>
- U.S. Army Corps of Engineers (USACE). 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. U.S. Waterways Experiment Station, Vicksburg, Mississippi.
 - ——. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0). Ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-08-13. Vicksburg, MS: US Army Engineer Research and Development Center.
- U.S. Fish and Wildlife Service. 2013. National Wetlands Inventory Map, Anacortes South, Washington. Washington, D.C.
- U.S. Geologic Survey (USGS). 1995. *Topographic Map for Anacortes South, Washington*. Washington, D.C.
- Washington Natural Heritage Program (WNHP). 2013. Special Status Plants Species and Habitats Data Search. Washington Natural Heritage Information System.
- Washington State Department of Ecology (Ecology), U.S. Army Corps of Engineers Seattle District, and U.S. Environmental Protection Agency Region 10. March 2006. Wetland Mitigation in Washington State – Part 1: Agency Policies and Guidance (Version 1).
 Washington State Department of Ecology Publication #06-6-011a. Olympia, WA.
- Washington Department of Fish and Wildlife (WDFW). 2013a. SalmonScape interactive salmonid stream mapping application. Available at: <u>http://wdfw.wa.gov/mapping/salmonscape/</u>
- ———. 2013b. Priority Habitats and Species Report for T34N R2E and T35N R2E. Report date 02/19/2013.
- X-Rite. 2009. Munsell Soil Color Charts. Munsell Color. Grand Rapids, Michigan.



Legend 2,000 4,000 ŃÌ Study area boundary Scale in Feet Shell Puget Sound Refinery **Site Vicinity** Job No. 33764101



Wetland Delineation Report and Critical Areas Assessment Crude by Rail East Gate Shell Puget Sound Refinery

Figure 1



Source: Natural Resources Conservation Service Web Soil Survey Online Mapper Tool (January 2013)

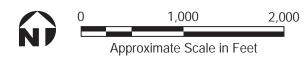


Figure 2 **NRCS Soil Survey**

Job No. 33764101

URS

Wetland Delineation Report and Critical Areas Assessment Crude by Rail East Gate Shell Puget Sound Refinery



This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

Source: U.S. Fish and Wildlife Service National Wetlands Inventory Online Mapper Tool (January 2013)

Figure 3 National Wetland Inventory

Wetland Delineation Report and Critical Areas Assessment Crude by Rail East Gate Shell Puget Sound Refinery

Job No. 33764101



APPENDIX A

WETLAND DESCRIPTION SUMMARIES

Wetland A

	Wetla	nd A	
	Wetla Wetla Image: state st		<image/> <caption></caption>
Description	Plot SP-A1	Sample I	Plot SP-A4
Location:	North end of study area		
Size:	2.02 acres		
Landscape:	Glaciomarine Terrace, 0-3%	slopes, concave to flat	
Sample Points:	Wetland: SP-A1,4		
	Upland: SP-A2,3,5		
Classification			
Cowardin Classes	5) - to use to al	
Water Regime			
	ses: Depressional and Slope		
Wetland Rating:	IV 50 feet		
Standard Buffer Width: Hydrology	50 feet		
Primary Sources:	Precipitation, Surface Runo	off, Channelized Flow, Shall	ow Subsurface Flow
Connectivity:	Water flows into Wetland A drains into a ditch that flows Texas Road. This ditch con	from developed areas of th s into another ditch along th	e refinery. The wetland e south side of North
Primary Indicators:	High Water Table (A2), Sat Roots (C3)	uration (A3), Oxidized Rhiz	ospheres along Living
Secondary Indicators:	Geomorphic Position (D2),	Shallow Aquitard (D3), FAC	C-Neutral Test (D5)

Common Ve	egetation				
Trees:		none			
Shrubs:		Himalayan blackberry, Douglas ha	awthorn, trailing blackb	erry	
Herbs:		Grazed Pasture: velvetgrass, colonial bentgrass, creeping bentgrass, tall fescue, crested dogtail, hare sedge, meadow foxtail, softrush, Canada thistle, reed canarygrass			
Prevalence	Index:	2.00 to 3.04			
Typical Soil	S				
Depth (in.)	Matrix Colo	or Redox Features	Texture	Coarse Fragments	
0-11	10YR 3/1	none	Silty Clay Loam	none	
11-18	2.5Y 5/2	10YR 4/6 10%	Silt Loam	none	
11-18		10YR 3/1 30%			
Hydric Soil Indicators:	Depleted be	low Dark Surface (A11), Depleted N	Matrix (F3)		
Functions P	Provided				
Water Quali	ty:	Low (10 points) – Sediment, nutrien	nt and toxicant removal		
Hydrology:		Low (7 points) – Surface runoff retention			
Habitat:		Low (9 points) – Organic matter pro	duction and export		

Wetland D



Description	Description					
Location:	North half of study area					
Size:	45.86 acres (total within the study area)	Forested wetland mosaic: 7.45 acres (wetland area is 70% of 10.64 acres) Non-mosaic wetland: 38.41 acres				
Landscape: Glaciomarine Terrace, 0-3% slop (hummocks and depressions) in		concave to flat in pasture areas, undulating sted mosaic area				
Sample Points:		5,8,11,12,15,16,18,21,22,24,26,28,30,33,34 ;9,10,13,14,17,19,20,23,25,27,29,31,32,35				

Classification	1				
Cowardin	Classes:	Palustrine Forested /Scrub-shrub/Emergent			
Wa	ter Regimes:	Seasonally Flooded / Temp	orarily Flooded / Satu	urated	
Hydrogeomo	rphic Classe	s: Depressional and Slope			
Wetland Rati	ng:				
Standard Buf	fer Width:	150 feet			
Hydrology					
Primary Sour	rces: P	recipitation, Surface Runoff, (Channelized Flow, Sh	allow Subsurface Flow	
Connectivity:	T T W	ater flows into Wetland D from developed areas of the refinery to the west. he northern portion of the wetland drains into a ditch along North Texas Road. he central portion of the wetland drains into two ditches. The south end of the etland drains into a ditch along the refinery access road. All of these hannels convey water east into Padilla Bay (Puget Sound).			
Primary Indic		urface Water (A1), High Wate xidized Rhizospheres along I		ion (A3), Algal Mats (B4),	
Secondary In		eomorphic Position (D2), Sha	allow Aquitard (D3), F	AC-Neutral Test (D5)	
Common Veg					
Trees:	a	ed alder, black cottonwood, Pacific crabapple, western redcedar, quaking spen			
Shrubs:	w	Nootka rose, salmonberry, snowberry, trailing blackberry, Douglas spirea, Sitka willow, sweetbrier rose, black twinberry, coast black gooseberry			
Herbs:	fe w tr	Grazed Pasture: velvetgrass, colonial bentgrass, creeping bentgrass, tall rescue, crested dogtail, meadow fescue, meadow foxtail, softrush, horsetail, white clover, birds-foot trefoil, small-flowered forget-me-not, cattail, Canada histle, reed canarygrass, wheatgrass, yellow glandweed, creeping buttercup Forest: slender-foot sedge, fringecup, large-leaved avens, stinging nettle,			
		water parsley, piggyback plant, lady fern, sword fern, slough sedge, mannagrass, willowherb			
Prevalence Ir		.47 to 3.35			
Typical Soils					
Depth (in.)	Matrix Color		Texture	Coarse Fragments	
<u> </u>	10YR 3/1 10YR 3/1	none 7.5YR 4/3 3%	Loam Loam	none 5% gravel	
10-10	2.5Y 5/2	10YR 4/4 8%	Sandy Loam	15% gravel	
	epleted below ark Surface (F	Dark Surface (A11), Loamy		*	
Water Quality: N		Moderate (14 points) – Sediment, nutrient and toxicant removal			
Hydrology:	Lov	Low (10 points) – Surface runoff retention			
Habitat:		Moderate (26 points) – Organic matter production and export; habitat structure and diversity; habitat for aquatic invertebrates and amphibians			

Wetland E



Secondary Indicators: Geomorphic Position (D2), Shallow Aquitard (D3), FAC-Neutral Test (D5)

Common Ve	egetation			
Trees: red alder, black cottonwood, Pacific crabapple				
Shrubs: English hawthorn, cascara, Nootka rose, salmonberry, snowb blackberry, Douglas spiraea, sweetbrier rose, black twinberry				
Herbs: Grazed Pasture: velvetgrass, colo fescue, crested dogtail, meadow fo Canada thistle, reed canarygrass,			xtail, softrush, white	clover, birds-foot trefoil,
		Forest: slender-foot sedge, fringec piggyback plant, lady fern, sword fe		ns, stinging nettle,
Prevalence Index:		2.70 to 3.10		
Typical Soil	S			
Depth (in.)	Matrix Color	Redox Features	Texture	Coarse Fragments
0-5	10YR 3/2	7.5YR 4/4 10%	Sandy Loam	0
5-13	10YR 4/2	7.5YR 3/4 20%	Sandy Loam	10% gr.
13-18	10YR 4/2	7.5YR 4/4 10%	Sandy Loam	15% gr., 10% cobble
Hydric Soil Indicators: Depleted below Dark Surface (A11), Depleted Matrix (F3), Redox Dark Surface (F			CDark Surface (F6)	
Functions P	Provided			
Water Quali	ty: Lo	ow (10 points) – Sediment, nutrient and toxicant removal		
Hydrology:	ydrology: Low (10 points) – Surface runoff retention			
Habitat:	L	ow (18 points) – Organic matter pro	duction and export; I	nabitat structure

Wetland I1

	e in freshwater portion Sample Plot SP-12 Image: sample Plot SP-12 Image: sample Plot SP-12		
Description Location:	South end of study area. Contained by the BNSF mainline on the south and		
<u></u>	East March Point Road on the east.		
Size:	2.48 acres (total within study area – extends offsite to the north		
Landscape:	Glaciomarine Terrace, 0-3% slopes, concave to flat		
Sample Points: Classification	Wetland: SP-I2 Upland: SP-I1		
Cowardin Classes	Estuarine Intertidal Emergent Seasonally Flooded / Temporarily Flooded / Saturated		
Water Regim	Regularly and Irregularly Flooded		
Hydrogeomorphic Clas	sses: Depressional and Slope Salt Water Tidal Fringe		
Wetland Rating:	II		
Standard Buffer Width:	: 300 feet		
Hydrology			
Primary Sources:	Precipitation, Surface Runoff, Channelized Flow, Shallow Subsurface Flow Tidal inundation and tidally influenced groundwater		
Connectivity:	Wetland I1 drains directly into Padilla Bay through Stream S which crosses under East March Point Road in two open-bottom concrete culverts.		
Primary Indicators:	High Water Table (A2), Saturation (A3), Oxidized Rhizospheres along Living Roots (C3)		
Secondary Indicators:	Geomorphic Position (D2)		

Common Ve	egetation					
Trees:		black cottonwood, red alder, Pacific crabapple, Douglas-fir [mainly located outside of study area]				
Shrubs:	Douglas spirea, Nootka rose, Sitka willow, Himalayan blackberry, snowberry [mainly located outside of study area]					
Herbs: Grazed Pasture: velvetgrass, colonial bentgrass, creeping bentgrass, fescue, crested dogtail, meadow foxtail, softrush, creeping buttercup						
Salt Marsh:		salt grass, woody saltwort, Baltic	c rush, spear saltbush, ben	tgrass, arrow-grass		
Prevalence	Index:	2.93				
Typical Soil	S					
Depth (in.)	Matrix Colo	r Redox Features	Texture	CFs/Remarks		
0-5	5Y 5/1	7.5YR 4/4 10%	Loam	old ditch spoils		
5-15	10YR 3/1	7.5YR 3/3 5%	Loam			
15-18	5Y 4/1	10YR 4/3 30%	Loamy Coarse Sand	5% gravel		
Hydric Soil Indicators:	Redox Dark	Surface (F6)				
Functions F	Provided (Fre	shwater portion)				
Water Quali	ity:Moderate	(14 points) – sediment, nutrient a	and toxicant retention			
Hydrology:	Low (8 po	Low (8 points) – surface runoff retention				
Habitat:	Moderate	Moderate (23 points)–Organic matter production and export; habitat structure and diversity				
Estuarine:		e salt marsh is fenced off from ca eding habitat for juvenile fish and	•	ools in this area		

Wetland I2



Description					
Location:	S	South end of study area			
Size: 0.35 acre					
Landscape: Glaciomarine Terrace, 3-5% slopes, flat					
Sample Points:	N	etland: SP-I3			
	U	pland: SP-14			
Classification					
	Classes:	Palustrine Emergent			
Water	r Regimes:	Temporarily Flooded / Saturate	d		
Hydrogeomorp	hic Classe	s: Slope			
Wetland Rating	:	IV			
Standard Buffe	r Width:	50 feet			
Hydrology					
Primary Source	es: F	Precipitation, Surface Runoff, Shal	low Subsurface Flow		
Connectivity:		U	igh flows, water sheet flows out of Wetland I2 a short distance into Ditch I conveys water east into Padilla Bay (Puget Sound).		
Primary Indicat	Primary Indicators:Surface Water (A1), High Water Table (A2), Saturation (A3), Oxidized Rhizospheres along Living Roots (C3)			A3), Oxidized	
Secondary Indi	cators: (Geomorphic Position (D2)			
Common Veget					
Trees:	r	one			
Shrubs:		one			
Herbs:		Grazed Pasture: velvetgrass, colo escue, crested dogtail, meadow for			
Prevalence Ind	ex: 3	.20			
Typical Soils					
	trix Color	Redox Features	Texture	Coarse Fragments	
	0YR 3/2		Loam		
	0YR 3/2 0YR 4/2	7.5YR 4/6 10% 10YR 4/2 30%	Loam Sandy Loam	15% gravel 10% gravel	
Hydric Soil Indicators: De	pleted belo	w Dark Surface (A11), Depleted M	-	<u>v</u>	
Functions Prov		(2 pointo) Von low function			
Water Quality:		w (2 points) – Very low function			
Hydrology:		w (2 points) – Very low function			
Habitat:	Lo	w (9 points) – Organic matter proc	duction and export		

Wetland J



Sample Plot SP-J2		Plot SP-J2	Sample I	Plot SP-J2	
Description	1				
Location:		South end of study area			
Size:		0.13 acre (within the study a	area); entire wetland is 0.92	acre	
Landscape	:	Glaciomarine Terrace, 0-3%	6 slopes, concave to flat		
Sample Poi	ints:	Wetland: SP-J2			
		Upland: SP-J1			
Classificati	on				
Cowardin	Classes	Palustrine Emergent			
W	later Regime	s: Seasonally Flooded / T	emporarily Flooded / Satura	ted	
Hydrogeom	norphic Class	ses: Depressional and Slope	9		
Wetland Ra	iting:	IV			
Standard B	uffer Width:	50 feet			
Hydrology					
Primary So	urces:	Precipitation, Surface Rund	off, Shallow Subsurface Flov	V	
Connectivit	ty:	At high flows, water sheet flows out of Wetland J a short distance into a ditch that conveys water east into Padilla Bay (Puget Sound).			
Primary Ind	licators:	Surface Water (A1), High Water Table (A2), Saturation (A3)			
Secondary	Indicators:	Geomorphic Position (D2), FAC-Neutral Test (D5)			
Common V	egetation				
Trees:		none			
Shrubs:		none			
Herbs:		Grazed Pasture: velvetgra fescue, meadow foxtail, so	iss, colonial bentgrass, cree ftrush	ping bentgrass, tall	
Prevalence	Index:	2.90			
Typical Soi	ls				
Depth (in.)	Matrix Colo		s Texture	CFs/Remarks	
0-7	10YR 3/2	10YR 4/4 5%	Loam	old fill material	
7-10	2.5Y 4/2	10YR 4/4 10%	Sandy Clay Loan	n fill; 15% gravel	
10-18	10YR 3/2	7.5YR 3/4 5%	Loam		
18-20	10Y 5/1	10YR 4/4 15%	Sandy Loam		
Hydric Soil Indicators:	Redox Dark	Surface (F6)			
Functions I					
Water Qual	ity:	_ow (4 points) – Very low fu	nction		
Hydrology:		₋ow (10 points) – Surface ru	noff retention		
Habitat:		₋ow (10 points) – Organic m	atter production and export		

Wetland N



Description					
Location:	Southeast corner of study area along Padilla Bay				
Size: 0.04 acres					
Landscape:	Padilla Bay shoreline				
Sample Points:	none				
Classification					
Cowardin Clas	ses: Estuarine Intertidal Emergent				
Water Re	jimes: Regularly Flooded				
Hydrogeomorphic	Classes: Salt Water Tidal Fringe				
Wetland Rating:	ll				
Standard Buffer Wi	dth: 300 feet				
Hydrology					
Primary Sources:	Tidal inundation				
Connectivity:	On Padilla Bay				
Primary Indicators:	Surface Water (A1), Water marks (B1), Sediment deposits (B2), Drift Deposits (B3), Surface soil cracks (B6), Oxidized rhizospheres along living roots (C3),				
Secondary Indicato	rs: Drainage patterns (B10), Geomorphic position (D2), FAC-neutral test (D5)				
Common Vegetatio	n				
Trees:	none				
Shrubs:	none				
Herbs:	Lyngbye's sedge				
Prevalence Index:	1.0				
Typical Soils					
Depth (in.) Matrix	Color Redox Features Texture CFs/Remarks				

Hydric Soil	Soils not described.	
Indicators:	Solis not described.	

Functions Provided

Functional analysis not available for Salt Water Tidal Fringe wetlands.

Wetland O

Ē

	and is an
Wetland O (lower right)	from South March Point Road
Description Location:	Southeast corner of study area, between BNSF mainline and East March Point
	Road
Size:	0.18 acres
Landscape:	Located in a closed depression created by embankments for the road and railroad and separated from Padilla Bay by a manmade berm.
Sample Points:	none
Classification Cowardin Classes	: Palustrine Emergent
Water Regime	
Hydrogeomorphic Clas	-
Wetland Rating:	
Standard Buffer Width:	150 feet
Hydrology	
Hydrology Primary Sources:	Precipitation, surface runoff from road and railroad, tidally influenced groundwater
Primary Sources:	groundwater No apparent surface connection to Padilla Bay, but the wetland is separated
Primary Sources: Connectivity: Primary Indicators: Secondary Indicators:	groundwater No apparent surface connection to Padilla Bay, but the wetland is separated from the bay by a manmade berm. Groundwater is likely tidally influenced.
Primary Sources: Connectivity: Primary Indicators: Secondary Indicators: Common Vegetation	groundwater No apparent surface connection to Padilla Bay, but the wetland is separated from the bay by a manmade berm. Groundwater is likely tidally influenced. High water table (A2) Geomorphic position (D2), FAC-neutral test (D5)
Primary Sources: Connectivity: Primary Indicators: Secondary Indicators: Common Vegetation Trees:	groundwater No apparent surface connection to Padilla Bay, but the wetland is separated from the bay by a manmade berm. Groundwater is likely tidally influenced. High water table (A2) Geomorphic position (D2), FAC-neutral test (D5) none
Primary Sources: Connectivity: Primary Indicators: Secondary Indicators: Common Vegetation Trees: Shrubs:	groundwater No apparent surface connection to Padilla Bay, but the wetland is separated from the bay by a manmade berm. Groundwater is likely tidally influenced. High water table (A2) Geomorphic position (D2), FAC-neutral test (D5) none none
Primary Sources: Connectivity: Primary Indicators: Secondary Indicators: Common Vegetation Trees: Shrubs: Herbs:	groundwater No apparent surface connection to Padilla Bay, but the wetland is separated from the bay by a manmade berm. Groundwater is likely tidally influenced. High water table (A2) Geomorphic position (D2), FAC-neutral test (D5) none none cattails
Primary Sources: Connectivity: Primary Indicators: Secondary Indicators: Common Vegetation Trees: Shrubs:	groundwater No apparent surface connection to Padilla Bay, but the wetland is separated from the bay by a manmade berm. Groundwater is likely tidally influenced. High water table (A2) Geomorphic position (D2), FAC-neutral test (D5) none none
Primary Sources: Connectivity: Primary Indicators: Secondary Indicators: Common Vegetation Trees: Shrubs: Herbs: Prevalence Index:	groundwater No apparent surface connection to Padilla Bay, but the wetland is separated from the bay by a manmade berm. Groundwater is likely tidally influenced. High water table (A2) Geomorphic position (D2), FAC-neutral test (D5) none none cattails 1.0
Primary Sources: Connectivity: Primary Indicators: Secondary Indicators: Common Vegetation Trees: Shrubs: Herbs: Prevalence Index: Typical Soils	groundwater No apparent surface connection to Padilla Bay, but the wetland is separated from the bay by a manmade berm. Groundwater is likely tidally influenced. High water table (A2) Geomorphic position (D2), FAC-neutral test (D5) none none cattails 1.0
Primary Sources: Connectivity: Primary Indicators: Secondary Indicators: Common Vegetation Trees: Shrubs: Herbs: Prevalence Index: Typical Soils	groundwater No apparent surface connection to Padilla Bay, but the wetland is separated from the bay by a manmade berm. Groundwater is likely tidally influenced. High water table (A2) Geomorphic position (D2), FAC-neutral test (D5) none none cattails 1.0
Primary Sources: Connectivity: Primary Indicators: Secondary Indicators: Common Vegetation Trees: Shrubs: Herbs: Prevalence Index: Typical Soils Depth (in.) Matrix Column Hydric Soil Indicators: Soils not de	groundwater No apparent surface connection to Padilla Bay, but the wetland is separated from the bay by a manmade berm. Groundwater is likely tidally influenced. High water table (A2) Geomorphic position (D2), FAC-neutral test (D5) none none cattails 1.0 or Redox Features Texture CFs/Remarks
Primary Sources: Connectivity: Primary Indicators: Secondary Indicators: Common Vegetation Trees: Shrubs: Herbs: Prevalence Index: Typical Soils Depth (in.) Matrix Column Hydric Soil Indicators: Soils not defined	groundwater No apparent surface connection to Padilla Bay, but the wetland is separated from the bay by a manmade berm. Groundwater is likely tidally influenced. High water table (A2) Geomorphic position (D2), FAC-neutral test (D5) none none none or Redox Features Texture CFs/Remarks escribed.
Primary Sources: Connectivity: Primary Indicators: Secondary Indicators: Common Vegetation Trees: Shrubs: Herbs: Prevalence Index: Typical Soils Depth (in.) Matrix Cole Hydric Soil Indicators: Soils not defined Functions Provided Water Quality: High (24	groundwater No apparent surface connection to Padilla Bay, but the wetland is separated from the bay by a manmade berm. Groundwater is likely tidally influenced. High water table (A2) Geomorphic position (D2), FAC-neutral test (D5) none none none or Redox Features Texture CFs/Remarks escribed.
Primary Sources: Connectivity: Primary Indicators: Secondary Indicators: Common Vegetation Trees: Shrubs: Herbs: Prevalence Index: Typical Soils Depth (in.) Matrix Coll Hydric Soil Indicators: Soils not defined Functions Provided Water Quality: High (24 Hydrology: Moderate	groundwater No apparent surface connection to Padilla Bay, but the wetland is separated from the bay by a manmade berm. Groundwater is likely tidally influenced. High water table (A2) Geomorphic position (D2), FAC-neutral test (D5) none none none or Redox Features Texture CFs/Remarks escribed.

Wetland Q

Wetland Q from S. Marsh Point Road Looking west from east end of Wetland Q				
Description Location: South end of study area, between BNSF mainline and South March Point Roa	d			
Size: 1.01 acres	<u> </u>			
Landscape: Located in a swale created by embankments for the road and railroad.	—			
Sample Points: Wetland: SP-Q1 Upland: none due to adjacent embankments				
Classification				
Cowardin Classes: Palustrine forested/scrub-shrub				
Water Regimes: Seasonally flooded / saturated	_			
Hydrogeomorphic Classes: Depressional				
Wetland Rating: III	_			
Standard Buffer Width: 150 feet				
Hydrology				
Primary Sources: Precipitation, surface runoff from road and railroad, channelized flow				
Connectivity:Drains into a culvert under the railroad bed which connects to Stream I1.Stream I1 flows into Padilla Bay (Puget Sound).				
Primary Indicators: Water marks (B1), Sediment deposits (B2), Surface soil cracks (B6), Oxidized rhizospheres along living roots (C3),	l			
Secondary Indicators: Water-stained leaves (B9), Drainage patterns (B10), Dry-season water table (C2), Geomorphic position (D2)				
Common Vegetation				
Trees: Pacific willow, Sitka willow, Scouler's willow				
Shrubs: Douglas spiraea, Nootka rose, salmonberry, Pacific crabapple, black twinberr blackberry, snowberry slough sedge, reed canarygrass, cattails, bentgrass	у,			
Prevalence Index: 2.03 Typical Soils				
Depth (in.) Matrix Color Redox Features Texture CFs/Remarks				
0-6 10YR 3/2 7.5YR 4/6 15% Silt loam				
6-14 10YR 4/2 7.5YR 4/6 20% Silty clay loam 14-20 10GY 5/1 10YR 4/4 20% Silty clay loam Very moist				
14-20 10GY 5/1 10YR 4/4 20% Silty clay loam Very moist Hydric Soil Indicators: Depleted matrix (F3); Redox dark surface (F6)				
Functions Provided				
Water Quality: Moderate (23 points) – sediment, nutrient and toxicant retention				
Water Quality: Moderate (23 points) – sediment, nutrient and toxicant retention Hydrology: Low (8 points) – surface runoff retention				

Wetland R

	Plot SP-R1	Samp	With the second secon	
Description	Couth and of study and			
Location:	South end of study area, w	est of the rail spur		
Size:	0.10 acre			
Landscape:	Glaciomarine Terrace, 0-3	•		
Sample Points:	Wetland: SP-R1 Upland	: SP-R2		
Classification Cowardin Classes	: Palustrine Emergent			
Water Regime	_	Socopally Saturated		
	-	Seasonally Saturated		
Hydrogeomorphic Clas	•			
Wetland Rating:	IV 50 feat			
Standard Buffer Width: Hydrology	50 feet			
Primary Sources:	Precipitation, Surface Rur	off		
Connectivity:		depression. At high flows,	runoff flows into Ditch E2, Bay.	
Primary Indicators:	Algal mat (B4), Oxidized r	hizospheres along living ro	oots (C3)	
Secondary Indicators:	Water-stained leaves (B9)	, Geomorphic position (D2	2)	
Common Vegetation				
Trees:	none			
Shrubs:	none			
Herbs:	Grazed Pasture: velvetgr	ass, colonial bentgrass, ta	Il fescue, meadow foxtail	
Prevalence Index:	3.08			
Typical Soils				
Depth (in.) Matrix Col 0-5 10YR 3/1.3			CFs/Remarks	
0-5 10YR 3/1.5 5-10 10YR 3/1.5		Loam Loam	10% gravel 20% gravel	
10-18 5Y 5/1.5	7.5YR 4/6; 20%			
indicators:	elow dark surface (A11); De	pleted matrix (F3)		
Functions Provided				
Water Quality: Low (4 pc	,	·		
	pints) – surface runoff retent	lon		
Habitat: Low (9 pc	Habitat: Low (9 points)			

Wetland S



	odilipic			Sample i le	7601 01	
Description						
Location:	Southwest corner of study area, west of the rail spur					
Size:		0.86 acre (total within study area); Wetland extends offsite to the west				
Landscape:		Glaciomarine Ter	rrace, 0-3% slo	pes, concave to flat; undu	ulating in the forest	
Sample Poin	its:	Wetland: SP-S1	Upland: SP-	S2		
Classificatio	n					
Cowardin	Classes:	Palustrine for only)	rested, scrub-s	nrub and emergent (study	/ area is emergent	
Wa	ater Regime	s: Seasonally and occasionally flooded / Seasonally saturated				
Hydrogeomorphic Classes: Depressional and Slope						
Wetland Rati	ing:	II				
Standard Bu	ffer Width:	300 feet				
Hydrology						
Primary Sou	rces:	Precipitation, Su	rface runoff, Se	easonal high groundwate	r table	
Connectivity: Drains into ditch E2, which drains into Stream I1, which drains into Padilla (Puget Sound).			drains into Padilla Bay			
Primary Indi	Primary Indicators: Oxidized rhizospheres along living roots (C3)					
Secondary Indicators: Water-stained leaves (B9), Geomorphic position (D2)						
Common Vegetation						
Trees:			black cottonwood, quaking aspen, western red cedar, red alder			
Shrubs:		salmonberry, Do	uglas spiraea,			
Herbs:	Grazed Pasture: velvetgrass, tall fescue, meadow foxtail, sweet vernal grass Forest: slough sedge			il, sweet vernal grass		
Prevalence I	ndex:	> 3.0				
Typical Soils						
	Matrix Colo		Features	Texture	CFs/Remarks	
<u> </u>	10YR 3/1 5Y5/1		<u>4/4; 5%</u> 5/6; 30%	Loam	20% gravel 10% gravel	
Hydric Soil	515/1	IUTR	5/0, 50%	Loam	10% graver	
Indicators:	Redox dark	surface (F6); Dep	leted matrix (F	3)		
Functions P	rovided					
Water Qualit	y: High (22 p	oints) – sedimen	t, nutrient and f	oxicant retention		
Hydrology:	Moderate	(10 points) – surf	ace runoff rete	ntion		
Habitat:		High (22 points) – Organic matter production and export; habitat structure and diversity; habitat for aquatic invertebrates and amphibians				
		-				

Wetland T

Sample	Plot SP-T1	Finite States of the states of	Peptor SP-T1		
Description					
Location:	East side of study area, no	rth of 4 th Street			
Size:	0.12 acre				
Landscape:	Glaciomarine Terrace, 0-39	% slopes, concave to flat			
Sample Points:	Wetland: SP-T1 Upland:	SP-T2			
Classification					
Cowardin Classes					
Water Regime		onally flooded			
	Hydrogeomorphic Classes: Depressional				
Wetland Rating:	ng: III				
Standard Buffer Width:	150 feet				
Hydrology Primary Sources:	Precipitation Surface runo	ff Seasonal high groundw	vater table		
Connectivity:	Precipitation, Surface runoff, Seasonal high groundwater table Wetland T is isolated, but groundwater movements may discharge to ditches or				
connectivity.	an intermittent stream that				
Primary Indicators:	Oxidized rhizospheres alor surface	ng living roots (C3), Spars	ely vegetated concave		
Secondary Indicators:	Geomorphic position (D2)				
Common Vegetation	black optionwood, qualities	actors westers red ac de	r rod alder his lost monte		
Trees:	black cottonwood, quaking	•	. .		
Shrubs:	salmonberry, Pacific craba				
Herbs:	lady fern, creeping butterc	up, large leat avens, tringe	ecup, bluegrass		
Prevalence Index:	> 3.0				
Typical Soils	Daday Castures	Tasstan	CEo/Domorko		
Depth (in.) Matrix Cold 0-10 10YR 3/1	pr Redox Features 10YR 3/3; 2	Silt loam	CFs/Remarks 15% gravel		
10-16 2.5Y 4/2	10YR 4/4; 15%	Loam	30% gravel		
indicators.	surface (F6); Depleted belo	w dark surface (A11)			
Functions Provided	pointo) podimont autricat	and tovicent retention			
	points) – sediment, nutrient				
	(10 points) – surface runoff (12 points) – Organic matte		habitat structure and		

Wetland U



Description				
Location:	East side of study area, north of 4 th Street			
Size:	0.24 acre			
Landscape:	Glaciomarine Terrace, 0-3% slopes, concave to flat			
Sample Points:	Wetland: SP-U1 Upland: SP-U2			
Classification				
Cowardin Classes	Palustrine Emergent			
Water Regime	s: Occasionally Flooded / Seasonally Saturated			
Hydrogeomorphic Clas	ses: Depressional			
Wetland Rating:	IV			
Standard Buffer Width:	50 feet			
Hydrology				
Primary Sources:	Precipitation, Surface Runoff			
Connectivity:	Wetland U is in a shallow depression. At high flows, surface water likely sheet flows into Wetland V, thence into Ditch D1, which flows into Padilla Bay.			
Primary Indicators:	Oxidized rhizospheres along living roots (C3)			
Secondary Indicators:	Geomorphic position (D2)			
Common Vegetation				
Trees:	none			
Shrubs:	none			
Herbs:	Grazed Pasture: velvetgrass, colonial bentgrass, tall fescue, meadow foxtail, white clover			
Prevalence Index:	3.01			
Typical Soils				
Depth (in.) Matrix Col				
0-9 10YR 3/2 9-16 2.5Y 5/2	10YR 4/3; 5% Loam 5% gravel 10YR 4/4; 20% Clay Loam 15% gravel			
010 2.010/2				
Hydric Soil Indicatoro, Depleted m	trix (F3)			
inuicators.				
Functions Provided				
inuicators.	nts) – low function			
Functions Provided Water Quality: Low (8 pc	ints) – low function oints) – surface runoff retention			

Wetland V



Description					
Location:	East side of study area, north of 4 th Street				
Size:	1.07 acre	1.07 acre			
Landscape:	Glaciomarine Ter	rrace, 0-3% slopes, co	oncave to flat		
Sample Points:	Wetland: SP-V1	Upland: SP-V2			
Classification					
Cowardin Classes	: Palustrine Er	nergent			
Water Regime	es: Occasionally	Flooded / Seasonally	Saturated		
Hydrogeomorphic Clas	ses: Depressional	and Slope			
Wetland Rating:	IV				
Standard Buffer Width:	50 feet				
Hydrology					
Primary Sources:	Precipitation, Su	rface Runoff, Shallow	Subsurface Flow		
Connectivity:	flows, surface wa	a narrow bench/shall ater likely flows east in uth into Ditch D1. The	nto the ditch along		
Primary Indicators:	Oxidized rhizosp	heres along living roo	ots (C3)		
Secondary Indicators:	Geomorphic pos	ition (D2)			
Common Vegetation Trees:	none				
Shrubs:	none				
Herbs:	Grazed Pasture white clover, Ker	: velvetgrass, colonia ntucky bluegrass	l bentgrass, tall fes	scue, meadow foxtail,	
Prevalence Index:	3.02				
Typical Soils					
Depth (in.) Matrix Colo		Features	Texture	CFs/Remarks	
0-7 10YR 3/2 7-16 5Y 5/1	10YR	4/3; 3%	Loam	15% gravel 10% cobble,	
-10 515/1	10YR	5/6; 20%	Clay Loam	25% gravel	
Hydric Soil Indicators: Depleted ma	atrix (F3)				

inuicators.						
Functions Pl	Functions Provided					
Water Quality: Low (4 points) – low function						
Hydrology:	Low (7 points) – surface runoff retention					
Habitat:	Low (13 points) – organic matter production and export					

Wetland W



Description	1				
Location:	E	ast side of study nd 4 th Street	/ area, near f	he northwest corner of Eas	st March Point Road
Size:	0	.06 acre			
Landscape	: G	laciomarine Ter	race, 0-3% s	lopes, concave to flat	
Sample Poi	ints: W	letland: SP-W1	Upland: S	P-W2	
Classificati	on				
Cowardin	Classes:	Palustrine for	ested		
W	later Regimes:	Seasonally a	nd occasiona	ally flooded	
Hydrogeom	norphic Classe	s: Depressional			
Wetland Ra	ting:	III			
Standard B	uffer Width:	150 feet			
Hydrology					
Primary So	urces: F	Precipitation, Su	rface runoff,	Seasonal high groundwate	r table
Connectivit	ity: At high flows, runoff may flow into a ditch along East March Point Ro discharges to Padilla Bay (Puget Sound).			rch Point Road, which	
Primary Ind		Dxidized rhizosp surface, Sedimer		living roots (C3), Sparsely v 32)	vegetated concave
Secondary	Indicators: (Geomorphic pos	ition (D2), W	ater-stained leaves (B9), S	hallow aquitard (D3)
Common V					
Trees:				spen, Scouler's willow	
Shrubs:	S	Salmonberry, Pa	cific crabapp	le, black twinberry, Indian	plum, trailing blackberry
Herbs:		ady fern, fringe	cup		
Prevalence Index:		8.09			
Typical Soi	ls				
Depth (in.)	Matrix Color	Redox	Features	Texture	CFs/Remarks
1-0					Litter
0-9	10YR 3/1		<u>4/4; 10%</u>	Silty clay loam	400/
<u>9-16</u>	10Y 4/1	7.5YR	5/6; 30%	Clay loam	10% gravel
Hydric Soil Indicators:	Redox dark st	urface (F6); Loar	my gleyed m	atrix (F2)	
Functions I					
-				d toxicant retention	
Hydrology:	Moderate (1	10 points) – surfa	ace runoff re	tention	
Habitat:	Moderate (1 diversity	17 points) – Org	anic matter	production and export; hab	itat structure and

Wetland Y



	-			· · · · ·	
Description					
Location:		East side of stud	y area, north o	f 4 th Street	
Size:		0.42 acre			
Landscape	:	Glaciomarine Te	rrace, 0-3% slo	pes, concave to flat	
Sample Poi	nts:	Wetland: SP-Y1	Upland: SP-	-Y2	
Classificati	on				
Cowardin	Classes	Palustrine Er	nergent		
W	later Regime	s: Occasionally	Flooded / Sea	sonally Saturated	
Hydrogeom	orphic Class	ses: Depressiona	l and Slope		
Wetland Ra	ting:	IV			
Standard B	uffer Width:	50 feet			
Hydrology					
Primary So	urces:	Precipitation, Su	rface Runoff, S	Shallow Subsurface Flow	
Connectivity: Wetland Y is in a narrow, shallow depression. At high flows, surface wat flows east into the ditch along East March Point Road. This ditch flows in Padilla Bay.					
Primary Ind	licators:	none (no water a	at time of inspe	ction due to seasonality	of wetland hydrology)
Secondary	Indicators:	Geomorphic pos	ition (D2), othe	er: deep hoof prints and r	ruts
Common V	egetation				
Trees:		none			
Shrubs:		none			
Herbs:		Grazed Pasture white clover, Ker	-	colonial bentgrass, tall fe ss	scue, meadow foxtail,
Prevalence	Index:	3.03			
Typical Soi	ls				
Depth (in.)	Matrix Colo		Features	Texture	CFs/Remarks
0-8	10YR 3/1		4/3; 8%	Loam	20% gravel
8-16	10YR 4/2		4/4; 10%	Loam	20% gravel, charcoal
<u>16-18</u>	5Y 5/1.5	10YR	4/4; 15%	Clay Loam	20% gravel
Hydric Soil Indicators:	Depleted Ina	atrix (F3), Redox I	Dark Surface (I	=6)	
Functions I					
Water Qual	ity:Low (4 po	ints) – Iow functio	n		
Hydrology:	Low (7 po	ints) – surface ru	noff retention		
Habitat:	Low (10 p	oints) – organic n	natter production	on and export	

Wetland Z



Description					
Location:		East side of stud	y area, north c	of 4 th Street	
Size:		0.64 acre			
Landscape	1	Glaciomarine Te	rrace, 0-3% slo	opes, concave to flat	
Sample Poi	nts:	Wetland: SP-Z1	Upland: SP	-Z2	
Classificati	on				
Cowardin	Classes:	Palustrine Er	mergent		
W	/ater Regime	s: Occasionally	Flooded / Sea	asonally Saturated	
Hydrogeom	orphic Class	ses: Depressiona	I and Slope		
Wetland Ra	ting:	IV			
Standard B	uffer Width:	50 feet			
Hydrology					
Primary So	urces:	Precipitation, Su	rface Runoff,	Shallow Subsurface Flow	
Connectivit	ty:	east into the dito		ession. At high flows, surfa ⁄larch Point Road. This dito	
		Bay.			
Primary Ind		Oxidized Rhizos	,		
Secondary		Geomorphic pos	sition (D2), oth	er: deep hoof prints	
Common V	egetation	2020			
Trees:		none			
Shrubs:		none			
Herbs:		Grazed Pasture Kentucky bluegr		tail, colonial bentgrass, tal	l fescue, white clover,
Prevalence	Index:	>3.0			
Typical Soi	ls				
Depth (in.)	Matrix Colo		Features	Texture	CFs/Remarks
0-8	10YR 3/1		R 4/6; 1%	Silt Loam	
8-13	10YR 4/2		3/4; 10%	Loam	5% gravel
13-18	5Y 5/2	10YR	4/6; 30%	Sandy Loam	
Hydric Soil Indicators:	Redox Dark	Surface (F6)			
Functions					
Water Qual	ity:Low (6 po	ints) – low functio	on		
Hydrology:	Low (10 p	oints) – surface r	unoff retention		
Habitat:	Low (12 p	oints) – organic n	natter producti	on and export	

Wetlands E3, E4, E5 & E6



Description			
Location:	South end of study area, south of 4 th Street		
Size:	E3: 0.17 acre	E4: 0.05 acre	
	E5: 0.18 acre	E6: 0.20 acre	
Landscape:	Glaciomarine Terrace, 0-3	3% slopes, concave to flat	
Sample Points: Wetland E5: SP-5E1 (other wetlands are similar) Upland: SP-5E2			
Classification			
Cowardin Class	es: Palustrine Emergent		
Water Regi	mes: Temporarily Flooded	/ Saturated	
Hydrogeomorphic Cl	lasses: Depressional and Slo	ре	
Wetland Rating:	IV		
Standard Buffer Widt	th: 50 feet		
Hydrology			
Primary Sources:	Precipitation, Surface Ru	noff, Shallow Subsurface Flow	
Connectivity:	southeasterly direction a	t flows out of the shallow depressional wetlands in a nd into Ditch E3. This ditch conveys water to Stream Padilla Bay (Puget Sound).	
Primary Indicators:	none (no water at time of hydrology)	inspection, May 9 th ,due to seasonality of wetland	
Secondary Indicators	s: Geomorphic Position (D2), Other: deep hoof prints	

Depth (in.) Matrix Color Redox Features Texture CFs/Remark 0-12 10YR 3/1.5 10YR 4/4 5% Loam 20% gravel, chair 12-18 2.5Y 5/2 10YR 5/6 10% Sandy Loam 10%cobble,20%gravel		none			
Depth (in.) Matrix Color Redox Features Texture CFs/Remark 0-12 10YR 3/1.5 10YR 4/4 5% Loam 20% gravel, char 12-18 2.5Y 5/2 10YR 5/6 10% Sandy Loam 10%cobble,20%gravel			0 /	0,	escue, meadow foxtail,
0-12 10YR 3/1.5 10YR 4/4 5% Loam 20% gravel, char 12-18 2.5Y 5/2 10YR 5/6 10% Sandy Loam 10%cobble,20%gravel	Index:	3.00			
0-12 10YR 3/1.5 10YR 4/4 5% Loam 20% gravel, char 12-18 2.5Y 5/2 10YR 5/6 10% Sandy Loam 10%cobble,20%gravel	S				
12-18 2.5Y 5/2 10YR 5/6 10% Sandy Loam 10%cobble,20%g	Matrix Colo	or	Redox Features	Texture	CFs/Remarks
	10YR 3/1.5	5	10YR 4/4 5%	Loam	20% gravel, charcoa
	2.5Y 5/2		10YR 5/6 10%	Sandy Loam	10%cobble,20%grave
10Y 5/1 2%			10Y 5/1 2%		
		s Matrix Colo 10YR 3/1.5	Grazed white clo Index: 3.00 s Matrix Color 10YR 3/1.5	none Grazed Pasture: velvetgrass, colo white clover, Kentucky bluegrass, Index: 3.00 s Matrix Color Redox Features 10YR 3/1.5 10YR 4/4 5% 2.5Y 5/2 10YR 5/6 10%	none Grazed Pasture: velvetgrass, colonial bentgrass, tall fe white clover, Kentucky bluegrass, crested dog's-tail Index: 3.00 s Matrix Color Redox Features Texture 10YR 3/1.5 10YR 4/4 5% Loam 2.5Y 5/2 10YR 5/6 10% Sandy Loam

I unclions I tovide	
Water Quality:	Low (8 points) – Low function
Hydrology:	Low (7 points) – Surface runoff retention
Habitat:	Low (10 points) – Organic matter production and export

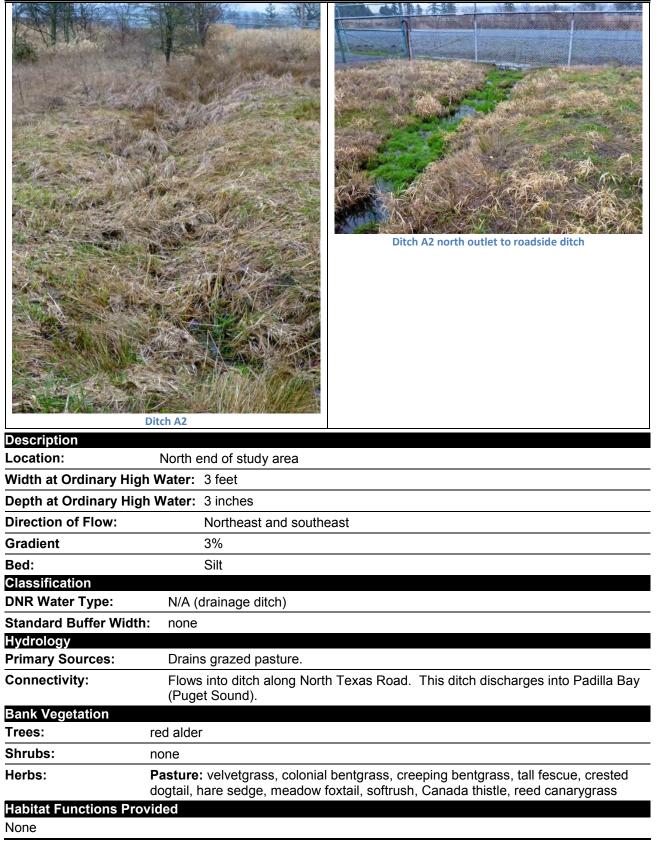
APPENDIX B

STREAM AND DITCH DESCRIPTION SUMMARIES

Ditch A1

	Ditei	
Linear Linear	section of Ditch A1	Central section of Ditch A1 looking west
Description	on of Ditch A1 looking east	Lower section of Ditch A1
Location:	North end of study area	
Width at Ordinary Hi	gh Water: 3 feet	
Depth at Ordinary Hi	gh Water: 5 inches	
Direction of Flow:	East and southeast	
Gradient	3%	
Bed:	Silt, Sand	
Classification		
DNR Water Type: Standard Buffer Wid	N/A (drainage ditch)	
Hydrology	th: none	
Primary Sources:	Drains developed areas of the	he refinery, as well as Wetland A.
Connectivity:	Flows into the extreme north	neast corner of Wetland D. This water flows into a nouth side of North Texas Road. This ditch discharges
Bank Vegetation		
Trees:	red alder (lower section)	
Shrubs:		perry, trailing blackberry (lower section)
Herbs:	dogtail, hare sedge, meadow fo	bentgrass, creeping bentgrass, tall fescue, crested oxtail, softrush, Canada thistle, reed canarygrass
Habitat Functions Pr		

Ditch A2



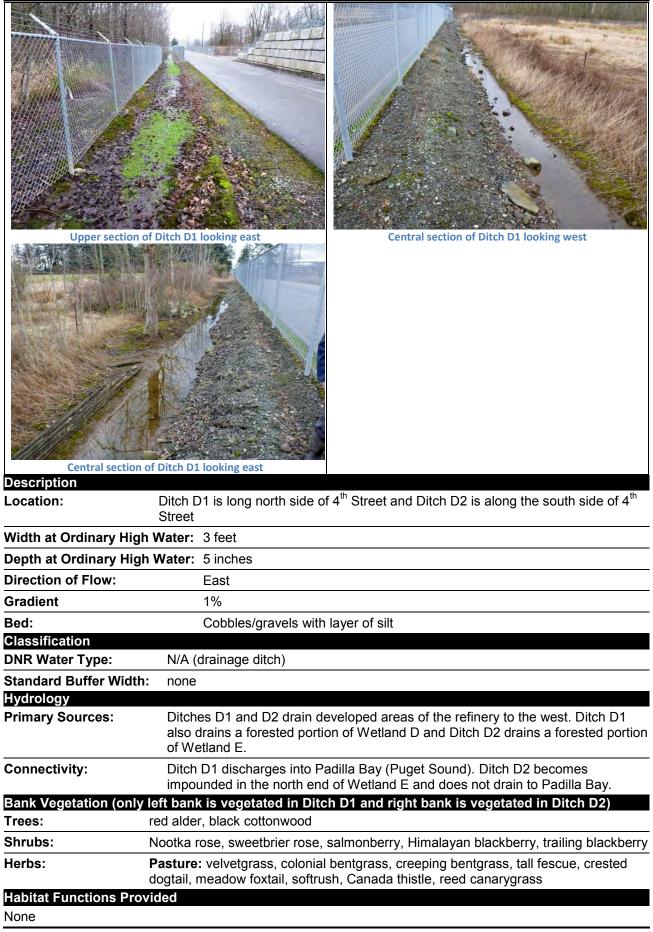
Ditch A3

	Ditch A3	<image/>
Description		
Location:	North end of study area	
Width at Ordinary Hig		
Depth at Ordinary Hig	-	
Direction of Flow:	South and east	
Gradient	3%	
Bed:	Silt	
Classification		
DNR Water Type:	N/A (drainage ditch)	
Standard Buffer Widt Hydrology	h: none	
Primary Sources:	Drains grazed pasture and	pipeline metering station.
Connectivity:	Connected to Ditch A2 by a	culvert.
Bank Vegetation		
Trees:	none	
Shrubs:	none	
Herbs:	dogtail, hare sedge, meadow f	bentgrass, creeping bentgrass, tall fescue, crested oxtail, softrush, Canada thistle, reed canarygrass
Habitat Functions Pro	ovided	
None		

Ditch B

<image/>		V	Vest end of Ditch B la	booking west
	d of study area			
Width at Ordinary High Water: 1	.5 feet			
Depth at Ordinary High Water: 2	inches			
Direction of Flow:	East and southeast			
Gradient 2	2%			
Bed: S	Silt, Sand with debris			
Classification				
	ainage ditch)			
Standard Buffer Width: none				
Hydrology Draine Sourcest	developed f (
	developed areas of t			
Connectivity: Flows a south in	along the north side on to a grassy field.	or 8 th Street. D	irainage become i	instinct as the turns
Bank Vegetation				
Trees: none				
Shrubs: none				
	d, oxeye daisy, com	mon mullein		
Habitat Functions Provided None				

Ditch D1/D2



Ditch D3



Lower section of Ditch D3

Description					
Location:	Center of study area				
Width at Ordinary High	Water: 6 feet (difficult to determine due to trampling of bank)				
Depth at Ordinary High	Water: 6 inches				
Direction of Flow:	North then east				
Gradient	1%				
Bed:	Silt				
Classification					
DNR/Skagit County:	N/A (drainage ditch)				
Standard Buffer Width	h: none				
Hydrology					
Primary Sources:	Drains developed areas of the refinery to the west, as well as Wetland D. A permitted NPDES outfall is a primary source of water for the feature.				
Connectivity:	This ditch does not have a defined channel for its entire length. It appears to sheet flow through the forested wetland mosaic, eventually discharging into Padilla Bay (Puget Sound).				
Bank Vegetation					
Trees:	red alder, black cottonwood, Pacific crabapple				
Shrubs:	Nootka rose, salmonberry, snowberry, Himalayan blackberry, trailing blackberry, Douglas spirea, Sitka willow, sweetbrier rose,				
Herbs:	Grazed Pasture: velvetgrass, colonial bentgrass, creeping bentgrass, tall fescue, crested dogtail, meadow fescue, meadow foxtail, softrush, horsetail, white clover, birds-foot trefoil, small-flowered forget-me-not, cattail, Canada thistle, reed canarygrass, wheatgrass, yellow glandweed, creeping buttercup				
Habitat Functions Prov	vided				
Limited aquatic habitat of	lue to grazing impacts.				

Limited aquatic habitat due to grazing impacts.

Ditch D4



Ditch E1/E2/E3

Description	E2 looking east Dich E2 looking west				
Location:	South end of study area, E1 is along the railroad spur, E2 is along South Texas Road, and E3 is along the dirt access road that connects to North Texas Road.				
Width at Ordinary Hig Depth at Ordinary Hig					
Direction of Flow:	Ditch E1: Southeast				
Direction of Flow:	Ditch E1: Southeast Ditch E2: East				
	Ditch E3: South				
Gradient	3%				
Bed:	E1/E2: Sand and gravel				
	E3: Silt				
Classification					
DNR Water Type:	N/A (drainage ditch)				
Standard Buffer Widtl	n: none				
Hydrology Primary Sources:	E1: Drains the railroad spur, as well as the northwest part of Wetland E.				
Frinary Sources.	E2: Extends along South Texas Road for almost a mile and receives flow from				
	developed parts of the refinery as well as Wetlands S and E.				
	E3: Drains the gravel parking area to the north, as well as Wetlands E, E4, E5 and E6				
Connectivity:	Ditch E1 and E3 flow into Ditch E2, which flows into Stream I1, which flows into Padilla Bay (Puget Sound).				
	/ left bank is vegetated)				
Trees:	none				
Shrubs:	Nootka rose, Himalayan blackberry, Scot's broom				
Herbs:	Pasture: velvetgrass, colonial bentgrass, creeping bentgrass, tall fescue, crested dogtail, meadow foxtail, softrush, Canada thistle, reed canarygrass				
Habitat Functions Pro	vided				
None					

Ditch I

The set of	h l looking east
Description	
Location:	South end of study area, mainly along BNSF main rail line
Width at Ordinary Hig	Jh Water: 3 feet
Depth at Ordinary Hig	Jh Water: 6 inches
Direction of Flow:	East
Gradient	4%
Bed:	Sand and gravel
Classification	
DNR Water Type:	N/A (drainage ditch)
Standard Buffer Widt	h: none
Hydrology	
Primary Sources:	Drains grazed pasture, as well as Wetlands I2 and J.
Connectivity:	Ditch I flows into Stream S at the edge of the study area.
Bank vegetation (oni	y left bank is vegetated)
Shrubs:	Nootka rose, Himalayan blackberry, Scot's broom
Herbs:	Grazed Pasture: slough sedge, velvetgrass, colonial bentgrass, creeping bentgrass,
	tall fescue, crested dogtail, meadow foxtail, softrush, Canada thistle, reed canarygrass
Habitat Functions Pro	ovided

Ditch Q



Description						
Location:	South end of study area along the south side of the BNSF mainline tracks					
Width at Ordinary High	n Water: 3 feet					
Depth at Ordinary High	n Water: 4 inches					
Direction of Flow: west						
Gradient	3%					
Bed:	Sand and gravel					
Classification						
DNR Water Type:	N/A (drainage ditch)					
Standard Buffer Width	: none					
Hydrology						
Primary Sources:	Runoff from the BNSF railroad and South Marsh Point Road					
Connectivity:	Flows into Wetland Q, which is connected to Stream S through a culvert under the railroad tracks. Stream S flows into Padilla Bay (Puget Sound).					
Bank Vegetation (only	right bank is vegetated)					
Trees:	none					
Shrubs:	Himalayan blackberry					
Herbs:	reed canarygrass					
Habitat Functions Prov	vided					
None						

Stream S

	of Stream S at high tide
Description	· · · · · · · · · · · · · · · · · · ·
Location:	South end of study area
Width at Ordinary Hig	h Water: 4 to 5 feet (difficult to determine due to trampling of banks)
Depth at Ordinary Hig	h Water: 4 to 6 inches (above tidal influence); 18 inches (with tidal influence)
Direction of Flow:	Southeast then east
Gradient	3% (upper); 1% (lower)
Bed:	Sand and gravel (upper and lower sections); silt (middle section)
Classification	
DNR/Skagit County:	Type F (fish habitat)
Standard Buffer Width	n: 100 feet
Hydrology Primary Sources:	Receives flow from ditches E2, E3 and I. Drains wetlands E and I1. Lower 450 feet is tidally influenced.
Connectivity:	Stream S flows into an estuarine wetland (part of Wetland I1) adjacent to Padilla Bay (Puget Sound). The channel crosses under East March Point Road in two open-bottom concrete culverts.
Bank Vegetation	
Trees:	red alder, black cottonwood
Shrubs:	Scot's broom, Douglas spirea, Nootka rose, Sitka willow, Himalayan blackberry, snowberry
Herbs:	Grazed Pasture: velvetgrass, colonial bentgrass, creeping bentgrass, tall fescue, crested dogtail, meadow foxtail, softrush, creeping buttercup

Tidal Salt Marsh:salt grass, woody saltwort, Baltic rush, spear saltbush, bentgrass

Habitat Functions Provided

Limited aquatic habitat within the upper stream due to grazing impacts. The lower portion of the stream is in tidal salt marsh that is fenced off from cattle. This area provides habitat for juvenile fish and wading birds.

APPENDIX C

WETLAND DELINEATION

SAMPLE PLOT SUMMARY TABLE

AND

SAMPLE PLOT DATA FORMS

Sample Point	Dominance Test	Prevalence Index	Hydric Soil Indicators	Wetland Hydrology Indicators	Water Table/ Saturation Depth (in)	Wetland Determination
A1	100	3.04	F3	A2,A3,C3,D2	6/4	Wetland A
A2	50	3.33	None	None	None	upland
A3	100	2.76	None	None	15/13	upland
A4	100	2.00	A11	A2,A3,D2,D5	7.5/0	Wetland A
A5	25	3.29	None	None	None	upland
C1	57	3.24	F6	A2,A3,D2,D3	2/0	Wetland D
C2	100	3.00	None	None	None	upland
C3	100	2.00	None	A1,A2,A3	3/1	upland
C4	44	3.42	A11	None	9/6	upland
C5	66	3.21	F3	A1,A2,A3	5/0	Wetland D
C6	33	3.67	None	None	None	upland
C7	80	2.55	F3	A2,A3,D5	1/0	Wetland D
C8	66	3.49	None	None	14/11	upland
C9	80	2.97	F3	A2,A3	10/0	Wetland D
D1	66	3.21	A11,F3	A2,A3,D2	8/6	Wetland D
D2	100	3.15	A11,F6	A2,A3,D2,D3	9/8	Wetland D
D3	100	3.09	None	None	16/15	upland
D4	66	3.22	None	None	None	upland
D5	100	3.15	A11,F6	A1,A3,B4,D2,D3	4/2	Wetland D
D6	100	3.00	F3	A2,A3,B4,D2,D3	7/0	Wetland D
D7	100	3.12	None	None	9/8	upland
D8	100	3.11	F3	A2,A3,D2	9/7	Wetland D
D9	100	3.12	None	None	13/12	upland
D10	100	3.15	None	None	None	upland
D11	100	3.03	F3	A1,A2,A3,C3,D2	10/8	Wetland D
D12	66	3.35	F3	A1,A2,A3,D2	ponded ¹ / ₄ "	Wetland D
D13	50	4.00	F6	None	15/13	upland
D14	100	3.15	None	None	None	upland
D15	100	3.14	A11	A2,A3,C3,D2	10/8	Wetland D
D16	100	3.10	F3	A2,A3,C3	10/9	Wetland D
D17	100	3.15	None	None	None	upland
D18	100	3.00	F2	A1,A2,A3,D2,D3	4/2	Wetland D
D19	100	3.10	None	None	17/16	upland
D20	40	3.97	None	None	None	upland
D21	100	2.94	F3	A1,A2,A3,B4,D2	2/0	Wetland D
D22	57	2.57	F3	A2,A3	7/0	Wetland D
D23	60	3.28	None	None	12/9	upland
D24	66	2.47	A11	A2,A3	4/0	Wetland D
D25	20	3.65	None	None	19/18	upland
D26	20 78	2.81	F2	A1,A2,A3,D3,D5	ponded 1-3"	Wetland D
D20 D27	43	3.38	None	None	None	upland
D27 D28	100	3.00	F3	D2, Other	None	Wetland D
D20 D29	60	3.09	None	None	None	upland

Summary of Wetland Indicators for Sample Points

Sample Point	Dominance Test	Prevalence Index	Hydric Soil Indicators	Wetland Hydrology Indicators	Water Table/ Saturation Depth (in)	Wetland Determination
D30	75	3.00	All	B4,C2,D2	None/16	Wetland D
D31	100	3.00	None	None	None	upland
D32	100	3.00	None	None	None	upland
D32	100	2.92	A11	D2, Other	None	Wetland D
D35	100	3.00	A11, F3	B4,B8,D2,D3	None	Wetland D
D34	100	3.10	None	None	None	upland
E1	100	3.00	F3	A2,A3	7/5	Wetland E
E2	100	3.20	None	None	12/11	upland
E3	100	3.00	F3	A2,A3	6/4	Wetland E
E4	80	3.05	F3	A2,A3	7/5	Wetland E
E5	80	2.81	F3	A2,A3,D2,D3,D5	4/0	Wetland E
E6	100	3.10	None	None	14/13	upland
E0 E7	66	2.95	F3,F6	A1,A2,A3,B4,C3,D2	ponded 2"	Wetland E
E7 E8	66	2.93 3.30	r3,r0 None	None	9/8	upland
со Е9	100	3.30	A11,F3,F6	A1,A2,A3,C3,D2	9/8 2/0	Wetland E
E9 E10	100	3.10	None	None	2/0 12/11	upland E
2E1	100	3.00	A11, F3	B4, D2, other	None	Wetland E
2E1 2E2	100	3.00	None	None	None	upland
2E2 5E1	100					Wetland 5E
5E1	100	3.00 3.04	A11, F6 None	D2, other None	None None	
3e2 I1	100	3.04				upland
			None F6	None	None 9/8	upland
I2	100	2.93		A2,A3,C3,D2		Wetland I1
I3	66 100	3.20	A11,F3,F6	A1,A2,A3,C3,D2	0/0	Wetland I2
I4	100	3.12	None	None	13/12	upland
15 16	50	3.52	None	None	None	upland
16	100	3.10	None	None	None	upland
J1	100	3.00	None	None	15/14	upland
J2 Q1	100 100	2.90 2.03	F6 F3, F6	A1,A2,A3,D2,D5 B1,B2,B6,B9,B10,C2,	12/0 None/18	Wetland J Wetland Q
	100	2.00	A11 F2	C3	Nama	Wettend D
R1	100	3.08	A11, F3	B4,C3,B9,D2	None	Wetland R
R2	100	3.26	None	None	None	upland Watland S
S1	66 100	3.31	F3, F6	C3,B9,D2,other	None	Wetland S
S2	100	3.44	None	None D8 C2 D2 other	None	upland Watland T
T1	57	3.37	A11, F6	B8,C3,D2,other	None	Wetland T
T2	17	3.71	None	None	None	upland
U1	100	3.01	F3	C3,D2	None	Wetland U
U2	50	3.58	None	None	None	upland
V1	100	3.02	F3	C3,D2	None	Wetland V
V2	100	3.04	None	None	None	upland
W1	75	3.09	F2, F6	B2,B8,C3,B9,D2,D3	None	Wetland W
W2	20	3.64	None	None	None	upland
Y1	100	3.03	F3, F6	D2, other	None	Wetland Y
Y2	100	3.03	None	None	None	upland
Z1	67	3.60	F6	C3,D2, other	None	Wetland Z

Samula	Dominanaa	Prevalence	Hvdric Soil	Wetland Hydrology	Water Table/ Saturation	Wetland			
Sample Point	Dominance Test	Index	Indicators	Indicators	Depth (in)	Determination			
Z2	67	4.05	None	None	None	upland			
Hydrophytic	Hydrophytic Vegetation is present when the Dominance Test is >50%, and/or the Prevalence Index is ≤3.0								

Hydric Soil Indicators: A11 - Depleted Below Dark Surface; F2 - Loamy Gleyed Matrix; F3 - Depleted Matrix; F6 - Redox Dark Surface **Wetland Hydrology (Primary Indicators):** A1 – Surface Water; A2 – High Water Table; A3 – Saturation; B1 – Water Marks; B4 – Algal Mat; C3 – Oxidized Rhizospheres along Living Roots

Wetland Hydrology (Secondary Indicators): D2 - Geomorphic Position; D3 - Shallow Aquitard; D5 - FAC-Neutral Test

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region Sampling Date: 1/33/13 Unlanding Facility City/County:_ Skan Project/Site: Uru Sampling Point: 50 -Shold PSR WA Applicant/Owner: _ State: __ Section, Township, Range: _35N P. Haned: 33 B. Floftlar investigator(s): Landform (hillsiope, terrace, etc.): hill sluve Local relief (concave, convex, none)? None Siope (%): 3 Datum: NAD 83 Subregion (LRR): Long: Lat: lorm on the 3 percent slupes NWi classification: Gravelly PEM Soil Map Unit Name: 1501~ Are climatic / hydrologic conditions on the site typical for this time of year? Yes X_ No __ _ (if no, explain in Remarks.) Are Vegetation _____, Soii _____, or Hydrology _____ significantly disturbed? 📈 Are "Normai Circumstances" present? Yes 🔀 No Are Vegetation _____, Soil ____, or Hydrology _____ naturally problematic? // (if needed, explain any answers in Remarks.) SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features. etc. Hydrophytic Vegetation Present? Yes No ___ is the Sampled Area No ____ Hydric Soil Present? Yes No within a Wetiand? Wetiand Hydrology Present? Yes No Remarks: +he 50:1 73 Arp PLOTOS 75, 0100 76,7 are Photos VEGETATION – Use scientific names of plants. Absolute Dominant indicator **Dominance Test worksheet:** 30 Tree Stratum (Plot size: % Cover Species? Status Number of Dominant Species 1. NA That Are OBL, FACW, or FAC: (A) 2. Total Number of Dominant Species Across All Strata: (B) Percent of Dominant Species _O__ = Total Cover That Are OBL, FACW, or FAC: (A/B) Sapling/Shrub Stratum (Plot size: Prevalence index worksheet: 1. Rubers actioning armenious FAC 4 Multiply by: Total % Cover of: 2. OBL species 0 0 **FACW** species 93 FAC species x 3 = FACU species x 4 = 9 = Total Cover x 5 = UPL species 0 Herb Stratum (Plot size: 310 Column Totals: __ 102 1. Festuca arundinalea (B) effusus 2. JUNCUS 04 3. Prevalence Index = B/A = 9 3. Ciisium givense Hydrophytic Vegetation indicators: 1 - Rapid Test for Hydrophytic Vegetation <u>×</u> 2 - Dominance Test is >50% 5. ___ 6. 3 - Prevalence index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting 7. _____ data in Remarks or on a separate sheet) 8. 5 - Wetiand Non-Vascular Plants¹ 9._____ Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must 11. be present, unless disturbed or problematic. 00 = Total Cover Woody Vine Stratum (Plot size: Hydrophytic Vegetation Present? O = Total Cover Ô % Bare Ground in Herb Stratum Remarks:

SOIL								Sampling Point: <u>SP-A1</u>		
Profile Desc	ription: (Describe	to the de	oth needed to docum	nent the l	ndicator	or confirm	the absence			
Depth	Matrix			k Features				124		
(inches)	Color (moist)	%	Color (moist)	%	Type	Loc ²	Texture	Remarks		
0-4	A. 5 Y 7/2	100					Salo			
4-10	2.54/2	92	IDYR S/4	P	C	M/PL	SiLo			
10-16	2.574.5	395	IDYRS/3	5	6	M	SiCILO	20% gravel		
11-18	104R 3/1	100					Sicila			
<u>.</u>		100	<u>,</u>		·		-16140			
	<u> </u>				·					
			<u></u>			<u>_</u>				
	·····		<u> </u>				<u> </u>			
¹ Type: C=Co	oncentration, D=De	pletion, RM	=Reduced Matrix, CS	=Covered	or Coate	d Sand Gra		cation: PL=Pore Lining, M=Matrix.		
Hydric Soll i	ndicators: (Appli	cabie to ail	LRRs, unless other	wise note	ed.)		indicato	rs for Problematic Hydric Solis ³ :		
Histosoi	• •		Sandy Redox (S					n Muck (A10)		
·	ipedon (A2)		Stripped Matrix (Parent Materiai (TF2)		
Biack Hi			Loamy Mucky M	-	· · · · · · · · · · · · · · · · · · ·	MLRA 1)		y Shailow Dark Surface (TF12)		
	n Suifide (A4) I Below Dark Surfa	s ce (A11)	Loamy Gieyed M)			er (Explain In Remarks)		
	rk Surface (A12)		Redox Dark Sur			24	³ Indicato	rs of hydrophytic vegetation and		
-	ucky Minerai (S1)		Depleted Dark S	• •	7)	0		nd hydrology must be present,		
	ieyed Matrix (S4)	14	Redox Depressi	•	•			s disturbed or problematic.		
Restrictive L	ayer (if present):		5				1			
Туре:								5.7		
Depth (inc	:hes):						Hydric Soli	Present? Yes X No		
Remarks:						_				
61	a al De	ast 1	decendo	1 0	lot 1	. 1	Pupp	pipeling burning		
2011	protect	UDE >	aistere.	d- 1			r includ	4 / · · · · · · · · · · · · · · · · · ·		
an	d a ti	II ai	ea.					a pipeline (burning		
HYDROLO		·····								
Wetland Hyd	Irology indicators	:								
Primary indic	ators (minimum of	one require	d; check all that apply	<i>י</i>)			Secor	ndary Indicators (2 or more required)		
Surface \	Nater (A1)		Water-Stair	ned Leave	es (B9) (e	xcept	w	/ater-Stained Leaves (B9) (MLRA 1, 2,		
🗶 High Wat	ter Table (A2)		MLRA 1	l, 2, 4A, a	nd 4B)			4A, and 4B)		
🕺 Saturatio			Salt Crust (Drainage Patterns (B10)			
Water Ma	arks (B1)		Aquatic Inv	ertebrates	s (B13)		D	ry-Season Water Table (C2)		
Sedimen	t Deposits (B2)		Hydrogen S	Suifide Od	lor (C1)		s	aturation Visible on Aerial imagery (C9)		
Drift Dep	osits (B3)		<u> 🖈</u> Oxidized R				ts (C3) _X G	eomorphic Position (D2)		
	t or Crust (B4)		Presence of					hallow Aquitard (D3)		
iron Dep			Recent Iron					AC-Neutrai Test (D5)		
	Soii Cracks (B6)		Stunted or			1) (LRR A)		aised Ant Mounds (D6) (LRR A)		
	n Visible on Aerial			iain in Rei	marks)		F	rost-Heave Hummocks (D?)		
	Vegetated Concav	e Surface (B8)							
Fleid Observ			. X							
Surface Wate			No <u> </u>		0	-				
Water Table I			No Depth (inc		<u>6</u>					
Saturation Pro		res X	No Depth (inc	hes):	~	_ Wetia	nd Hydrolog	y Present? Yes No		
(includes capi Describe Rec		n gauge, me	onitoring well, aerial p	hotos, pre	evious ins	pections), i	f available:			
	·	U - U - ,	<u> </u>							
Remarks:										
				2(4)						

4

WETLAND DETERMINATION DATA FORM - Western Moun	
Project/Site: <u>Crude Rail Unloading Facility</u> City/County: <u>St.</u> Applicant/Owner: <u>Shell PSR</u>	sampling Date: 01/03/13
Applicant/Owner: Shell BR	State: MA Sampling Point: SP-A-2
investigator(s): B. Fletcher, P. Hamili Section, Township, Ran	ge: Section 33, 35 N, 25
Landform (hilislope) terrace, etc.): h.l. supe Local relief (concave of	Donver none): Slope (%): 15
	Long: Datum: NAD 8 3
Soil Map Unit Name: 50W gravelly loam 0-3 to SLOP	12 5 NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No	(if no, explain in Remarks.)
Are Vegetation, Soii, or Hydrology significantly disturbed? Are "N	Normal Circumstances" present? Yes X No
	eded, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map showing sampling point lo	cations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No X Hydric Soii Present? Yes No X Wetiand Hydrology Present? Yes No X	
Remarks: photo DP is and Soil	
Photos 7.9, 50 are plot.	18
VEGETATION – Use scientific names of plants.	
Tree Stratum (Plot size: 30) Absolute Dominant Indicator 1. <u>Almus</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: Total Number of Dominant
3	Species Across Ali Strata: (B)
4 = Totai Cover	Percent of Dominant Species 50 (A/B)
Sapling/Shrub Stratum (Plot size: 15)	Prevalence index worksheet:
1. RUBUS armentacus IU N FACO	Total % Cover of: Multiply by:
2	OBL species O $x 1 = O$
3	FACVV species X2=
5.	FAC species 35 $x4 = 140$
<u>l</u> C = Total Cover	UPL species \mathcal{O} x 5 = \mathbf{O}
Herb Stratum (Plot size:) 1. Did Sacus fullonum 20 X FAC	Column Totals: 105 (A) 350 (B)
2 Equisetum arvense 10 FAC	Prevalence Index = B/A = 3.33
3. Artenisia Sulsdorhi 35 × FALU	Hydrophytic Vegetation Indicators:
4	1 - Rapid Test for Hydrophytic Vegetation
5	2 - Dominance Test is >50%
6	3 - Prevalence index is ≤3.01
7	 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

5 - Wetland Non-Vascular Plants¹ 9. _ Problematic Hydrophytic Vegetation¹ (Explain) 10. ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. 11. 55 1 = Total Cover Woody Vine Stratum (Plot size: N Hydrophytic Vegetation 1.____ 2. Yes_ Present? 0 = Totai Cover % Bare Ground in Herb Stratum Remarks:

No <u>X</u>____

SOIL

Sampling Point: 5P-A2

Profile Description: (Describe to the dept	h needed to document the indicator or confir	m the absence of indicators.)
Depth <u>Matrix</u>	Redox Features	
(inches) Color (moist), %	Color (moist) % Type ¹ Loc ²	
0-16 2.5442 100		Sacilo 20% gravel
]		
¹ Type: C=Concentration, D=Depietion, RM=F	Reduced Matrix, CS=Covered or Coated Sand G	rains. ² Location: PL=Pore Lining, M=Matrix.
Hydric Soli indicators: (Applicable to all L	RRs, unless otherwise noted.)	indicators for Problematic Hydric Soils ³ :
Histosoi (A1)	_ Sandy Redox (S5)	2 cm Muck (A10)
Histic Epipedon (A2)	Stripped Matrix (S6)	Red Parent Materiai (TF2)
Black Histic (A3)	Loamy Mucky Mineral (F1) (except MLRA 1)	Very Shaliow Dark Surface (TF12)
Hydrogen Sulfide (A4)	Loamy Gieyed Matrix (F2)	Other (Explain in Remarks)
Depleted Beiow Dark Surface (A11) Thick Dark Surface (A12)	_ Depieted Matrix (F3) _ Redox Dark Surface (F6)	3 Indiana of Lada and the second s
Sandy Mucky Minerai (S1)	_ Redox Dark Surface (F6) _ Depleted Dark Surface (F7)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present,
Sandy Gleyed Matrix (S4)	Redox Depressions (F8)	unless disturbed or problematic.
Restrictive Layer (if present):		
Туре:		
Depth (inches):		Hydric Soll Present? Yes No
Remarks:		
old fill material HYDROLOGY	3 	
Wetland Hydrology indicators:	820	
Primary indicators (minimum of one required;	check all that apply)	Secondary indicators (2 or more required)
Surface Water (A1)	Water-Stained Leaves (B9) (except	Water-Stained Leaves (B9) (MLRA 1, 2,
High Water Table (A2)	MLRA 1, 2, 4A, and 4B)	4A, and 4B)
Saturation (A3)	Sait Crust (B11)	Drainage Patterns (B10)
Water Marks (B1)	Aquatic invertebrates (B13)	Dry-Season Water Table (C2)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)	Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3)	Oxidized Rhizospheres along Living Roo	
Algal Mat or Crust (B4)	Presence of Reduced iron (C4)	Shallow Aquitard (D3)
Iron Deposits (B5)	Recent iron Reduction in Tilled Soils (C6	· · · /
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1) (LRR A)	
inundation Visible on Aeriai imagery (B7)	Other (Explain in Remarks)	Frost-Heave Hummocks (D?)
Sparsely Vegetated Concave Surface (B8 Field Observations:) 	
Surface Water Present? Yes No Water Table Present? Yes No		
		and Hydrology Present? Yes No \times
Saturation Present? Yes No (includes capillary fringe)	X Depth (inches): Wetla	and Hydrology Present? Yes No 🔼
Describe Recorded Data (stream gauge, monit	oring well, aerial photos, previous inspections), i	if available:
Remarks:		
no c	netland hydrology indic	ators present

Project/Site: < RUF	City	County: Skagi	Sampling Date: 23 Jan 20
Applicant/Owner: <u>Shell</u> ASR			State: WA Sampling Point: 5P-A3
investigator(s): B Kidder P. Hamidi	Sec	tion Township Ra	
			convex, none): Siope (%): 0-3
			_ Long: Datum: <u>N/D 3 3</u>
Subregion (LRR):	Lat:	an fillen	
Soii Map Unit Name: Ban granelly 100		(
Are ciimatic / hydrologic conditions on the site typica			
-			"Normai Circumstances" present? Yes No
Are Vegetation, Soii, or Hydroiogy _	naturally probler	natic? 🔥 (if ne	eeded, expiain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site	map showing sa	mpling point l	ocations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes	No		
	No	is the Sampled within a Wetlan	
	No <u></u>		
Remarks: soils 99			
15 99-101	and the second		and the second
VEGETATION – Use scientific names of	f plants.		
Tree Stratum (Plot size: 10 m)		minant indicator	Dominance Test worksheet:
1			Number of Dominant Species That Are OBL, FACW, or FAC:3 (A)
2			Total Number of Dominant
3			Species Across Ali Strata: (B)
4		otai Cover	Percent of Dominant Species That Are OBL, FACW, or FAC:(00 (A/B)
Sapiing/Shrub Stratum (Plot size: 5	_)	1 54.	Prevalence index worksheet:
1. <u>Alnus rubra</u> 2. Crotaegus doualasiu		V FAC	Total % Cover of: Multiply by:
	<u> </u>	FAC	OBL species x 1 =O
3			FACW species 3 = x 2 = 6 O
4		<u> </u>	FAC species $2(x_3 = 273)$
J	4 =1	otal Cover	FACU species x 4 =
Herb_Stratum (Plot size: 2 m)			UPL species O x 5 = \overline{O}
1. Juncus offusue		FACW	Column Totais: <u>122</u> (A) <u>337</u> (B)
2. Carex ovalis		FACW	Prevalence index = $B/A = 2.76$
3. <u>Cirsium arvense</u>		FAC	Hydrophytic Vegetation indicators:
4. Alopecusus protenses	70	J FAC	1 - Rapid Test for Hydrophytic Vegetation
5. Vicia Americana		FAC	X 2 - Dominance Test is >50%
6			<u>×</u> 3 - Prevalence index is ≤3.0'
7			4 - Morphological Adaptations' (Provide supporting data in Remarks or on a separate sheet)
8		-	5 - Wetland Non-Vascular Plants ¹
9			Problematic Hydrophytic Vegetation ¹ (Explain)
11.			indicators of hydric soil and wetland hydrology must
	1	otal Cover	be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 2 m)	and the second s		
1. Rubus Ursinus	/	FACU	Hydrophytic
2			Vegetation Present? Yes No
% Bare Ground in Herb Stratum	<u>/</u> = T	otal Cover	
			1
Remarks:			

1

SOIL						5 • • • • I		:	Sampling Point: <u>5P-A3</u>
12	cription: (Describe	to the dept				or confin	m the absence	e of indica	tors.)
Depth (Inches)	<u>Matrix</u> Color (moist)	%	Color (moist)	<u>ox Feature</u> %	Type ¹	Loc ²	Texture		Remarks
(inches)		79		70				• ••••	
0-3	107R3/1.5	100					loam		
8-20	10YR3/1.5	99	10YR4/3	1	(M	- 10 100	1	10 % gravel
0-20	10/10/12	<u> </u>	10 1 1 1 2			_(*)	samly clay	2: <u>3</u> m	10 h gravel
	<u>\.</u>								383
<u></u> 						<u> </u>			
¹ Type: C=Co	oncentration, D=Dep	letion, RM=	Reduced Matrix, CS	S=Covere	d or Coate	d Sand G	iralns. ² Lo	cation: PL	=Pore Lining, M=Matrix.
	Indicators: (Applic								blematic Hydric Soiis ³ :
Histosol			Sandy Redox (m Muck (A	
	pipedon (A2)		Stripped Matrix	•					ateriai (TF2)
Black Hi	istic (A3) en Suifide (A4)	•	Loamy Mucky Mu Mucky Mucky Muc Mucky Mucky Mu Mucky Mucky	•		: MLRA 1)		-	Dark Surface (TF12) in Remarks)
	d Below Dark Surfac	e (A11)	Depleted Matrix	• •			° 1		
	ark Surface (A12) fucky Minerai (S1)	-	Redox Dark Su Depleted Dark 3					-	ophytic vegetation and gy must be present,
	Bleyed Matrix (S4)	-	Redox Depress		•			•	d or problematic.
	Layer (if present):	ii.							•
Туре:									1
Depth (inc	ches):						Hydric Soi	i Present?	Yes No 🔽
Remarks:	50				• • • • • • • • • • • • • • • • • • • •		•		
		no h	ydnic suil	indica	turs pr	esent			
IYDROLO	GY			<i>t</i> :				<u> </u>	
Wetland Hyd	troiogy indicators:								
Primary Indic	ators (minimum of o	ne required	<u>; check ali that appi</u>	v)			Seco	ndary Indic	ators (2 or more required)
Surface \	Water (A1)		Water-Stai			xcept	_ \	Vater-Stain	ed Leaves (B9) (MLRA 1, 2,
	ter Table (A2)			1, 2, 4A, a	and 4B)			4A, and	
Saturatio Water Ma			Salt Crust		- (012)			-	atterns (B10)
24.2	t Deposits (B2)		Aquatic inv Hydrogen				_		Water Table (C2) /Isible on Aerial Imagery (C9)
Drift Dep			Oxidized F			Living Roo			Position (D2)
	t or Crust (B4)		Presence					Shallow Aq	• •
Iron Depo	osits (B5)		Recent iro	n Reducti	ion in Tilleo	d Soils (Cl			i Test (D5)
	Surface Soil Cracks (B6) Stunted or Stressed Plants (D1) (LRR A) Raised Ant Mounds (D6) (LRR A)							Mounds (D6) (LRR A)	
	n Visible on Aerial I			olain In Re	emarks)		F	Frost-Heave	Hummocks (D?)
<u> </u>	Vegetated Concave	Surface (B	8)		·				
Fleid Observ		N							
Surface Wate Water Table F			o Depth (ind o Depth (ind		15				
Saturation Pre			o Depth (ind		13		and Hydrolog	w Present	
(includes capi		(S	· ·		revious insi	-		jy i resent	
		30090, 1101	moning went action t	notos, pr		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			3
Remarks:									_, ·
		И.,	H. Oh. A	al and to	indir.	ture	rout-		
.,		in m	Aland hyd.	or any	indice	ciurs	sresuri		
				4.44					

2. 19

.

1

3

٤.

4

Project/Site: Crude Rail Unlock	ling Facility or	y/County: Stagit	Samp	ling Date: Jan 24, 2013
Applicant/Owner: Shell PSR	U ·	Sta	ate: WA Sampl	ling Date: <u>Jan 24, 2013</u> Ing Point: <u>PA4</u>
Investigator(s): J. Wallar, B. Flete	cher Se	ection, Township, Range:	ection 33, 351	U, ZE
Landform (hillslope, terrace, etc.):	Le	ocai relief (concave, convex, no	one): <u>carcare</u>	Slope (%):
Subregion (LRR):	Lat:	Long:		
Soii Map Unit Name: Bow gravely (20	ww		_ NWI classification: _	PEM
Are ciimatic / hydrologic conditions on the site typi	cai for this time of year	X	no, expiain in Remarks	
Are Vegetation, Soli, or Hydrology			ircumstances" present	? Yes X No
Are Vegetation, Soli, or Hydrology	naturally proble	ematic? (if needed, exp	biain any answers in Re	emarks.)
SUMMARY OF FINDINGS - Attach sit	e map showing s	ampling point location	s, transects, imp	ortant features, etc.
Hydrophytic Vegetation Present? Yes	V No			
Hydric Soil Present? Yes	<u>X</u> No	is the Sampied Area within a Wetland?	$_{\rm Yes}$ $ imes$ N	
Wetiand Hydroiogy Present? Yes	<u> </u>			······
Remarks:	20 Kg			
1944 10	•			
			Ф.	0
VEGETATION – Use scientific names	of plants.			
2.1	Absolute [Dominant Indicator Domina	ance Test worksheet:	

Tree Stratum (Plot size: 30)	% Cover	Species? Status	Number of Dominant Species
1			That Are OBL, FACW, or FAC: (A)
23			Totai Number of Dominant Species Across Ali Strata: (B)
4 <u>Sapling/Shrub Stratum</u> (Plot size:)	0	= Total Cover	Percent of Dominant Species That Are OBL, FACW, or FAC:(X) (A/B)
1			Prevalence Index worksheet:
2			Total % Cover of: Multiply by:
			OBL species x 1 = D
3			FACW species(1) x 2 =0
4			FAC species x 3 =
5			FACU species x 4 =
Herb Stratum (Plot size:)		_ = Total Cover	UPL species x 5 =
1. Phalani anandinaan	100	X FACW	Column Totais:රු (A) ිහ (B)
2			Prevalence index = B/A =
3			Hydrophytic Vegetation Indicators:
4 ^{#1}			1 - Rapid Test for Hydrophytic Vegetation
5			2 - Dominance Test is >50%
6			K 3 - Prevalence index is ≤3.0 ¹
7			 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
89.			5 - Wetland Non-Vascular Plants ¹
9 10	_		Problematic Hydrophytic Vegetation ¹ (Explain)
11			Indicators of hydric soil and wetland hydrology must
8		= Total Cover	be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 5			
1			Hydrophytic
2			Vegetation
% Bare Ground in Herb Stratum	0	= Total Cover	Present? Yes <u> </u>
Remarks:			······································
			7.45

SOIL	SOIL	
------	------	--

Sampling Point: SP-A4

Profile Description: (Descr	ibe to the depth	needed to docum	ent the l	ndicator	or confirm	the absence of Indicators.)	
Depth <u>Matri</u>			Feature				
(inches) Color (moist)%	Color (moist)	%	Type ¹	Loc ²	Texture Remarks	*
0-11 10YK'	(100 _			1		<u></u>	
11-13 2.54	5k 60	104R416	10	Ċ	M	s; c	
104R3	30				11		
							<u> </u>
¹ Type: C=Concentration, D=[d Sand Gra		
Hydric Soli indicators: (App				εα.)		indicators for Problematic Hyd	ric Solis":
Histosol (A1)	_	_ Sandy Redox (S				2 cm Muck (A10)	
Histic Epipedon (A2) Biack Histic (A3)		_ Stripped Matrix (_ Loamy Mucky Mi		1) /oveent		Red Parent Material (TF2) Very Shallow Dark Surface (7512)
Hydrogen Suifide (A4)	_	_ Loamy Gleyed N	•		WILKA I)	Other (Explain in Remarks)	1712)
Depieted Below Dark Sur	face (A11)	_ Depieted Matrix	•	,			
Thick Dark Surface (A12)		_ Redox Dark Surf				³ Indicators of hydrophytic vegetal	ion and
Sandy Mucky Minerai (S1	Constant Sector Se	Depleted Dark S		7)		wetland hydrology must be pro	
Sandy Gleyed Matrix (S4) _	Redox Depressio	ons (F8)			unless disturbed or problemat	ic. 📰
Restrictive Layer (if present):					1	
Туре:							
Depth (inches):		_				Hydric Soll Present? Yes <u>X</u>	No
Remarks:						h	
HYDROLOGY	** *					,,,,,,	
Wetland Hydrology indicato	rs:						
Primary indicators (minimum o	of one required; o	heck all that apply)			Secondary Indicators (2 or mo	re required)
Surface Water (A1)		Water-Stain	ed Leave	es (B9) (ex	cept	Water-Stained Leaves (B9) (MLRA 1, 2,
High Water Table (A2)		MLRA 1	, 2, 4A, a	nd 4B)		4A, and 4B)	
X Saturation (A3)		Sait Crust (I	•			Drainage Patterns (B10)	
Water Marks (B1)		Aquatic inve	ertebrates	s (B13)		Dry-Season Water Table (C2)
Sediment Deposits (82)		Hydrogen S	ulfide Od	lor (C1)		Saturation Visible on Aeria	l imagery (C9)
Drift Deposits (B3)		Oxidized Rh	-	_	-		
Algai Mat or Crust (B4)		Presence of		• •		Shailow Aquitard (D3)	
Iron Deposits (B5)		Recent iron			• •	· <u> </u>	
Surface Soil Cracks (B6)		Stunted or S) (LRR A)		
inundation Visible on Aeri	••••	Other (Expire	ain in Rei	marks)		Frost-Heave Hummocks (I	(70
Sparsely Vegetated Conc	ave Surface (B8)		<u>.</u>	·····			
Field Observations:							
Surface Water Present?		Depth (incl			-		
Water Table Present?		Depth (incl		7.5	-1		
Saturation Present?	Yes <u>K</u> No	Depth (incl	nes):	0	_ Wetla	and Hydrology Present? Yes <u>X</u>	No
(includes capillary fringe) Describe Recorded Data (strea	am gauge monit	ring well aerial of	ntos pre	wious incr	actione) if	f available:	
	an yeuye, monu	onny wen, aenai pr	iolos, pre	rvious insp	ecuons), li	i avaiidule.	
						· · · · · · · · · · · · · · · · · · ·	
Remarks:							
4							

				21 11 24 × 2017
Project/Site: Crude Rail Unloading Fa	cility (City/Co	unty:	Sampling Date: A Jon Child
Appilcant/Owner: Shell PSR				State: WA Sampling Point: SP-A5
investigator(s): P Hamidt, B. Kidder		Sectior	n, Township, Ra	inge:
Landform (hillslope, terrace, etc.):	<u></u>	Locai	relief (concave,	convex, none): <u>Nens</u> Siope (%): <u>3-5</u>
Subregion (LRR):A	Lat:		727 73	_ Long: Datum: <u>NAD33</u>
Soit Map Unit Name: Bow growelly loan, 0	to3p	witco	nt slipes	NWi classification: / pland
Are climatic / hydroiogic conditions on the site typical for this	s time of yea	ar? Ye	s No _	(if no, explain in Remarks.)
Are Vegetation, Soli, or Hydrologys	ignificantly	disturb	ed? Are	"Normai Circumstances" present? Yes No
Are Vegetation, Soli, or Hydrology n	aturaliy pro	biemat	tic? 📈 (if n	eeded, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map	showing	sam	pling point l	ocations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No		<u> </u>		
Hydrophytic Vegetation Present? Pes No			is the Sampled	d Area
Wetland Hydrology Present? Yes N			within a Wetla	nd? Yes No
Remarks:				
area is fill material	enst. of	F ba:	se of c	lean soil disposal sile
VEGETATION – Use scientific names of plan		Dam	land Indiantar	Dominance Test worksheet:
Tree Stratum (Plot size: 10)	Absolute <u>% Cover</u>	Spec	inant indicator ies? <u>Status</u>	Number of Dominant Species
1. Atous polos Ripulus balanten	60	V	FAC	That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3				Species Across All Strata: (B)
4	7.0	•		Percent of Dominant Species
Sapling/Shrub Stratum (Plot size: 5m)	60	_ = Tota	al Cover	
	-	-		Prevalence Index worksheet:
2. Rubus armeniacus	15	1	FACU	$\begin{array}{c c} \hline Totai & Cover of: \\ \hline OBL species \\ \hline OBL species \\ \hline \end{array} x 1 = \\ \hline \end{array}$
3				FACW species $2 \times 2 = 0$
4				FAC species $(a O \times 3 = 190)$
5	16	·		FACU species 25 x 4 = 100
Herb Stratum (Plot size: 2 m)	12	_ = Tot	al Cover	UPL species $\Im x 5 = \Im$
1. Galium aparine	5	V	FACU	Column Totais: <u>95</u> (A) <u>280</u> (B)
2				Prevalence Index = $B/A = 3.29$
3		<u> </u>		Hydrophytic Vegetation indicators:
4		<u> </u>		1 - Rapid Test for Hydrophytic Vegetation
5				2 - Dominance Test is >50%
6				3 - Prevalence index is ≤3.0'
7				- 4 - Morphological Adaptations' (Provide supporting data in Remarks or on a separate sheet)
8				5 - Wetland Non-Vascular Plants ¹
9				Problematic Hydrophytic Vegetation ¹ (Explain)
11				indicators of hydric soil and wetland hydrology must
	5	_= Tota	al Cover	be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 2 m)	r		FACU	
1. Rubus Ursinus	5	V	<u>rn</u> cu	- Hydrophytic Vegetation
2	C,	 = Tot:	al Cover	Present? Yes No

% Bare Ground in Herb Stratum _____90 Remarks:

Profile Descr									Sampling Point:	
	ription: (Describe	to the depth	needed to docum	nent the In	dicator	or confirm	n the abse	nce of Indic	ators.)	
Depth (inches)	Matrix Color (moist)		Redo: Color (moist)	x Features	Type1	Loc ²	Textur	-	Remarks	
								<u> </u>	<u> </u>	
D-16+	10183/2	100					ra d 1	T	Il material	
	10111016	100	·····				2 thank 1		-61	
<u> </u>		·	,			<u> </u>	<u> </u>	<u>_</u>) b grave)	
······································	17			<u> </u>				<u> </u>		<u> </u>
·		·	<u> </u>							
		· ·					848			
Type: C=Cor	ncentration, D=Dep	letion, RM=R	educed Matrix, CS	=Covered	or Coate	d Sand Gra	ains.	² Location: P	L=Pore Lining, M=	Matrix.
-	dicators: (Applic	able to all LF			d.)		Indi	cators for Pr	oblematic Hydrid	: Solis ³ :
_ Histosoi (/		_	_ Sandy Redox (S					2 cm Muck (A		
Histic Epi Black Hist	pedon (A2)	_	_ Stripped Matrix (_ Loarny Mucky M	• •	lavaant				Aaterial (TF2)	40)
	Suifide (A4)	_	_ Loamy Gieyed N		(except	NLKA I)			Dark Surface (TF n in Remarks)	12)
	Below Dark Surface	∍(A11) _	_ Depleted Matrix	• •			_			
	k Surface (A12)	_	_ Redox Dark Sur				³ indi	cators of hyd	rophytic vegetatio	n and
	icky Minerai (S1)	_	_ Depleted Dark S)			-	ogy must be pres	ent,
	eyed Matrix (S4)		_ Redox Depressi	ons (F8)	11		<u>u</u>	niess disturb	ed or problematic.	
	ies):		_				Hydric	Soli Present	? Yes	No 🗸
emarks:										
8118 S	241	No	hydric sin	1 md	icato	rs pres	jent			
		pro	hydric sin	l mb	icato	rs pres	sent			
Vetland Hydr	oiogy indicators:				icato	rs pres	····		cators (2 or more	required
etland Hydr rimary indical	ology indicators: tors (minimum of or		heck all that apply)			····		cators (2 or more	
etland Hydr rimary indical Surface W	ology indicators: tors (minimum of or		heck all that apply)	; (B9) (ex		····	Water-Stai	ned Leaves (B9) (
etland Hydr rimary indical Surface W	ology Indicators: tors (mlnimum of or dater (A1) r Table (A2)		heck all that apply) ned Leaves , 2, 4A, an	; (B9) (ex		····	_ Water-Stai 4A, and	ned Leaves (B9) (
/etland Hydr rimary indical Surface W High Wate	ology Indicators: tors (mlnimum of or dater (A1) r Table (A2) (A3)		heck ail that apply Water-Stair MLRA 1) ned Leaves , 2, 4A, an B11)	s (B9) (ex d 4B)		····	Water-Stai 4A, and Drainage F	ned Leaves (B9) (I 4B)	MLRA 1, 2,
Iteliand Hydri rimary indicat	ology Indicators: tors (minimum of or later (A1) or Table (A2) (A3) (ks (B1) Deposits (B2)		heck ail that apply Water-Stair MLRA 1 Salt Crust (Aquatic Inve Hydrogen S) ned Leaves , 2, 4A, an B11) ertebrates (Sulfide Odo	s (B9) (ex d 4B) (B13) r (C1)	cept	<u>Se</u>	Water-Stai 4A, and Drainage F Dry-Seaso	ned Leaves (B9) (I 4B) Patterns (B10)	MLRA 1, 2,
Petland Hydri rimary indical Surface W High Wate Saturation Water Mar Sediment I Drift Depos	ology Indicators: tors (mlnimum of or dater (A1) ir Table (A2) (A3) (ks (B1) Deposits (B2) sits (B3)		heck all that apply Water-Stair MLRA 1 Salt Crust (Aquatic Invo Hydrogen S Oxidized Ri) ned Leaves , 2, 4A, an B11) ertebrates (Sulfide Odo nizosphere:	s (B9) (ex d 4B) (B13) r (C1) s along t	cept iving Root	<u>Se</u>	Water-Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph	ned Leaves (B9) (I 4 B) Patterns (B10) n Water Table (C2 Visible on Aerial I ic Po sitio n (D2)	MLRA 1, 2,
/etland Hydri rimary indicat	ology Indicators: tors (mlnimum of or dater (A1) ir Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4)		heck all that apply Water-Stair MLRA 1 Salt Crust (Aquatic Invo Hydrogen S Oxidized Ri Presence o) ned Leaves , 2, 4A, an B11) ertebrates (Sulfide Odo nizosphere: f Reduced	; (B9) (ex d 4 B) (B13) r (C1) s along t iron (C4)	iving Root	<u>Se</u> ts (C3)	Water-Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ac	ned Leaves (B9) (I 4B) Patterns (B10) n Water Table (C2 Visible on Aerial I ic Pos itio n (D2) juitard (D3)	MLRA 1, 2,
/etland Hydri rimary indical	ology Indicators: tors (minimum of or later (A1) ir Table (A2) (A3) (A3) iks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5)		heck all that apply Water-Stair MLRA 1 Salt Crust (Aquatic Invo Hydrogen S Oxidized Ri Presence o Recent iron) ned Leaves , 2, 4A, an B11) ertebrates Gulfide Odo nizospheres f Reduced Reduction	: (B9) (ex d 4B) (B13) r (C1) s along t. iron (C4) h in Tilled	iving Root	<u>Se</u> ts (C3)	Water-Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ac FAC-Neutr	ned Leaves (B9) (I 4 B) Patterns (B10) n Water Tabie (C2 Visible on Aerial I ic Pos itio n (D2) puitard (D3) al Test (D5)	MLRA 1, 2, ?) magery (C9)
/etland Hydri rimary indicat	ology Indicators: tors (minimum of or later (A1) in Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6)	ne required; c	heck ail that apply Water-Stair MLRA 1 Salt Crust (Aquatic Invo Hydrogen S Oxidized Ri Presence o Recent iron Stunted or S) ned Leaves , 2, 4A, an B11) ertebrates (Sulfide Odo nizosphere: f Reduced Reduction Stressed Pl	: (B9) (ex d 4B) (B13) r (C1) s along t iron (C4) h in Tilled lants (D1	iving Root	<u>Se</u> ts (C3)	Water-Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ac FAC-Neutr Raised An	ned Leaves (B9) (I 4B) Patterns (B10) n Water Tabie (C2 Visible on Aerial I ic Pos itio n (D2) juitard (D3) ai Test (D5) Mounds (D6) (LF	MLRA 1, 2, 2) magery (C9) 2 R A)
Vetland Hydri rimary indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algai Mat o iron Depos Surface So Inundation	ology Indicators: tors (minimum of or later (A1) ir Table (A2) (A3) (A3) iks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5)	ne required; c	heck ail that apply Water-Stair MLRA 1 Salt Crust (Aquatic Invo Hydrogen S Oxidized Ri Presence o Recent iron Stunted or S Other (Expl) ned Leaves , 2, 4A, an B11) ertebrates (Sulfide Odo nizosphere: f Reduced Reduction Stressed Pl	: (B9) (ex d 4B) (B13) r (C1) s along t iron (C4) h in Tilled lants (D1	iving Root	<u>Se</u> ts (C3)	Water-Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ac FAC-Neutr Raised An	ned Leaves (B9) (I 4 B) Patterns (B10) n Water Tabie (C2 Visible on Aerial I ic Pos itio n (D2) puitard (D3) al Test (D5)	MLRA 1, 2, 2) magery (C9) 2 R A)
Vetland Hydri rimary indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algai Mat o iron Depos Surface So Inundation Sparsely V	ology Indicators: tors (minimum of or later (A1) or Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) Visible on Aerial in legetated Concave tions:	nagery (B7) Surface (B8)	heck all that apply Water-Stair MLRA 1 Salt Crust (Aquatic Invo Hydrogen S Oxidized Ri Presence o Recent iron Stunted or S Other (Expi) ned Leaves , 2, 4A, an B11) ertebrates (Sulfide Odo nizosphere: f Reduced Reduction Stressed Pl ain in Remain	(B9) (ex d 4B) (B13) r (C1) s along t iron (C4) h in Tilled lants (D1 arks)	iving Root Soils (C6)) (LRR A)	<u>Se</u> ts (C3)	Water-Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ac FAC-Neutr Raised An	ned Leaves (B9) (I 4B) Patterns (B10) n Water Tabie (C2 Visible on Aerial I ic Pos itio n (D2) juitard (D3) ai Test (D5) Mounds (D6) (LF	MLRA 1, 2, 2) magery (C9) 2 R A)
Vetland Hydri rimary indical Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algai Mat o iron Depos Surface So Surface So Sparsely V Veld Observa	ology Indicators: tors (minimum of or later (A1) in Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) Visible on Aerial in legetated Concave tions: Present?	nagery (B7) Surface (B8)	heck all that apply Water-Stair MLRA 1 Salt Crust (Aquatic Invo Hydrogen S Oxidized Ri Presence o Recent iron Stunted or S Other (Expl) ned Leaves , 2, 4A, an B11) ertebrates Sulfide Odo nizospheres f Reduced Reduction Stressed Pl ain in Remain stressed Pl ain in Remain bes):	: (B9) (ex d 4B) (B13) r (C1) s along t iron (C4) h in Tilled lants (D1 arks)	iving Root Soils (C6)) (LRR A)	<u>Se</u> ts (C3)	Water-Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ac FAC-Neutr Raised An	ned Leaves (B9) (I 4B) Patterns (B10) n Water Tabie (C2 Visible on Aerial I ic Pos itio n (D2) juitard (D3) ai Test (D5) Mounds (D6) (LF	MLRA 1, 2, 2) magery (C9) 2 R A)
Vetland Hydri rimary indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algai Mat o iron Depos Surface So Inundation Sparsely V Seid Observat uurface Water	ology Indicators: tors (mlnimum of or later (A1) r Table (A2) (A3) tks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) Visible on Aerial in /egetated Concave tions: Present? Ye	nagery (B7) Surface (B8) es No	heck ail that apply Water-Stair MLRA 1 Salt Crust (Aquatic Invo Hydrogen S Oxidized Ri Presence o Recent iron Stunted or S Other (Expi) ned Leaves , 2, 4A, an B11) ertebrates (Sulfide Odo nizosphere: f Reduced Reduction Stressed Pl ain in Remain stressed Pl ain in Remain hes):	(B9) (ex d 4B) (B13) r (C1) s along t iron (C4) h in Tilled lants (D1 arks)	iving Root Soils (C6)) (LRR A)	<u>Se</u> ts (C3)	Water-Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ac FAC-Neutr Raised An	ned Leaves (B9) (I 4B) Patterns (B10) n Water Tabie (C2 Visible on Aerial I ic Pos itio n (D2) juitard (D3) ai Test (D5) Mounds (D6) (LF	MLRA 1, 2, 2) magery (C9) 2 R A)
Vetland Hydri rimary indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algai Mat o Iron Depos Surface So Inundation Sparsely V Veid Observat Vater Table Pr aturation Pres	ology Indicators: tors (minimum of or later (A1) or Table (A2) (A3) tks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) Visible on Aerial in legetated Concave tions: Present? Yesent? sent? Yesary fringe)	nagery (B7) Surface (B8) es No es No es No	heck ail that apply Water-Stair MLRA 1 Salt Crust (Aquatic Invo Hydrogen S Oxidized Rl Presence o Recent iron Stunted or S Other (Expi) ned Leaves , 2, 4A, an B11) ertebrates (Sulfide Odo nizosphere: f Reduced Reduction Stressed Pl ain in Remain hes): hes):	: (B9) (ex d 4B) (B13) r (C1) s along t iron (C4) h in Tilled lants (D1 arks)	iving Root Soils (C6)) (LRR A)		Water-Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ad FAC-Neutr Raised Ant Frost-Heav	ned Leaves (B9) (I 4B) Patterns (B10) n Water Tabie (C2 Visible on Aerial I ic Pos itio n (D2) juitard (D3) ai Test (D5) Mounds (D6) (LF	MLRA 1, 2, 2) magery (C9) 2 R A)
Vetland Hydri rimary indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algai Mat o Iron Depos Surface So Inundation Sparsely V Veld Observat Vater Table Pr aturation Pres	ology Indicators: tors (minimum of or later (A1) or Table (A2) (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) Visible on Aerial in legetated Concave tions: Present? Yesent?	nagery (B7) Surface (B8) es No es No es No	heck ail that apply Water-Stair MLRA 1 Salt Crust (Aquatic Invo Hydrogen S Oxidized Rl Presence o Recent iron Stunted or S Other (Expi) ned Leaves , 2, 4A, an B11) ertebrates (Sulfide Odo nizosphere: f Reduced Reduction Stressed Pl ain in Remain hes): hes):	: (B9) (ex d 4B) (B13) r (C1) s along t iron (C4) h in Tilled lants (D1 arks)	iving Root Soils (C6)) (LRR A)		Water-Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ad FAC-Neutr Raised Ant Frost-Heav	ned Leaves (B9) (I 4B) Patterns (B10) n Water Table (C2 Visible on Aerial I ic Pos itio n (D2) juitard (D3) ai Test (D5) Mounds (D6) (LF re Hummocks (D7	MLRA 1, 2, magery (C9) R A)
rimary indicat Surface W High Wate Saturation Water Mar Sediment I Orift Depos Algai Mat o Inft Depos Surface So Inundation Sparsely V Sater Vater Vater Table Pr aturation Pres Includes capilit	ology Indicators: tors (minimum of or later (A1) or Table (A2) (A3) tks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) Visible on Aerial in legetated Concave tions: Present? Yesent? sent? Yesary fringe)	nagery (B7) Surface (B8) es No es No es No	heck ail that apply Water-Stair MLRA 1 Salt Crust (Aquatic Invo Hydrogen S Oxidized Rl Presence o Recent iron Stunted or S Other (Expi) ned Leaves , 2, 4A, an B11) ertebrates (Sulfide Odo nizosphere: f Reduced Reduction Stressed Pl ain in Remain hes): hes):	: (B9) (ex d 4B) (B13) r (C1) s along t iron (C4) h in Tilled lants (D1 arks)	iving Root Soils (C6)) (LRR A)		Water-Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ad FAC-Neutr Raised Ant Frost-Heav	ned Leaves (B9) (I 4B) Patterns (B10) n Water Table (C2 Visible on Aerial I ic Pos itio n (D2) juitard (D3) ai Test (D5) Mounds (D6) (LF re Hummocks (D7	MLRA 1, 2, 2) magery (C9) 2(R A))

Project/Site: Crude Rail Unleading Facility	City/County:		Sampling Date: <u>Jun 23, 201</u> 7 Sampling Point: <u>SP</u> -C (
Investigator(s): J. Walker, B. Kidder	Section, Township, R		
Landform (hillslope, terrace, etc.):	Local relief (concave	, convex, none):	Slope (%):
Subregion (LRR):	.at:	Long:	Datum: NAD83
Soil Map Unit Name: Bow gravely lam, C	to 3 percent stu	NWI classifica	ilon:PFO
Are climatic / hydrologic conditions on the site typical for this tir			
Are Vegetation, Soli, or Hydrology sign	ficantly disturbed? Are	"Normal Circumstances" pro	esent? Yes X No
Are Vegetation, Soli, or Hydrology natu		needed, explain any answers	in Remarks.)
SUMMARY OF FINDINGS – Attach site map sh	owing sampling point	locations, transects,	important features, etc.
	is the Sample within a Wetla	· · · · · · · · · · · · · · · · · · ·	No
Remarks:			
VEGETATION – Use scientific names of plants.			
A A	bsolute Dominant Indicator	Dominance Test works	heet:
	Cover Species? Status	- Number of Dominant Spo	
1. Alnus (abra	160 × FAC	_ That Are OBL, FACW, or	rFAC: (A)
2.			

1. Alnus (abra		<u> </u>	FAC	That Are OBL, FACW, or FAC: (A)
2 3				Total Number of Dominant (B)
4 Sapling/Shrub Stratum (Plot size:)	160	_ = Total Co	over	Percent of Dominant Specles That Are OBL, FACW, or FAC: (A/B)
1. Symphonicarpus albus	30	¥	FACU	Prevalence Index worksheet:
2. Rubus spectabilis				Total % Cover of; Multiply by:
3.				OBL species x 1 =
4				FACW species x 2 =
5				FAC species 145 x 3 = 435
	45	_ = Total Co	ver	FACU species x 4 =
Herb Stratum (Plot size:)		-		UPL species x 5 =
	10	<u> </u>	FAC	Column Totals: (A) (B)
	20	<u> </u>	FAC	Prevalence Index = B/A = 3.24
3. Tellina grandiflora	10	<u>X</u>	FACU	Hydrophytic Vegetation indicators:
4		·		1 - Rapid Test for Hydrophytic Vegetation
5		·		X 2 - Dominance Test is >50%
6		•		3 - Prevalence Index is ≤3.0¹
7				4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
9				5 - Wetiand Non-Vascular Plants ¹
10				Problematic Hydrophytic Vegetation ¹ (Explain)
11		•		'Indicators of hydric soil and wetland hydrology must
	40	= Total Co	ver	be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size:)			. Q. B.	
1. Rubus ursinus	5		FACU	Hydrophytic
2				Vegetation Present? Yes X No
% Bare Ground in Herb Stratum	_5	_= Total Co	ver	
Remarks:				

SOIL

epth nches)	<u>Matrix</u> Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		Remarks
10-7	104R 3.5/1	93	10YR 4/3	2		14		
	25 4 42					M	laam	
		2000	10YR YY		$\frac{c}{c}$		<u>SL</u>	·
1-16	2.5 7 72	35	7.5YR416	15	<u> </u>	<u>_M</u>	SCL	
	34 (32)		120 C			<u> </u>		<u>- 1</u>
					÷			
		ä						
~				•				
. <u></u>	· · · · · · · · · ·		<u> </u>	•				
				·		`		
			Reduced Matrix, CS			d Sand Gr		ation: PL=Pore Lining, M=Matrix.
		cable to all	LRRs, unless other		Bđ.)			rs for Problematic Hydric Solis ³ :
_ Histosol			Sandy Redox (n Muck (A10)
	ipedon (A2)		Stripped Matrix	• •				Parent Material (TF2)
Black His	• •		Loamy Mucky M	•		MLRA 1)		Shallow Dark Surface (TF12)
	n Sulfide (A4)	- /	Loamy Gleyed	-)		Othe	er (Expiain in Remarks)
	Below Dark Surfa	ce (A11)	Depleted Matrix				3,,, ,	
_	rk Surface (A12)		_X Redox Dark Su					rs of hydrophytic vegetation and
	ucky Mineral (S1)		Depleted Dark		7)			nd hydrology must be present,
	leyed Matrix (S4) ayer (If present):		Redox Depress	ions (F8)				s disturbed or problematic.
	compical (30	527	a
Туре:		ger_						
Depth (inc	hes): 📩 🚺	R.					Hydric Soil	Present? Yes X No
		II.				\$3	2 2 4	
			2			8		
etiand Hyd	rology Indicators		d: check all that appl			8	Saaa	dan (Indicators (2 or more required)
etiand Hyd mary Indica	rology Indicators ators (mlnimum of		d; check all that appl		- (50) (0		ndary Indicators (2 or more required)
etiand Hyd imary Indica Surface V	rology Indicators ators (mlnimum of Vater (A1)		Water-Stai	ned Leave		xcept		ater-Stained Leaves (B9) (MLRA 1, 2
etland Hyd imary Indica _ Surface V _ High Wat	rology Indicators ators (mlnimum of Vater (A1) er Table (A2)		Water-Stai	ined Leave 1, 2, 4A, a		xcept	v	/ater-Stained Leaves (B9) (MLRA 1, 3 4A, and 4B)
atland Hyd mary Indica Surface V High Wat Saturation	rology Indicators ators (mlnimum of Vater (A1) er Table (A2) n (A3)		Water-Stai MLRA Salt Crust	ined Leave 1, 2, 4A, a (B11)	ind 4B)	xcept	w v	/ater-Stained Leaves (B9) (MLRA 1 , 2 4A, and 4B) rainage Patterns (B10)
etland Hyd mary Indica Surface V High Wat Saturation Water Ma	rology Indicators ators (mlnimum of Vater (A1) er Table (A2) n (A3) arks (B1)		Water-Stai MLRA Salt Crust	ined Leave 1, 2, 4A, a (B11) vertebrates	und 4B) s (B13)	xcept	w 0 0	/ater-Stained Leaves (B9) (MLRA 1, 3 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2)
etland Hyd mary Indica Surface V High Wat Saturation Water Ma Sediment	rology Indicators ators (mlnimum of Vater (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2)		Water-Stai MLRA Sait Crust Aquatic Inv Hydrogen	ined Leave 1, 2, 4A, a (B11) vertebrates Sulfide Od	ind 4B) s (B13) lor (C1)	1	w D S	Vater-Stained Leaves (B9) (MLRA 1, 5 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C
etland Hyd mary Indica Surface V High Wat Saturation Water Ma Sediment Drift Depo	rology Indicators ators (mlnimum of Vater (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3)		Water-Stail MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F	ined Leave 1, 2, 4A, a (B11) vertebrates Sulfide Od Rhizospher	i nd 4B) s (B13) dor (C1) res along	Living Roo	W D S ts (C3) G	/ater-Stained Leaves (B9) (MLRA 1 , 5 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C eomorphic Position (D2)
etland Hyd mary Indica Surface V High Wat Saturation Water Ma Sediment Drift Depo Algal Mat	rology Indicators ators (mlnimum of Vater (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) or Crust (B4)		Water-Stai MLRA Sait Crust Aquatic Inv Hydrogen	ined Leave 1, 2, 4A, a (B11) vertebrates Sulfide Od Rhizospher	i nd 4B) s (B13) dor (C1) res along	Living Roo	W D S ts (C3) G	Vater-Stained Leaves (B9) (MLRA 1, 5 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C
etland Hyd mary Indica Surface V High Wat Saturation Water Ma Sediment Drift Depo	rology Indicators ators (mlnimum of Vater (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) or Crust (B4)		Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized R Presence c Recent Iro	ined Leave 1, 2, 4A, a (B11) vertebrates Sulfide Od Rhizospher of Reduce n Reducei	nd 4B) s (B13) dor (C1) res along d Iron (C4 on in Tilleo	Living Roo .) J Soils (C6	W D D S ts (C3) G X S) F	/ater-Stained Leaves (B9) (MLRA 1 , 5 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C eomorphic Position (D2)
etland Hyd imary Indica Surface V High Wat Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Surface S	rology Indicators ators (mlnimum of a Vater (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) or Crust (B4) osits (B5) Goil Cracks (B6)	one require	Water-Stain MLRA Salt Crust Aquatic Inv Hydrogen Oxidized R Presence of Recent Iro Stunted or	ined Leave 1, 2, 4A, a (B11) vertebrates Sulfide Od Rhizospher of Reduce n Reducei	nd 4B) s (B13) dor (C1) res along d Iron (C4 on in Tilleo	Living Roo .) J Soils (C6	W D D S ts (C3) G X S) F	/ater-Stained Leaves (B9) (MLRA 1 , 2 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturatlon VIsible on Aerial Imagery (C eomorphic Position (D2) hallow Aquitard (D3)
etland Hyd imary Indica Surface V High Wat Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Surface S	rology Indicators ators (mlnimum of Vater (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) posits (B3) or Crust (B4) posits (B5)	one require	Water-Stain MLRA Salt Crust Aquatic Inv Hydrogen Oxidized R Presence of Recent Iro Stunted or	ned Leave 1, 2, 4A, a (B11) vertebrates Sulfide Od Rhizospher of Reduce n Reductio Stressed	nd 4B) s (B13) for (C1) res along d Iron (C4 on in Tilleo Plants (D	Living Roo .) J Soils (C6	W D S (C3) G S F, R	Vater-Stained Leaves (B9) (MLRA 1 , 2 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C eomorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5)
etiand Hyd imary Indica Surface V High Wat Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Surface S Inundation	rology Indicators ators (mlnimum of a Vater (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) or Crust (B4) osits (B5) Goil Cracks (B6)	one require	Water-Stain MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iro Stunted or 7) Other (Exp	ned Leave 1, 2, 4A, a (B11) vertebrates Sulfide Od Rhizospher of Reduce n Reductio Stressed	nd 4B) s (B13) for (C1) res along d Iron (C4 on in Tilleo Plants (D	Living Roo .) J Soils (C6	W D S (C3) G S F, R	Vater-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C eomorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A)
etland Hyd mary Indica Surface V High Wat Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Surface S Inundation Sparsely	rology Indicators ators (mlnimum of Vater (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) posits (B3) or Crust (B4) posits (B5) Goil Cracks (B6) n Visible on Aerial Vegetated Concav atlons:	one require	Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence o Recent Iro Stunted or 7) Other (Exp B8)	ined Leave 1, 2, 4A, a (B11) vertebrate: Sulfide Od Rhizospher of Reduce n Reductio Stressed olain in Re	nd 4B) s (B13) for (C1) res along d Iron (C4 on in Tilleo Plants (D marks)	Living Roo .) J Soils (C6	W D S (C3) G S F, R	Vater-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C eomorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A)
etland Hyd imary Indica Surface V High Wat Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Surface S Inundation Sparsely	rology Indicators ators (mlnimum of Vater (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) posits (B3) or Crust (B4) posits (B5) Goil Cracks (B6) n Visible on Aerial Vegetated Concav atlons:	one require	Water-Stain MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iro Stunted or 7) Other (Exp	ined Leave 1, 2, 4A, a (B11) vertebrate: Sulfide Od Rhizospher of Reduce n Reductio Stressed olain in Re	nd 4B) s (B13) for (C1) res along d Iron (C4 on in Tilleo Plants (D marks)	Living Roo .) J Soils (C6	W D S (C3) G S F, R	Vater-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C eomorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A)
etiand Hyd imary Indica Surface V High Wat Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Surface S Inundation Sparsely Eid Observa	rology Indicators ators (mlnimum of a Vater (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) or Crust (B4) osits (B5) Soil Cracks (B6) n Visible on Aerial Vegetated Concav atlons: r Present?	Imagery (B e Surface ('es	Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence o Recent Iro Stunted or 7) Other (Exp B8)	ined Leave 1, 2, 4A, a (B11) vertebrates Sulfide Od Rhizospher of Reduces n Reduction Stressed plain in Res ches):	nd 4B) s (B13) for (C1) res along d Iron (C4 on in Tilled Plants (D marks)	Living Roo -) d Soils (C6 1) (LRR A)	W D S (C3) X G X S) F, F	Vater-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C eomorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) rost-Heave Hummocks (D?)
etiand Hyd imary Indica Surface V High Wat Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Surface S Inundation Sparsely eid Observa Inface Water ater Table P	rology Indicators ators (mlnimum of a Vater (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) posits (B3) to r Crust (B4) posits (B5) Soil Cracks (B6) n Visible on Aerial Vegetated Concav atlons: r Present?	Imagery (B e Surface ('es	Water-Stain MLRA Salt Crust Aquatic Inv Hydrogen Oxidized R Presence of Recent Iro Stunted or 7) Other (Exp B8)	ined Leave 1, 2, 4A, a (B11) vertebrates Sulfide Od Rhizospher of Reduces n Reduction Stressed plain in Res ches):	nd 4B) s (B13) for (C1) res along d Iron (C4 on in Tilleo Plants (D marks) 2	Living Roo -) d Soils (C6 1) (LRR A)	W D S (C3) X G X S) F, F	Vater-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C eomorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A)
etiand Hyd imary Indica Surface V High Wat Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Surface S Inundation Sparsely eld Observa ater Table P aturation Pre	rology Indicators ators (mlnimum of a Vater (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) posits (B3) or Crust (B4) posits (B5) Goil Cracks (B6) n Visible on Aerial Vegetated Concav atlons: r Present?	Imagery (B e Surface ('es 'es	Water-Stain MLRA Salt Crust Aquatic Inv Hydrogen Oxidized R Presence of Recent Iro Stunted or 7) Other (Exp B8) No <u>X</u> Depth (inc No Depth (inc	(B11) vertebrates Sulfide Od Rhizospher of Reduce n Reductio Stressed blain in Ref ches): ches):	nd 4B) s (B13) for (C1) res along d Iron (C4 on in Tilled Plants (D marks) 2	Living Roo) d Soils (C6 1) (LRR A)	W D S (C3) G S F, F F	Vater-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C eomorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) rost-Heave Hummocks (D?)
imary Indica Surface V High Wat Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Surface S Inundation Sparsely eid Observa ater Table P aturation Pre	rology Indicators ators (mlnimum of a Vater (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) posits (B3) or Crust (B4) posits (B5) Goil Cracks (B6) n Visible on Aerial Vegetated Concav atlons: r Present?	Imagery (B e Surface ('es 'es	Water-Stain MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iro Stunted or 7) Other (Exp B8) No X Depth (ind No Depth (ind	(B11) vertebrates Sulfide Od Rhizospher of Reduce n Reductio Stressed blain in Ref ches): ches):	nd 4B) s (B13) for (C1) res along d Iron (C4 on in Tilled Plants (D marks) 2	Living Roo) d Soils (C6 1) (LRR A)	W D S (C3) G S F, F F	Vater-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C eomorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) rost-Heave Hummocks (D?)
etiand Hyd imary Indica Surface V High Wate Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Surface S Inundation Sparsely eld Observa ater Table P ituration Pre cludes capil	rology Indicators ators (mlnimum of a Vater (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) posits (B3) or Crust (B4) posits (B5) Goil Cracks (B6) n Visible on Aerial Vegetated Concav atlons: r Present?	Imagery (B e Surface ('es 'es	Water-Stain MLRA Salt Crust Aquatic Inv Hydrogen Oxidized R Presence of Recent Iro Stunted or 7) Other (Exp B8) No <u>X</u> Depth (inc No Depth (inc	(B11) vertebrates Sulfide Od Rhizospher of Reduce n Reductio Stressed blain in Ref ches): ches):	nd 4B) s (B13) for (C1) res along d Iron (C4 on in Tilled Plants (D marks) 2	Living Roo) d Soils (C6 1) (LRR A)	W D S (C3) G S F, F F	Vater-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C eomorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) rost-Heave Hummocks (D?)
etiand Hyd imary Indica Surface V High Wat Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Surface S Inundation Sparsely eid Observa ater Table P turation Pre cludes capil	rology Indicators ators (mlnimum of a Vater (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) posits (B3) or Crust (B4) posits (B5) Goil Cracks (B6) n Visible on Aerial Vegetated Concav atlons: r Present?	Imagery (B e Surface ('es 'es	Water-Stain MLRA Salt Crust Aquatic Inv Hydrogen Oxidized R Presence of Recent Iro Stunted or 7) Other (Exp B8) No <u>X</u> Depth (inc No Depth (inc	(B11) vertebrates Sulfide Od Rhizospher of Reduce n Reductio Stressed blain in Ref ches): ches):	nd 4B) s (B13) for (C1) res along d Iron (C4 on in Tilled Plants (D marks) 2	Living Roo) d Soils (C6 1) (LRR A)	W D S (C3) G S F, F F	Vater-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C eomorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) rost-Heave Hummocks (D?)
etiand Hyd mary Indica Surface V High Wat Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Surface S Inundation Sparsely Hobserva rface Water ater Table P turation Pre cludes capil scribe Reco	rology Indicators ators (mlnimum of a Vater (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) posits (B3) or Crust (B4) posits (B5) Goil Cracks (B6) n Visible on Aerial Vegetated Concav atlons: r Present?	Imagery (B e Surface ('es 'es	Water-Stain MLRA Salt Crust Aquatic Inv Hydrogen Oxidized R Presence of Recent Iro Stunted or 7) Other (Exp B8) No <u>X</u> Depth (inc No Depth (inc	(B11) vertebrates Sulfide Od Rhizospher of Reduce n Reductio Stressed blain in Ref ches): ches):	nd 4B) s (B13) for (C1) res along d Iron (C4 on in Tilled Plants (D marks) 2	Living Roo) d Soils (C6 1) (LRR A)	W D S (C3) G S F, F F	Vater-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C eomorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) rost-Heave Hummocks (D?)

NETLAND DETERMINATION DATA FORM	- Western Mountains,	Valleys, and Coast Region
---------------------------------	----------------------	---------------------------

oject/Site: Crude Kail U	cloading tac	ility (City/County:	Sampling Date: Jan 23, 2 State: WA Sampling Point: SP-C2
ppilcant/Owner: <u>ALL KR</u>	P. K. Las			
				nge: Section 33, 35 N 215
				convex, none): Covix Siope (%): 7
bregion (LRR): A	-0 -1	Lat:		_ Long: Datum: Datum: DAD8;
				NWI classification: Upland
e climatic / hydrologic conditions on th	e site typical for th	is time of yea	ar? Yes X No	(if no, explain in Remarks.)
e ∨egetation, Soli _X_, or I	Hydrology	significantly	disturbed? Are "	'Normal Circumstances" present? Yes No X
e Vegetation, Soli, or I	Hydrology	naturally pro	blematic? (If ne	eeded, explain any answers in Remarks.)
JMMARY OF FINDINGS - A	ttach site map	showing	sampling point l	ocations, transects, important features, etc.
lydrophytic Vegetation Present?	Yes X	No		
lydric Soli Present?	Yes I	-	is the Sampled	
/etland Hydrology Present?	Yes	No	within a Wetla	
EGETATION - Use scientific				
ree Stratum (Plot size: 36		Absolute		Dominance Test worksheet:
Alaus nora		Contraction of the second	Species? <u>Status</u>	Number of Dominant Species (A)
the state of the second st			IAS	
•	•			Total Number of Dominant Species Across All Strata: (B)
•				
•		35	= Total Cover	Percent of Dominant Species That Are OBL, FACW, or FAC:(A/B)
apling/Shrub Stratum (Plot size:	_)			Prevalence Index worksheet:
Rubus greatabilis	·		X Ek	Total % Cover of: Multiply by:
•				OBL species X 1 =
•				FACW species x 2 =
•				FAC species x 3 = 285
			= Total Cover	FACU species x 4 =
lerb Stratum (Plot size: 5)		_ = Total Cover	UPL species x 5 =
				Column Totals: <u>95</u> (A) <u>295</u> (B)
•			· ·	Prevalence Index = B/A =
•				Hydrophytic Vegetation indicators:
·			. <u> </u>	1 - Rapid Test for Hydrophytic Vegetation
• • • • • • • • • • • • • • • • •			·	X 2 - Dominance Test is >50%
			·	X 3 - Prevalence Index is ≤3.0¹
•				4 - Morphological Adaptations ¹ (Provide supporting
•		<u> </u>		data in Remarks or on a separate sheet) 5 - Wetiand Non-Vascular Plants ¹
)		<u> </u>	·	5 - Wettand Non-Vascular Plants Problematic Hydrophytic Vegetation ¹ (Explain)
0				Indicators of hydric soil and wetland hydrology must
1		-	= Total Cover	be present, unless disturbed or problematic.
	- ()			
Noody Vine Stratum (Plot size: 5				Hydrophytic
Noody Vine Stratum (Plot size:				
			·	Manatation
·				

Sampling Point: ______

epth nches)	Color (moist) %	Color (mois	·) %	Type ¹	Loc2	Texture		Remarks	
		makria					lexture		Kemarks	
0-19+	<u>Fin</u>	maena	<u> </u>				P. 8 3	î v		
1	54									
					<u> </u>		• • • • • •			
·									3	<u> </u>
										······
					<u> </u>					
			•						· · · ·	
			•					 		
			A=Reduced Matri			Sand Grains			Pore Lining,	
/dric Soll ir	ndicators: (Ap	pilcable to a	li LRRs, uniess o		ed.)		Indicato	s for Prob	lematic Hyd	iric Solis ³ :
_ Histosoi (•		Sandy Red	ox (S5)	*		2 cm	Muck (A10))	
	pedon (A2)		Stripped M				Red	Parent Mat	erial (TF2)	
_ Black His				cky Mineral (F1		LRA 1)	Very	Shallow Da	ark Surface ((TF12)
	Sulfide (A4)			yed Matrix (F2))	254	Othe	r (Explain Ir	n Remarks)	
	Below Dark Sur	• •	Depleted M				•			
	k Surface (A12)			k Surface (F6)					hytic vegeta	
	icky Mineral (S1			ark Surface (F	7)				y must be pr	-
	eyed Matrix (S4		Redox Dep	ressions (F8)			unless	disturbed	or problema	tic.
-	iyer (if present):			ал. С					
Туре:				51 5 1					()	19 B
Depth (inch	es):					H	ydric Soli I	Present?	Yes	NoX
13	2 192		rs hyd	me soil i	indeenfo	13 (714)	ent	<u>.</u>		
DROLOG	2 192	- rs:	no hyd	nc soil i	in locato	13 6125	ont	ŝ		
DROLOG	Y ology indicato		no hyd		in lacato	15 6105	41	dary Indicat	tors (2 or mo	pre required)
DROLOG	Y ology Indicato tors (minimum c		ed; check all that	apply)			Secon			
DROLOG atland Hydr mary Indical Surface W	Y ology Indicato tors (minimum c ater (A1)		ed; check all that	apply) -Stained Leave	es (B9) (exce		Secon	ater-Stained	d Leaves (B	ore required) 9) (MLRA 1, 2
DROLOG etiand Hydr mary Indical Surface W High Wate	Y ology Indicato tors (minimum o 'ater (A1) r Tabie (A2)		ed; check all that Water ML	apply) Stained Leave RA 1, 2, 4A, ar	es (B9) (exce		<u>Secon</u> W	ater-Stained 4A, and 4I	d Leaves (B! B)	
DROLOG etland Hydr mary Indicat Surface W High Wate Saturation	ology Indicato tors (minimum o dater (A1) r Tabie (A2) (A3)		ed; check all that a Water ML Salt C	apply) -Stained Leave RA 1, 2, 4A, ar rust (B11)	es (B9) (exce nd 4B)		<u>Secon</u> W	ater-Stained 4 A, and 4I ainage Patt	d Leaves (B B) tems (B10)	9) (MLRA 1, 3
DROLOG etiand Hydr mary Indicat Surface W High Wate Saturation Water Mar	Y ology Indicato tors (minimum o dater (A1) r Tabie (A2) (A3) ks (B1)		ad; check all that a Water ML Salt C Aquati	apply) Stained Leave RA 1, 2, 4A, an rust (B11) c Invertebrates	es (B9) (exca nd 4B) s (B13)		<u>Secon</u> W Dr Dr	ater-Stained 4 A, and 4 ainage Patt y-Season V	d Leaves (B B) tems (B10) Vater Table	9) (MLRA 1, 2
DROLOG atland Hydr mary Indicat Surface W High Wate Saturation Water Mar Sediment	Y ology Indicato tors (minimum of later (A1) or Table (A2) (A3) ks (B1) Deposits (B2)		ed; check all that Water ML Salt C Aquati Hydro	apply) Stained Leave RA 1, 2, 4A, an rust (B11) c Invertebrates gen Sulfide Od	es (B9) (exco nd 4B) s (B13) lor (C1)	ept	<u>Secon</u> W Dr Dr Sa	ater-Stained 4 A, and 4I ainage Patt y-Season V turation Vis	d Leaves (B B) tems (B10) Vater Table sible on Aeria	9) (MLRA 1, 2 (C2) al imagery (C
DROLOG atland Hydr mary Indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos	Y ology Indicato tors (minimum of ater (A1) r Tabie (A2) (A3) ks (B1) Deposits (B2) sits (B3)		ed; check all that Water ML Salt C Aquati Hydroi Oxidiz	apply) Stained Leave RA 1, 2, 4A, an rust (B11) c Invertebrates gen Sulfide Od ed Rhizosphere	es (B9) (exce nd 4B) s (B13) lor (C1) res along Liv	ept	<u>Secon</u> W Dr Dr Sa C3) Ge	ater-Stained 4 A, and 4I ainage Patt y-Season V turation Vis comorphic F	d Leaves (B B) terns (B10) Vater Table sible on Aeria Position (D2)	9) (MLRA 1, 2 (C2) al imagery (C
DROLOG atland Hydr mary Indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat o	Y ology Indicato tors (minimum of ater (A1) r Tabie (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4)		ed; check all that a Water Salt C Aquati Hydro Oxidiz Presei	apply) Stained Leave RA 1, 2, 4A, an rust (B11) c Invertebrates gen Sulfide Od ed Rhizosphere nce of Reduced	es (B9) (exce nd 4B) s (B13) lor (C1) res along Liv d Iron (C4)	ept ing Roots ((<u>Secon</u> W Dr Dr Sa C3)Ge St	ater-Stained 4 A, and 4 I ainage Patt y-Season V turation Vis comorphic F allow Aquit	d Leaves (B B) terns (B10) Vater Table sible on Aeria Position (D2) ard (D3)	9) (MLRA 1, 2 (C2) al imagery (C
DROLOG etiand Hydr mary Indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat o Iron Depos	Y ology Indicato tors (minimum of dater (A1) ir Tabie (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5)		ed; check all that a Water Salt C Aquati Hydroo Oxidiz Presei Recen	apply) Stained Leave RA 1, 2, 4A, an rust (B11) c Invertebrates gen Sulfide Od ed Rhizosphere ince of Reduced t Iron Reductio	es (B9) (exce nd 4B) s (B13) lor (C1) res along Liv d Iron (C4) on in Tilled S	ept ing Roots (C	<u>Secon</u> W Dr Dr Sa (23)Ge Sh FA	ater-Stained 4 A, and 4 I ainage Patt y-Season V turation Vis comorphic F allow Aquit C-Neutral 1	d Leaves (B B) tems (B10) Vater Table sible on Aeria Position (D2) tard (D3) Test (D5)	9) (MLRA 1, ; (C2) al imagery (C)
DROLOG etiand Hydr mary Indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat o Iron Depos Surface So	Y ology Indicato tors (minimum of dater (A1) ir Tabie (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oll Cracks (B6)	<u>if one requir</u>	ed; check all that a Water Salt C Aquati Hydro Oxidiz Presea Recen Stunte	apply) Stained Leave RA 1, 2, 4A, an rust (B11) c Invertebrates gen Sulfide Od ed Rhizosphere ince of Reduced t Iron Reductio d or Stressed F	es (B9) (exce nd 4B) s (B13) lor (C1) res along Liv d Iron (C4) on in Tilled S Plants (D1) (ept ing Roots (C ioils (C6)	<u>Secon</u> W Dr Dr Dr Sa C3)Ge St FA Ra	ater-Stained 4 A, and 4 I ainage Patt y-Season V turation Vis comorphic F allow Aquit C-Neutral 1 ised Ant M	d Leaves (B B) lems (B10) Vater Table sible on Aeria Position (D2) aard (D3) Test (D5) ounds (D6)	9) (MLRA 1, ; (C2) al Imagery (C) (LRR A)
DROLOG atland Hydr mary Indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat o Iron Depos Surface So Inundation	Y ology Indicato tors (minimum of later (A1) or Table (A2) (A3) dks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oll Cracks (B6) Visible on Aeri	<u>of one require</u> al imagery (E	ad; check all that a Water ML Salt C Aquati Hydrog Oxidiz Presen Recen Stunte 37) Other	apply) Stained Leave RA 1, 2, 4A, an rust (B11) c Invertebrates gen Sulfide Od ed Rhizosphere ince of Reduced t Iron Reductio	es (B9) (exce nd 4B) s (B13) lor (C1) res along Liv d Iron (C4) on in Tilled S Plants (D1) (ept ing Roots (C ioils (C6)	<u>Secon</u> W Dr Dr Dr Sa C3)Ge St FA Ra	ater-Stained 4 A, and 4 I ainage Patt y-Season V turation Vis comorphic F allow Aquit C-Neutral 1 ised Ant M	d Leaves (B B) tems (B10) Vater Table sible on Aeria Position (D2) tard (D3) Test (D5)	9) (MLRA 1, ; (C2) al Imagery (C) (LRR A)
DROLOG atland Hydr mary Indical Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat o Iron Depos Surface So Inundation Sparsely V	Y ology Indicato tors (minimum of dater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oll Cracks (B6) Visible on Aeri degetated Conc	<u>of one require</u> al imagery (E	ad; check all that a Water ML Salt C Aquati Hydrog Oxidiz Presen Recen Stunte 37) Other	apply) Stained Leave RA 1, 2, 4A, an rust (B11) c Invertebrates gen Sulfide Od ed Rhizosphere ince of Reduced t Iron Reductio d or Stressed F	es (B9) (exce nd 4B) s (B13) lor (C1) res along Liv d Iron (C4) on in Tilled S Plants (D1) (ept ing Roots (C ioils (C6)	<u>Secon</u> W Dr Dr Dr Sa C3)Ge St FA Ra	ater-Stained 4 A, and 4 I ainage Patt y-Season V turation Vis comorphic F allow Aquit C-Neutral 1 ised Ant M	d Leaves (B B) lems (B10) Vater Table sible on Aeria Position (D2) aard (D3) Test (D5) ounds (D6)	9) (MLRA 1, ; (C2) al Imagery (C) (LRR A)
DROLOG atland Hydr mary Indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat o Iron Depos Surface So Inundation Sparsely V	Y ology Indicato tors (minimum of ater (A1) in Tabie (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oll Cracks (B6) Visible on Aeria egetated Conce tions:	<u>of one require</u> al Imagery (E ave Surface	ed; check all that a Water Salt C Aquati Hydro Oxidiz Presei Recen Stunter 87) Other (B8)	apply) Stained Leave RA 1, 2, 4A, a rrust (B11) c Invertebrates gen Sulfide Od ed Rhizosphere nce of Reduced t Iron Reductio d or Stressed F (Explain in Ren	es (B9) (exce nd 4B) s (B13) lor (C1) res along Liv d Iron (C4) on in Tilled S Plants (D1) (marks)	ing Roots (Cioils (C6) (LRR A)	<u>Secon</u> W Dr Dr Dr Sa C3)Ge St FA Ra	ater-Stained 4 A, and 4 I ainage Patt y-Season V turation Vis comorphic F allow Aquit C-Neutral 1 ised Ant M	d Leaves (B B) lems (B10) Vater Table sible on Aeria Position (D2) aard (D3) Test (D5) ounds (D6)	9) (MLRA 1, ; (C2) al Imagery (C) (LRR A)
DROLOG etland Hydr mary Indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat o Iron Depos Surface So Inundation Sparsely V	Y ology Indicato tors (minimum of later (A1) ir Tabie (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oll Cracks (B6) Visible on Aeria legetated Conce tions: Present?	<u>of one require</u> al Imagery (E ave Surface Yes	ed; check all that Water ML Salt C Aquati Hydro, Oxidiz Presei Recen Stunte Stunte No X Depth	apply) -Stained Leave RA 1, 2, 4A, an rust (B11) c Invertebrates gen Sulfide Od ed Rhizosphere ince of Reduced t Iron Reductio d or Stressed F (Explain in Ren	es (B9) (exce nd 4B) s (B13) lor (C1) res along Liv d Iron (C4) on in Tilled S Plants (D1) (marks)	ing Roots (Cioils (C6) (LRR A)	<u>Secon</u> W Dr Dr Dr Sa C3)Ge St FA Ra	ater-Stained 4 A, and 4 I ainage Patt y-Season V turation Vis comorphic F allow Aquit C-Neutral 1 ised Ant M	d Leaves (B B) lems (B10) Vater Table sible on Aeria Position (D2) aard (D3) Test (D5) ounds (D6)	9) (MLRA 1, ; (C2) al Imagery (C) (LRR A)
DROLOG etland Hydr imary Indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat o Iron Depos Surface So Surface So Inundation Sparsely V HI Observat rface Water	Y ology Indicato tors (minimum of later (A1) or Table (A2) (A3) dks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oll Cracks (B6) Visible on Aeri- legetated Conci tions: Present? esent?	al Imagery (E ave Surface Yes Yes	ad; check all that a Water ML Salt C Aquati Hydrov Oxidiz Presen Recen Stunter (B8) No Depth No Depth	apply) Stained Leave RA 1, 2, 4A, an rust (B11) c Invertebrates gen Sulfide Od ed Rhizosphere nce of Reduced t Iron Reductio d or Stressed F (Explain in Ren (inches):	es (B9) (exco nd 4B) s (B13) lor (C1) res along Liv d Iron (C4) on in Tilled S Plants (D1) (marks)	ept ing Roots (C ioils (C6) (LRR A)	<u>Secon</u> W Dr Dr Sa St St FA Ra Fr	ater-Stained 4 A, and 4 I ainage Patt y-Season V turation Vis comorphic F allow Aquit cC-Neutral T sised Ant Mo ost-Heave F	d Leaves (B B) Rems (B10) Vater Table sible on Aeria Position (D2) aard (D3) Test (D5) ounds (D6) Hummocks (9) (MLRA 1, ; (C2) al Imagery (C) (LRR A) D?)
DROLOG etland Hydr imary Indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat o Iron Depos Surface So Surface So Inundation Sparsely V HI Observat rface Water ater Table Pres	Y ology Indicato tors (minimum of later (A1) or Table (A2) (A3) dks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oll Cracks (B6) Visible on Aeri- legetated Conce tions: Present? esent?	al Imagery (E ave Surface Yes Yes	ed; check all that Water ML Salt C Aquati Hydro, Oxidiz Presei Recen Stunte Stunte No X Depth	apply) Stained Leave RA 1, 2, 4A, an rust (B11) c Invertebrates gen Sulfide Od ed Rhizosphere nce of Reduced t Iron Reductio d or Stressed F (Explain in Ren (inches): o (inches):	es (B9) (exco nd 4B) s (B13) lor (C1) res along Liv d Iron (C4) on in Tilled S Plants (D1) (marks)	ept ing Roots (C ioils (C6) (LRR A)	<u>Secon</u> W Dr Dr Sa St St FA Ra Fr	ater-Stained 4 A, and 4 I ainage Patt y-Season V turation Vis comorphic F allow Aquit cC-Neutral T sised Ant Mo ost-Heave F	d Leaves (B B) Rems (B10) Vater Table sible on Aeria Position (D2) aard (D3) Test (D5) ounds (D6) Hummocks (9) (MLRA 1, ; (C2) al Imagery (C) (LRR A)
DROLOG etland Hydr imary Indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat o Iron Depos Surface So Inundation Sparsely V Id Observat rface Water ater Table Pr turation Pres	Y ology Indicato tors (minimum of later (A1) ir Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oll Cracks (B6) Visible on Aeria legetated Conce tions: Present? esent? esent? ary fringe)	al Imagery (E ave Surface Yes Yes Yes	ed; check all that a Water ML Salt C Aquati Hydrou Oxidiz Presen Stunter 87) Other (B8) No Depth No Depth No Depth	apply) Stained Leave RA 1, 2, 4A, and rust (B11) c Invertebrates gen Sulfide Odd ed Rhizosphere ince of Reduced t Iron Reductio d or Stressed F (Explain in Ren (inches): (inches):	es (B9) (exce nd 4B) s (B13) lor (C1) res along Liv d Iron (C4) on in Tilled S Plants (D1) (marks)	ept ing Roots (C ioils (C6) (LRR A) Wetland	<u>Secon</u> W Dr Dr Sa St St FA Fn Fn	ater-Stained 4 A, and 4 I ainage Patt y-Season V turation Vis comorphic F allow Aquit cC-Neutral T sised Ant Mo ost-Heave F	d Leaves (B B) Rems (B10) Vater Table sible on Aeria Position (D2) aard (D3) Test (D5) ounds (D6) Hummocks (9) (MLRA 1, ; (C2) al Imagery (C) (LRR A) D?)
DROLOG etiand Hydr mary Indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat o Iron Depos Surface So Inundation Sparsely V Id Observat rface Water turation Pres cludes capilla	Y ology Indicato tors (minimum of later (A1) ir Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oll Cracks (B6) Visible on Aeria legetated Conce tions: Present? esent? esent? ary fringe)	al Imagery (E ave Surface Yes Yes Yes	ad; check all that a Water ML Salt C Aquati Hydrov Oxidiz Presen Recen Stunter (B8) No Depth No Depth	apply) Stained Leave RA 1, 2, 4A, and rust (B11) c Invertebrates gen Sulfide Odd ed Rhizosphere ince of Reduced t Iron Reductio d or Stressed F (Explain in Ren (inches): (inches):	es (B9) (exce nd 4B) s (B13) lor (C1) res along Liv d Iron (C4) on in Tilled S Plants (D1) (marks)	ept ing Roots (C ioils (C6) (LRR A) Wetland	<u>Secon</u> W Dr Dr Sa St St FA Fn Fn	ater-Stained 4 A, and 4 I ainage Patt y-Season V turation Vis comorphic F allow Aquit cC-Neutral T sised Ant Mo ost-Heave F	d Leaves (B B) Rems (B10) Vater Table sible on Aeria Position (D2) aard (D3) Test (D5) ounds (D6) Hummocks (9) (MLRA 1, ; (C2) al Imagery (C) (LRR A) D?)
imary Indicat Surface W High Wate Saturation Water Mar Sediment I Orift Depos Algal Mat o Iron Depos Surface So Inundation Sparsely V Sold Observat rface Water ater Table Pr turation Pres cludes capilla scribe Recor	Y ology Indicato tors (minimum of later (A1) ir Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oll Cracks (B6) Visible on Aeria legetated Conce tions: Present? esent? esent? ary fringe)	al Imagery (E ave Surface Yes Yes Yes	ed; check all that a Water ML Salt C Aquati Hydrou Oxidiz Presen Stunter 87) Other (B8) No Depth No Depth No Depth	apply) Stained Leave RA 1, 2, 4A, and rust (B11) c Invertebrates gen Sulfide Odd ed Rhizosphere ince of Reduced t Iron Reductio d or Stressed F (Explain in Ren (inches): (inches):	es (B9) (exce nd 4B) s (B13) lor (C1) res along Liv d Iron (C4) on in Tilled S Plants (D1) (marks)	ept ing Roots (C ioils (C6) (LRR A) Wetland	<u>Secon</u> W Dr Dr Sa St St FA Fn Fn	ater-Stained 4 A, and 4 I ainage Patt y-Season V turation Vis comorphic F allow Aquit cC-Neutral T sised Ant Mo ost-Heave F	d Leaves (B B) Rems (B10) Vater Table sible on Aeria Position (D2) aard (D3) Test (D5) ounds (D6) Hummocks (9) (MLRA 1, ; (C2) al Imagery (C) (LRR A) D?)
DROLOG etland Hydr imary Indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat o Iron Depos Surface So Inundation Sparsely V Id Observat rface Water ater Table Pr turation Pres	Y ology Indicato tors (minimum of later (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oll Cracks (B6) Visible on Aeria legetated Conce tions: Present? esent? esent? ary fringe)	al Imagery (E ave Surface Yes Yes Yes	ed; check all that a Water ML Salt C Aquati Hydrou Oxidiz Presen Stunter 87) Other (B8) No Depth No Depth No Depth	apply) Stained Leave RA 1, 2, 4A, and rust (B11) c Invertebrates gen Sulfide Odd ed Rhizosphere ince of Reduced t Iron Reductio d or Stressed F (Explain in Ren (inches): (inches):	es (B9) (exce nd 4B) s (B13) lor (C1) res along Liv d Iron (C4) on in Tilled S Plants (D1) (marks)	ept ing Roots (C ioils (C6) (LRR A) Wetland	<u>Secon</u> W Dr Dr Sa St St FA Fn Fn	ater-Stained 4 A, and 4 I ainage Patt y-Season V turation Vis comorphic F allow Aquit cC-Neutral T sised Ant Mo ost-Heave F	d Leaves (B B) Rems (B10) Vater Table sible on Aeria Position (D2) aard (D3) Test (D5) ounds (D6) Hummocks (9) (MLRA 1, ; (C2) al Imagery (C) (LRR A) D?)
DROLOG atland Hydr mary Indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat o Iron Depos Surface So Inundation Sparsely V Id Observat rface Water ter Table Pr turation Pres cludes capilla scribe Recor	Y ology Indicato tors (minimum of later (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oll Cracks (B6) Visible on Aeria legetated Conce tions: Present? esent? esent? ary fringe)	of one require al Imagery (E ave Surface Yes Yes Yes	ed; check all that a Water ML Salt C Aquati Hydrou Oxidiz Presen Stunter 87) Other (B8) No Depth No Depth No Depth	apply) Stained Leave RA 1, 2, 4A, a rust (B11) c Invertebrates gen Sulfide Od ed Rhizosphere nce of Reduced t Iron Reductio d or Stressed F (Explain in Ren (inches): (inches): (inches): inial photos, pre	es (B9) (exce nd 4B) s (B13) lor (C1) res along Liv d Iron (C4) on in Tilled S Plants (D1) (marks)	ept ing Roots ((ioils (C6) (LRR A) Wetland ctions), if av	<u>Secon</u> Wi Dr Sa St FA FA FA FA FA FA FA	Ater-Stained 4A, and 4I ainage Patt y-Season V turation Vis comorphic F allow Aquit C-Neutral 1 ised Ant Mo ost-Heave F	d Leaves (B B) Rems (B10) Vater Table sible on Aeria Position (D2) aard (D3) Test (D5) ounds (D6) Hummocks (9) (MLRA 1, ; (C2) al Imagery (C) (LRR A) D?)

WEILAND DETER	MINATION DAT	TA FORM	– West	ern Mou	intains, Valleys, and Coast Region
project/Site: Crudy Ray 1).	Joalin Far	litu c	ltv/County	ska	git Sampling Date: <u>01/24/</u>
	,	-			States lacA Samullas Dalate SP-CS
pplican/owner	761 21	1- B.K	dle		inge: Section 33, 35N, 2E
					convex, none): Slope (%): 10
ubregion (LRR):	The State	Lat:			_ Long: Datum: <u>NAD8</u>
oli Map Unit Name: <u>Urban land</u> -	-165		·	. <u></u>	NWI classification: <u>N/A</u>
re climatic / hydrologic conditions on the	site typical for this	time of year	? Yes	<u> </u>	(if no, explain in Remarks.)
re Vegetation, Soli, or H	ydrology sig	nificantiy di	sturbed?	Az Are "	"Normal Circumstances" present? Yes $\underline{\hspace{1.5cm}} X$ No
re Vegetation, Soli, or H					eeded, explain any answers in Remarks.)
			-		
SUMMARY OF FINDINGS - Att		nowing	samplin	g point l	ocations, transects, important features, etc
Hydrophytic Vegetation Present?		<u> </u>	1	• Compled	1.4
Hydric Soil Present?		<u> </u>	with	e Sampled in a Wetlar	nd? Yes No
Wetland Hydrology Present?					
Plotis between a	larap fil	1 pile	and	a -	treatment pond.
		· • •			×
/EGETATION – Use scientific n		_			
	••••••••••••••••••••••••••••••••••••••		D	t-dia-t-a	D
Tree Stratum (Plot size: 30		<u>% Cover</u>	Dominant Species?		Dominance Test worksheet: Number of Dominant Species
					That Are OBL, FACW, or FAC: (A)
2(
3					Total Number of Dominant Species Across All Strata: (B)
4					
Sapling/Shrub Stratum (Plot size:	c -	<u></u>	- Total Co	ver	Percent of Dominant Species (DD) That Are OBL, FACW, or FAC: (A/B)
Sapling/Shrub Stratum (Plot size:	<u>/)</u>				Prevalence index worksheet:
1. <u>N/A</u>					Total % Cover of: Multiply by:
2					OBL species x 1 =
3					FACW species $[N] \times 2 = 2m$
4 5					FAC species x 3 =
 ۲۰۰		<u> </u>	= Totai Cov		FACU species x 4 =
Herb Stratum (Plot size:))				UPL species x 5 =
1. Phalaris arundinacea		100	X	FACW	Column Totals: (10 (A) _ 20 (B)
2					Prevalence Index = $B/A = 2.0$
3					Hydrophytic Vegetation Indicators:
4			<u> </u>	<u>-</u>	1 - Rapid Test for Hydrophytic Vegetation
5					∑ 2 - Dominance Test is >50%
6				5.8	<u> </u>
7					4 - Morphological Adaptations ¹ (Provide supporting
8					data in Remarks or on a separate sheet)
9					5 - Wetland Non-Vascular Plants ¹
10					Problematic Hydrophytic Vegetation ¹ (Explain)
11	2	100			indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 5)	100 =	Totai Cov	er	
1					
· · · · · · · · · · · · · · · · · · ·					Hydrophytic Vegetation
2.				<u> </u>	Present? Yes No
2		2 -	Total Cov	er	
2		_2_=	Total Cov	er	
~		_2_=	Total Cov	er	

1

SOIL

Sampling Point: <u>SP-C3</u>

	put needed to docum	ent the India	cator or confi	rm the absence	s or mulcators.)
Depth <u>Matrix</u>		Features			· - ·
(inches) Color (moist) %	Color (moist)		/pe ¹ Loc ²	<u>Texture</u>	Remarks
0-6 2.57 4.5/2 9P	2.57 4/3		<u>c</u> <u>m</u>	- SiCILo	old fill material
6-9 10YR 3/1 100				Sicilo	20% 912
9-11 2.54 4/2 97	10YR 4/3	3	(M	Salo	20% gravel
PT-16 254 512 92	107R4/3	8	(M	Salo	
	8		141	(*) (*)	
· · ·					
¹ Type: C=Concentration, D=Depletion, RM	=Reduced Matrix, CS=	Covered or	Coated Sand	Grains. ² Lo	cation: PL=Pore Lining, M=Matrix.
Hydric Soil Indicators: (Applicable to all					ors for Problematic Hydric Solis ³ :
Histosoi (A1)	Sandy Redox (St	5)		2 c	m Muck (A10)
Histic Epipedon (A2)	Stripped Matrix (•			d Parent Material (TF2)
Black Histic (A3)	Loamy Mucky Mi		xcept MLRA		y Shallow Dark Surface (TF12)
Hydrogen Sulfide (A4)	Loamy Gleyed M	• •		Oth	ier (Explain in Remarks)
Depieted Below Dark Surface (A11)	Depleted Matrix (³ Indicat	ors of hydrophytic vegetation and
Thick Dark Surface (A12) Sandy Mucky Mineral (S1)	Depleted Dark Sun	• •			and hydrology must be present,
Sandy Gleyed Matrix (S4)	Redox Depressio				ss disturbed or problematic.
Restrictive Layer (if present):					
Type:					10 A
Depth (inches):				Hydric Soi	i Present? Yes No
Remarks: Depleted matrix Layurs about how mut an indi			4		
Depleted matrix	(11 - 16'')	is to	o dzej	0	
Laurs about has	12 too fe	iont red	ox Cor	contrati	tons to
mont an indi	cator.				
					20 U
HYDROLOGY					
Wetiand Hydrology Indicators:					
Primary Indicators (minimum of one require				_	
			a a		ndary Indicators (2 or more required)
X Surface Water (A1)	Water-Stain	ed Leaves (E			Vater-Stained Leaves (B9) (MLRA 1, 2,
K High Water Table (A2)	Water-Stain MLRA 1,	ed Leaves (E 2, 4A, and 4		`\`	Vater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
$\underline{\times}$ High Water Table (A2) $\underline{\checkmark}$ Saturation (A3)	Water-Stain MLRA 1, Salt Crust (E	ed Leaves (E 2, 4A, and 4 311)	IB)	\ (Vater-Stalned Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10)
★ High Water Table (A2) ★ Saturation (A3) Water Marks (B1)	Water-Stain MLRA 1, Salt Crust (E Aquatic Inve	ed Leaves (E 2, 4A, and 4 311) ertebrates (B ²	IB) 13)		Vater-Stalned Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2)
★ High Water Table (A2) ★ Saturation (A3) Water Marks (B1) Sediment Deposits (B2)	Water-Stain MLRA 1, Salt Crust (E Aquatic Inve	ed Leaves (E , 2, 4A, and 4 311) ertebrates (B [:] ulfide Odor (¹	IB) 13) C1)		Vater-Stalned Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Pattems (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9)
★ High Water Table (A2) ★ Saturation (A3)	Water-Stain MLRA 1, Salt Crust (E Aquatic Inve Hydrogen S Oxidized Rh	ed Leaves (E . 2, 4A, and 4 311) ertebrates (B [:] ulfide Odor (iizospheres a	IB) 13) C1) Ilong Living R	[[[[[[[[Vater-Stalned 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)
★ High Water Table (A2) ★ Saturation (A3)	Water-Stain MLRA 1, Salt Crust (E Aquatic Inve Hydrogen S Oxidized Rh Presence of	ed Leaves (E 2, 4A, and 4 311) ertebrates (B ulfide Odor (izospheres a Reduced Iro	IB) C1) Ilong Living R n (C4)	[]]	Water-Stalned 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)
★ High Water Table (A2) ★ Saturation (A3)	Water-Stain MLRA 1, Salt Crust (E Aquatic Inve Hydrogen S Oxidized Rh Presence of Recent Iron	ed Leaves (E 2, 4A, and 4 311) ertebrates (B ulfide Odor (I izospheres a Reduced Iro Reduction in	IB) C1) Ilong Living R n (C4) Tilled Soils (i		Vater-Stalned 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)
★ High Water Table (A2) ★ Saturation (A3)	Water-Stain MLRA 1, Salt Crust (E Aquatic Inve Hydrogen S Oxidized Rh Presence of Recent Iron Stunted or S	ed Leaves (E 2, 4A, and 4 311) ertebrates (B ulfide Odor (f izospheres a Reduced Iro Reduced Iro Reduction in Stressed Plar	IB) C1) Ilong Living R n (C4) Tilled Soils (its (D1) (LRR	oots (C3) 5 5 C6) 6	Vater-Stalned 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)
★ High Water Table (A2) ★ Saturation (A3)	Water-Stain MLRA 1, Salt Crust (E Aquatic Inve Hydrogen S Oxidized Rh Presence of Recent Iron Stunted or S 7) Other (Expla	ed Leaves (E 2, 4A, and 4 311) ertebrates (B ulfide Odor (I izospheres a Reduced Iro Reduction in	IB) C1) Ilong Living R n (C4) Tilled Soils (its (D1) (LRR	oots (C3) 5 5 C6) 6	Vater-Stalned 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)
★ High Water Table (A2) ★ Saturation (A3)	Water-Stain MLRA 1, Salt Crust (E Aquatic Inve Hydrogen S Oxidized Rh Presence of Recent Iron Stunted or S 7) Other (Expla	ed Leaves (E 2, 4A, and 4 311) ertebrates (B ulfide Odor (f izospheres a Reduced Iro Reduced Iro Reduction in Stressed Plar	IB) C1) Ilong Living R n (C4) Tilled Soils (its (D1) (LRR	oots (C3) 5 5 C6) 6	Vater-Stalned 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)
★ 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 (B ↓ Sparsely Vegetated Concave Surface (Water-Stain MLRA 1, Salt Crust (E Aquatic Inve Hydrogen S Oxidized Rh Presence of Recent Iron Stunted or S 7) Other (Expla B8)	ed Leaves (E 2, 4A, and 4 311) ertebrates (B ulfide Odor (izospheres a Reduced Iro Reduction in Stressed Plan ain in Remark	IB) C1) Ilong Living R n (C4) Tilled Soils (its (D1) (LRR	oots (C3) 5 5 C6) 6	Vater-Stalned 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)
★ High Water Table (A2) ★ Saturation (A3)	Water-Stain MLRA 1, Salt Crust (E Aquatic Inve Hydrogen S Oxidized Rh Presence of Recent Iron Stunted or S 7) Other (Expla B8) No Depth (inch	ed Leaves (E 2, 4A, and 4 311) ertebrates (B ulfide Odor (f izospheres a Reduced Iro Reduction in Stressed Plan ain in Remark	IB) C1) Ilong Living R n (C4) Tilled Soils (its (D1) (LRR	oots (C3) 5 5 C6) 6	Vater-Stalned 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)
★ 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 (B Sparsely Vegetated Concave Surface (Field Observations: Surface Water Present? Yes ★ Water Table Present?	Water-Stain MLRA 1, Salt Crust (E Aquatic Inve Hydrogen S Oxidized Rh Presence of Recent Iron Stunted or S 7) Other (Expla B8) No Depth (inch No Depth (inch	ed Leaves (E 2, 4A, and 4 311) ertebrates (B ulfide Odor (f izospheres a Reduced Iro Reduced Iro Reduction in Stressed Plan ain in Remark	(B) (C1) (long Living R n (C4) Tilled Soils ((ts (D1) (LRR (s)	[[[[[[C6) [A) [Vater-Stalned 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 (D?)
★ 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 (B Sparsely Vegetated Concave Surface (Field Observations: Yes X Yes X Yes Saturation Present? Yes Yes X (includes capillary fringe) Yes	Water-Stain MLRA 1, Salt Crust (E Aquatic Inve Hydrogen S Oxidized Rh Presence of Recent Iron Stunted or S 7) Other (Expla 88) No Depth (inch No Depth (inch No Depth (inch	ed Leaves (E 2, 4A, and 4 311) ertebrates (B ulfide Odor (f izospheres a Reduced Iro Reduction in Stressed Plan ain in Remark	HB) 13) C1) Iong Living R n (C4) Tilled Soils (ints (D1) (LRR (S))		Water-Stalned 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)
★ 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 (B Sparsely Vegetated Concave Surface (Field Observations: Yes Surface Water Present? Yes Water Table Present? Yes X Yes Saturation Present? Yes	Water-Stain MLRA 1, Salt Crust (E Aquatic Inve Hydrogen S Oxidized Rh Presence of Recent Iron Stunted or S 7) Other (Expla 88) No Depth (inch No Depth (inch No Depth (inch	ed Leaves (E 2, 4A, and 4 311) ertebrates (B ulfide Odor (f izospheres a Reduced Iro Reduction in Stressed Plan ain in Remark	HB) 13) C1) Iong Living R n (C4) Tilled Soils (ints (D1) (LRR (S))		Vater-Stalned 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 (D?)
★ 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 (B Sparsely Vegetated Concave Surface (Field Observations: Yes X Yes X Yes Saturation Present? Yes Yes X (includes capillary fringe) Yes	Water-Stain MLRA 1, Salt Crust (E Aquatic Inve Hydrogen S Oxidized Rh Presence of Recent Iron Stunted or S 7) Other (Expla 88) No Depth (inch No Depth (inch No Depth (inch	ed Leaves (E 2, 4A, and 4 311) ertebrates (B ulfide Odor (f izospheres a Reduced Iro Reduction in Stressed Plan ain in Remark	HB) 13) C1) Iong Living R n (C4) Tilled Soils (ints (D1) (LRR (S))		Vater-Stalned 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 (D?)
★ 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 (B Sparsely Vegetated Concave Surface (Field Observations: Yes X Yes X Yes Saturation Present? Yes Yes X (includes capillary fringe) Yes	Water-Stain MLRA 1, Salt Crust (E Aquatic Inve Hydrogen S Oxidized Rh Presence of Recent Iron Stunted or S 7) Other (Expla 88) No Depth (inch No Depth (inch No Depth (inch	ed Leaves (E 2, 4A, and 4 311) ertebrates (B ulfide Odor (f izospheres a Reduced Iro Reduction in Stressed Plan ain in Remark	HB) 13) C1) Iong Living R n (C4) Tilled Soils (ints (D1) (LRR (S))		Vater-Stalned 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 (D?)
★ 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 (B Sparsely Vegetated Concave Surface (Field Observations: Surface Water Present? Yes ¥ Yater Table Present? Yes ¥ Saturation Present? Yes (includes capillary fringe) Describe Recorded Data (stream gauge, model	Water-Stain MLRA 1, Salt Crust (E Aquatic Inve Hydrogen S Oxidized Rh Presence of Recent Iron Stunted or S 7) Other (Expla 88) No Depth (inch No Depth (inch No Depth (inch	ed Leaves (E 2, 4A, and 4 311) ertebrates (B ulfide Odor (f izospheres a Reduced Iro Reduction in Stressed Plan ain in Remark	HB) 13) C1) Iong Living R n (C4) Tilled Soils (ints (D1) (LRR (S))		Vater-Stalned 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 (D?)
K High Water Table (A2) K 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 (B Sparsely Vegetated Concave Surface (Field Observations: Yes Surface Water Present? Yes Water Table Present? Yes Yes X Saturation Present? Yes Cincludes capillary fringe) Describe Recorded Data (stream gauge, model) Remarks: Remarks:	Water-Stain MLRA 1, Salt Crust (E Aquatic Inve Hydrogen S Oxidized Rh Presence of Recent Iron Stunted or S 7) Other (Expla 88) No Depth (inch No Depth (inch No Depth (inch	ed Leaves (E 2, 4A, and 4 311) ertebrates (B ulfide Odor (f izospheres a Reduced Iro Reduction in Stressed Plan ain in Remark	HB) 13) C1) Iong Living R n (C4) Tilled Soils (ints (D1) (LRR (S))		Vater-Stalned 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 (D?)
★ 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 (B Sparsely Vegetated Concave Surface (Field Observations: Surface Water Present? Yes ¥ Yater Table Present? Yes ¥ Saturation Present? Yes (includes capillary fringe) Describe Recorded Data (stream gauge, model	Water-Stain MLRA 1, Salt Crust (E Aquatic Inve Hydrogen S Oxidized Rh Presence of Recent Iron Stunted or S 7) Other (Expla 88) No Depth (inch No Depth (inch No Depth (inch	ed Leaves (E 2, 4A, and 4 311) ertebrates (B ulfide Odor (f izospheres a Reduced Iro Reduction in Stressed Plan ain in Remark	HB) 13) C1) Iong Living R n (C4) Tilled Soils (ints (D1) (LRR (S))		Vater-Stalned 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 (D?)
★ 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 (B Sparsely Vegetated Concave Surface (Field Observations: Yes Surface Water Present? Yes Water Table Present? Yes Yes X (includes capillary fringe) Describe Recorded Data (stream gauge, model) Remarks: Staturation Present	Water-Stain MLRA 1, Salt Crust (E Aquatic Inve Hydrogen S Oxidized Rh Presence of Recent Iron Stunted or S 7) Other (Expla 88) No Depth (inch No Depth (inch No Depth (inch	ed Leaves (E 2, 4A, and 4 311) ertebrates (B ulfide Odor (f izospheres a Reduced Iro Reduction in Stressed Plan ain in Remark	HB) 13) C1) Iong Living R n (C4) Tilled Soils (ints (D1) (LRR (S))		Vater-Stalned 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 (D?)

ł

project/Site: Crude Roy Onlowing Facility	City/County: Skay.7	Sampling Date: Jan. 24, 2413
Applicant/Owner: Shall PSR		MA Sampling Point: SP-CY
investigator(s): J. Walker, B. Fletcher	_ Section, Township, Range:5cc	tion 33, 35N, 2E
Landform (hillslope, terrace, etc.): +evrace	_ Local relief (concave, convex, none):	Con Cau 2 Slope (%): 6
Subregion (LRR): A Lat:	Long:	Datum: NAD83
soil Map Unit Name: Bow grwelly loam Of	3 percent slipes NWI	classification: Unland
Are climatic / hydrologic conditions on the site typical for this time of y	/ear? Yes <u>X</u> No (If no, exp	ain in Remarks.)
Are Vegetation, Soil, or Hydrology significanti	y disturbed? Are "Normal Circumst	ances" present? Yes 🔀 No
Are Vegetation, Soil, or Hydrology naturally p	roblematic? (If needed, explain any	answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showin	g sampling point locations, trai	sects, important features, etc.
Hydrophytic Vegetation Present? Yes No X		

Hydric Soil Present? Wetland Hydrology Present?	Yes No Yes No	is the Sampled Area within a Wetland?	Yes No
Remarks:			
		2 5	

VEGETATION – Use scientific names of plants.

2,1	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: <u>30</u>)	% Cover	Species?	Status	Number of Dominant Species
1. Alnus rubra	30	-X	FAC	That Are OBL, FACW, or FAC: (A)
2. Betalu Pypy rifera	10		FAC	
3 Solve sitchensis	20	×	FACW	Total Number of Dominant (B)
		<u>_</u>	1.00-	
4	1.0			Percent of Dominant Species
Sapling/Shrub Stratum (Plot size: 15)	60	= Total Co	ver	That Are OBL, FACW, or FAC: (A/B)
1. Symphonicarpos albus	40	\checkmark	FACU	Prevalence Index worksheet:
		$-\frac{1}{\sqrt{2}}$		Total % Cover of: Multiply by:
2. Mahonia agicitulium		<u> </u>	TACU	OBL species x 1 =
3. Holodiscus discolor	10	<u> </u>	FACU	FACW species 20 x 2 = 40
4. Thebles arraniacus	5		FALU	
5.				
/	80	= Total Co	ver	FACU species <u>95</u> x 4 = <u>380</u>
Herb Stratum (Plot size: 5)				UPL species x 5 =
1. Geven macronfullum	15	1	FAC	Column Totals: 180 (A) 615 (B)
2. Uchica bioica	1.0	- <u>×</u>	FAC	2 47
3. Tolling AVENEILOFA	10	¥	FACU	Prevalence Index = B/A =
				Hydrophytic Vegetation indicators:
4. Goal you aparice	- <u> </u>		FACO	1 - Rapid Test for Hydrophytic Vegetation
5. Opytonia 41.	T			2 - Dominance Test is >50%
6 / /	. <u> </u>			3 - Prevalence Index is ≤3.0¹
7				4 - Morphological Adaptations ¹ (Provide supporting
8				data in Remarks or on a separate sheet)
9				5 - Wetland Non-Vascular Plants ¹
				Problematic Hydrophytic Vegetation ¹ (Explain)
10	·			Indicators of hydric soil and wetland hydrology must
11		,		be present, unless disturbed or problematic.
	_35	= Totai Cov	/er	
Woody Vine Stratum (Plot size:)		~	L .	
1. Kubes Wisings		<u> </u>	FACU	Hydrophytic
2				Vegetation
		= Totai Cov	/er	Present? Yes No Y
% Bare Ground in Herb Stratum			25	
Remarks:				
3				

SOIL

Sampling Point: <u>SP-CH</u>

Profile Description: (Describe to the dep	th needed to docum	ent the i	ndicator	or confirm	the absence	of Indicators.)
Depth Matrix	Redox	Feature	5			
(inches) Color (moist) %	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-11 104R2/1 100					Sich	5 20 gravel
11-17 2.575/ 93	IUYR46	3	C	M	SICL	
	$\overline{5451}$		<u> </u>	11		
		_1		_ <u>M_</u>		
		. <u> </u>			<u> </u>	
			1			
· · · · · · · · · · · ·						
¹ Type: C=Concentration, D=Depletion, RM				d Sand Gra		ation: PL=Pore Lining, M=Matrix.
Hydric Soil indicators: (Applicable to all			ed.)			rs for Problematic Hydric Solis ³ :
Histosol (A1)	Sandy Redox (S	•				Muck (A10)
Histic Epipedon (A2)	Stripped Matrix (Parent Material (TF2)
Black Histic (A3)	Loamy Mucky M	•		MLRA 1)		Shallow Dark Surface (TF12)
Hydrogen Sulfide (A4) X Depleted Below Dark Surface (A11)	Loamy Gleyed N)			er (Explain In Remarks)
Thick Dark Surface (A12)	Depleted Matrix Redox Dark Surf				³ indicato	rs of hydrophytic vegetation and
Sandy Mucky Minerai (S1)	Depleted Dark S	• •	7)			nd hydrology must be present,
Sandy Gleyed Matrix (S4)	Redox Depressio		•)			s disturbed or problematic.
Restrictive Layer (if present):					1	
Туре:						•
Depth (inches):					Hydric Soil	Present? Yes X No
Remarks:						
Remarks.						
21			••• * 5=1	-4	t. 200 i	×
HYDROLOGY						
Wetland Hydrology indicators:						
Primary indicators (minimum of one required	; check all that apply)			<u>Secon</u>	dary Indicators (2 or more required)
Surface Water (A1)	Water-Stain	ed Leave	es (B9) (ex	cept	w	ater-Stained Leaves (B9) (MLRA 1, 2,
High Water Table (A2)	MLRA 1	, 2, 4A, a	nd 4B)	-		4A, and 4B)
Saturation (A3)	Salt Crust (i	B11)			Di	ralnage Patterns (B10)
Water Marks (B1)	Aquatic Inve	ertebrates	s (B13)		Di	ry-Season Water Table (C2)
Sediment Deposits (B2)	Hydrogen S					aturation Visible on Aerial Imagery (C9)
Drift Deposits (B3)	Oxidized RI	nizospher	es along L	iving Root	ts (C3) G	eomorphic Position (D2)
Algal Mat or Crust (B4)	Presence of		-	-	• • —	nallow Aquitard (D3)
Iron Deposits (B5)	Recent iron		•			AC-Neutral Test (D5)
Surface Soil Cracks (B6)	Stunted or S					aised Ant Mounds (D6) (LRR A)
Inundation Visible on Aerial Imagery (Bi						ost-Heave Hummocks (D?)
Sparsely Vegetated Concave Surface (8			۲		—	, <i>,</i>
Field Observations:	<u> </u>					
Surface Water Present? Yes	No \underline{X} Depth (incl	nes):				
<u> </u>	No Depth (incl		9	-		×
	No Depth (incl		6	- Wetia	nd Hydrology	Present? Yes No 🔀
(includes capillary fringe)	Pehri (and		<u> </u>		ina nyarology	

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

narks: Not expected to have wetland hydrology long enough during the growing season, based on landscape position and vegetation. Remarks:

Project/Site: Crude Rail Unkrading F	Facility	City/County:	Skagit Sampling Date: Jun 24, 201
Applicant/Owner: Shell PSR			State: Sampling Point:
investigator(s): J. Walker, B. Fletcher		Section, Township	
• •			ave, convex, none): Slope (%):
· • • •			Long: Datum: NAD83
Soli Map Unit Name: Box groully laan, (
Are climatic / hydrologic conditions on the site typical for			
Are Vegetation, Soil, or Hydrology			Are "Normal Circumstances" present? Yes X No
Are Vegetation, Soil, or Hydrology	_ naturally pro	blematic?	(If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site ma	p showing	sampling poi	nt locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes	No	to the Com	wheel Area
Hydric Soil Present? Yes X	No		pled Area
	No		· · · · · · · · · · · · · · · · · · ·
Darylas two and oceanipray	•	Mussic. SI	get humanches have Oregon grup,
VEGETATION – Use scientific names of pla		Dominant India	tor Deminance Test workshoot:
Tree Stratum (Plot size: 36)	Absolute <u>% Cover</u>	Dominant Indica Species? State	
1. Almus rubra	60		
2			Total Number of Dominant
3		·	Species Across All Strata: (B)
4			Percent of Dominant Species ; ,
	<u> </u>	_ = Total Cover	That Are OBL, FACW, or FAC:(A/B)
Sapling/Shrub Stratum (Plot size: 15)	30	X FA	Prevalence Index worksheet:
	2		Total % Cover of: Multiply by:
3. Symphoneony of allew			OBL species x 1 =
4.		·	FACW species $3 \times 2 = 6$
5.			FAC species $1/2$ x 3 = 336
	60	_ = Total Cover	FACU species 35 x 4 = 140
Herb Stratum (Plot size: 5)	3	JE	UPL species $0 \times 5 = 0$ (W) Column Totals: 150 (A) 492 (B)
1. E. pilosium Cilintam			
2. Uction device		X FA	
3			
4			
5			- 2 - Dominance Test is >50%
6 7			3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting
8			tate in Description on a second school)
9			5 Wotland Non Vanoular Plants ¹
10			Problematic Hydrophytic Vegetation ¹ (Explain)
11	2		¹ Indicators of hydric soil and wetland hydrology must
	5	_= Totai Cover	be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 5')		-	
1. Rubus WSine>		X FA	
2		- <u> </u>	Vegetation Present? Yes X No
% Bare Ground in Herb Stratum <u>95</u>		_= Total Cover	
Remarks:			
Mahorin aqui totion and Rushis a	march ley	growing on s	multhumanode not to plat and not
induced in ilantspercentages			multhumanucle nuxt to plat and not

SOIL

l

Sampling	Point:	SP-	CJ
			_

		to the depth				or confirm	the abse	ence of Indicators.)
Depth (inches)	Matrix Color (moist)		Color (moist)	<u>x Features</u> %	Type	Loc ²	Textur	e Remarks
6-6	10 YR 42				਼ <u>ਾ ਪਸਕ</u>		5.00	
10-9	101R42	76	5-42.5/1	30	D	M	5. ((
9-17	57 6/2	- 10 -		30				
9-17	5/42		107R46	<u>_()</u> _		<u>M</u>	5:0	
			·				<u> </u>	
		·						
		·	9					
·								
	ncentration, D=Dep	ietion. RM=R	educed Matrix, CS	=Covered	or Coated	Sand Gra	ains	² Location: PL=Pore Lining, M=Matrix.
	dicators: (Applic							cators for Problematic Hydric Solis ³ :
Histosol (A1)		_ Sandy Redox (S	5)			_	2 cm Muck (A10)
	pedon (A2)	_	Stripped Matrix	(S6)				Red Parent Material (TF2)
Biack His	• •		Loamy Mucky M			MLRA 1)		Very Shallow Dark Surface (TF12)
	Sulfide (A4)		Loamy Gleyed N				<u> </u>	Other (Explain in Remarks)
	Below Dark Surface k Surface (A12))(A11) <u>^</u>	Depleted Matrix Redox Dark Sur	• •			³ loci	cators of hydrophytic vegetation and
	icky Minerai (S1)		_ Depleted Dark Sur	• •	n			vetiand hydrology must be present,
	eyed Matrix (S4)	_	_ Redox Depressi		,			nless disturbed or problematic.
	ayer (if present):							
Туре:			-					
Depth (inch	ies):		_				Hydric	Soll Present? Yes <u>X</u> No
Remarks:							1	
HYDROLOG	Y			•••				· • • • • • • • • • • • • • • • • • • •
	ology Indicators:					· · · · ·		
-	tors (minimum of or	ne required: c	hack all that apply	•			c	econdary Indicators (2 or more required)
X Surface W		le required, c	Water-Stair	-			<u> </u>	_ Water-Stained Leaves (B9) (MLRA 1, 2,
	er Table (A2)			, 2, 4A, ar		cept	_	4A. and 4B)
X Saturation			Sait Crust (ia 40)			_ Drainage Patterns (B10)
Water Mai	· ·		Aquatic Inv		(B13)			_ Dry-Season Water Table (C2)
	Deposits (B2)		Hydrogen S				_	_ Saturation Visible on Aerial Imagery (C9)
Drift Depo			Oxidized RI		• •	iving Root	ts (C3)	_ Geomorphic Position (D2)
Algai Mat	or Crust (B4)		Presence o	f Reduced	iron (C4)			_ Shallow Aquitard (D3)
Iron Depo	sits (B5)		Recent iron	Reduction	n in Tilled	Soils (C6)) _	_ FAC-Neutral Test (D5)
Surface S	oli Cracks (B6)		Stunted or Stunted or Stunted Structure St	Stressed P	lants (D1) (LRR A)	_	_ Raised Ant Mounds (D6) (LRR A)
	Visible on Aerial Ir		Other (Expl	ain in Rem	narks)		_	_ Frost-Heave Hummocks (D?)
	/egetated Concave	Surface (B8)	<u> </u>					
Fleid Observa		v			_			_
Surface Water		es <u> </u>		·	1.5	-		
Water Table P	resent? Ye	` ,	Depth (incl		5	-		
Saturation Pres		es <u> </u>	Depth (incl	hes):	0	Wetia	nd Hydro	logy Present? Yes X No
(includes capill Describe Reco	ary mnge) rded Data (stream	gauge, monito	oring well, aerial pl	hotos, prev	lous insp	ections), if	f available	
		<u>.</u> .,						-
Remarks:								
								30 ⁻¹

w.

A A A A A A A A A A A A A A A A A A A	Lity 1	City/County 5Kg	Sampling Date: Jan. 24, 74
Applicant/Owner: Shell PSR	<u></u>		Sampling Date: Jan 24, 24 State: WA Sampling Point: SP-C6
nvestigator(s): J. Walker, B. Fletcher		Section Township Ra	
			convex, none): Conver Slope (%): 3
Δ		Local relief (concave,	
ubregion (LRR):	Lat:		Long: Datum:
oli Map Unit Name: Dew gravelly Care	, Oto S.	percent slopes	NWI classification:/
re climatic / hydrologic conditions on the site typical for	this time of ye		
re Vegetation, Soii, or Hydrology	slgnificantly	disturbed? Are '	"Normai Circumstances" present? Yes <u>X</u> No
re Vegetation, Soli, or Hydrology	_ naturaliy pro	biematic? (if ne	eeded, explain any answers in Remarks.)
UMMARY OF FINDINGS – Attach site ma	p showing	sampling point I	ocations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes	No X		· · · ·
Hydric Soil Present? Yes		is the Sampled within a Wetla	
Wetland Hydrology Present? Yes	No		
Remarks: plot for an upland area in a for submission and alder.	peesfed we	Mand musarc	surrounded by depressions with
/EGETATION – Use scientific names of pl	Absolute	Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)		Species? Status	Number of Dominant Species
1. Dseudstrum mensiosi	60	X FAW	That Are OBL, FACW, or FAC: (A)
2. Almus rubia	40	X FAC	Total Number of Dominant
3			Species Across All Strata:
4			Percent of Dominant Species
1	_0	_ = Total Cover	That Are OBL, FACW, or FAC: 33 (A/B)
<u>Sapling/Shrub Stratum</u> (Plot size: $(5')$)	n		Prevalence index worksheet:
1. Maharikaquitilium			Total % Cover of: Multiply by:
2. Rosa nutkana	<u> </u>	FAC	OBL species x 1 =
3			FACW species x 2 =
£		·	FAC species $-55 \times 3 = -105$
5		= Total Cover	FACU species $1/0$ x 4 = $4/0$
Herb Stratum (Plot size: 5)			UPL species x 5 =
1. Pteritium aguilinum	15	X FACU	Column Totals: 165 (A) 605 (B)
2. <u>Claytonic sp</u>	<i></i>	·	Prevalence index = B/A = 3. 657
3			Hydrophytic Vegetation indicators:
4			1 - Rapid Test for Hydrophytic Vegetation
5			2 - Dominance Test is >50%
6			_
7			4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
8			5 - Wetland Non-Vascular Plants ¹
9			Problematic Hydrophytic Vegetation [*] (Explain)
10			¹ Indicators of hydric soil and wetland hydrology must
11			be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size:)		_= Total Cover	
	15	X FACU	Hydrophytic
1. Rubus warings			Veretation
1. <u>Rubus wrinus</u>			
2	_15	 _= Total Cover	Present? Yes No X
1. <u><u><u>Rubus</u> wrinus</u> 2 % Bare Ground in Herb Stratum <u>85 (include</u>,</u>	duff & mill	_= Total Cover	Present? Yes No

SOIL

Depth	Matrix	%	Redox Features	e ¹ Loc ²	Tank	_	
(inches)	<u>Color (moist)</u> 164R2(2		Color (moist) % Typ		Texture	Rema	
6-9		<u> (40 </u>		loan_		5% organ	0
4-10	7.5 YR 4/4	100 _	·	luam_		- aligner	
10-16	7.57R74	<u></u>		s.H.com	1	100 organi	c matter
			educed Matrix, CS=Covered or Co	pated Sand Grai		ation: PL=Pore Lini	
-		able to all LR	Rs, unless otherwise noted.)			rs for Problematic	Hydric Soils':
Black Hist	pedon (A2)	•	_ Sandy Redox (S5) _ Stripped Matrix (S6) _ Loamy Mucky Minerai (F1) (exc _ Loamy Gleyed Matrix (F2)	ept MLRA 1)	Red Very	n Muck (A10) Parent Materiai (TF: / Shailow Dark Surfa er (Expiain in Remarl	ce (TF12)
	Below Dark Surface	(A11) —	Depleted Matrix (F3)			er (Explain in Reman	KS)
	k Surface (A12)		Redox Dark Surface (F6)		³ Indicato	rs of hydrophytic veg	etation and
Sandy Mu	cky Mineral (S1)		Depieted Dark Surface (F7)		wetia	nd hydrology must b	e present,
	eyed Matrix (S4)		Redox Depressions (F8)		unles	s disturbed or proble	matic.
	yer (if present):						
Type:	es):		-				
- Depin Unch					Hydric Soll	Present? Yes	No 📈
	c3).	M	hydric suil indicators	present			
emarks: /DROLOG /etland Hydro	Y ology indicators:			present	63 7.2		
emarks: /DROLOG /etland Hydro rimary Indicat	Y ology indicators: cors (minimum of or		neck all that apply)	·	Secon	dary Indicators (2 or	
emarks: DROLOG /etland Hydro rimary Indicat _ Surface W	Y ology indicators: tors (minimum of or later (A1)		neck all that apply) Water-Stained Leaves (B9)) (except	Secon	ater-Stained Leaves	
emarks: DROLOG /etland Hydro rimary Indicat Surface W High Wate	Y ology indicators: tors (minimum of or ater (A1) r Table (A2)		neck all that apply) Water-Stained Leaves (B9) MLRA 1, 2, 4A, and 4B) (except	<u>Secon</u> W	ater-Stained Leaves 4A, and 4B)	(B9) (MLRA 1, 2
emarks: DROLOG Vetland Hydr rimary Indicat Surface W High Wate Saturation	Y ology indicators: cors (minimum of or ater (A1) r Table (A2) (A3)		neck all that apply) Water-Stained Leaves (B9) MLRA 1, 2, 4A, and 4B Salt Crust (B11)) (except)	<u>Secon</u> W Dr	ater-Stained Leaves 4A, and 4B) rainage Patterns (B1	(B9) (MLRA 1, 2 0)
emarks: DROLOG Tetland Hydro rimary Indicat _ Surface W _ High Wate _ Saturation _ Water Mar	Y ology indicators: cors (minimum of or ater (A1) r Table (A2) (A3)		neck all that apply) Water-Stained Leaves (B9) MLRA 1, 2, 4A, and 4B) (except))	<u>Secon</u> W Dr Dr	ater-Stained Leaves 4A, and 4B) rainage Patterns (B1 ry-Season Water Tat	(B9) (MLRA 1, 2 0) ble (C2)
emarks: DROLOG Tetland Hydro rimary Indicat _ Surface W _ High Wate _ Saturation _ Water Mar	Y ology indicators: tors (minimum of or ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2)		heck all that apply) Water-Stained Leaves (B9) MLRA 1, 2, 4A, and 4B Salt Crust (B11) Aquatic Invertebrates (B13)) (except)))	<u>Secon</u> W Dr Dr Dr Sa	ater-Stained Leaves 4A, and 4B) rainage Patterns (B1	(B9) (MLRA 1, 2 0) ble (C2) Verial Imagery (CS
emarks: DROLOG /etiand Hydro rimary Indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat co	Y ology indicators: tors (minimum of or ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4)		Meck all that apply) — Water-Stained Leaves (B9) MLRA 1, 2, 4A, and 4B — Salt Crust (B11) — Aquatic Invertebrates (B13) — Hydrogen Sulfide Odor (C1) (except))) ng Living Roots	<u>Secon</u> W Dr Sa (C3) Gr	ater-Stained Leaves 4 A, and 4B) rainage Patterns (B1 ry-Season Water Tat aturation Visible on A	(B9) (MLRA 1, 2 0) ble (C2) Verial Imagery (CS
emarks: /DROLOG /etland Hydro rimary Indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depose Algal Mat co Iron Depose	Y blogy indicators: tors (minimum of or ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5)		heck all that apply) — Water-Stained Leaves (B9) MLRA 1, 2, 4A, and 4B — Salt Crust (B11) — Aquatic Invertebrates (B13) — Hydrogen Sulfide Odor (C1 — Oxidized Rhizospheres alou — Presence of Reduced iron of — Recent iron Reduction in T) (except)) ng Living Roots (C4) illed Soils (C6)	<u>Secon</u> W Dr Dr Sr (C3) Gd Sr F/	ater-Stained Leaves 4A, and 4B) rainage Patterns (B1 ry-Season Water Tat aturation Visible on A eomorphic Position (nallow Aquitard (D3) AC-Neutral Test (D5)	(B9) (MLRA 1, 2 0) ble (C2) Aerial imagery (CS D2)
emarks: /DROLOG /etland Hydro rimary Indicat 	Y blogy indicators: tors (minimum of or ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) bil Cracks (B6)	le required; c	Meck all that apply) — Water-Stained Leaves (B9) MLRA 1, 2, 4A, and 4B — Salt Crust (B11) — Aquatic Invertebrates (B13) — Hydrogen Sulfide Odor (C1 — Oxidized Rhizospheres alou — Presence of Reduced iron — Recent iron Reduction in Ti — Stunted or Stressed Plants) (except)) ng Living Roots (C4) illed Soils (C6) (D1) (LRR A)	<u>Secon</u> W Dr Dr Sr (C3) Gr Sr F/ Rr	ater-Stained Leaves 4A, and 4B) rainage Patterns (B1 ry-Season Water Tat aturation Visible on A eomorphic Position (nallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D	(B9) (MLRA 1, 2 0) ble (C2) Aerial imagery (C9 D2) 96) (LRR A)
emarks: DROLOG Tetland Hydro rimary Indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat o Iron Depos Surface So Inundation	Y blogy indicators: tors (minimum of or ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) bil Cracks (B6) Visible on Aerial In	ne required; ch	heck all that apply) — Water-Stained Leaves (B9) MLRA 1, 2, 4A, and 4B — Salt Crust (B11) — Aquatic Invertebrates (B13) — Hydrogen Sulfide Odor (C1 — Oxidized Rhizospheres alou — Presence of Reduced iron of — Recent iron Reduction in T) (except)) ng Living Roots (C4) illed Soils (C6) (D1) (LRR A)	<u>Secon</u> W Dr Dr Sr (C3) Gr Sr F/ Rr	ater-Stained Leaves 4A, and 4B) rainage Patterns (B1 ry-Season Water Tat aturation Visible on A eomorphic Position (nallow Aquitard (D3) AC-Neutral Test (D5)	(B9) (MLRA 1, 2 0) ble (C2) Aerial Imagery (C9 D2) 96) (LRR A)
emarks: /DROLOG /etland Hydro /etland Hydro /etland Hydro /etland Hydro /etland Hydro //etland Hydro Surface W //etland Hydro Sediment I Drift Depose Algal Mat co Iron Depose Surface Sco Inundation Sparsely V	Y ology Indicators: tors (minimum of or ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) bil Cracks (B6) Visible on Aerial In egetated Concave	ne required; ch	Meck all that apply) — Water-Stained Leaves (B9) MLRA 1, 2, 4A, and 4B — Salt Crust (B11) — Aquatic Invertebrates (B13) — Hydrogen Sulfide Odor (C1 — Oxidized Rhizospheres alou — Presence of Reduced iron — Recent iron Reduction in Ti — Stunted or Stressed Plants) (except)) ng Living Roots (C4) illed Soils (C6) (D1) (LRR A)	<u>Secon</u> W Dr Dr Sr (C3) Gr Sr F/ Rr	ater-Stained Leaves 4A, and 4B) rainage Patterns (B1 ry-Season Water Tat aturation Visible on A eomorphic Position (nallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D	(B9) (MLRA 1, 2 0) ble (C2) Aerial Imagery (C9 D2) 96) (LRR A)
emarks: (DROLOG /etiand Hydro rimary Indicat 	Y ology indicators: cors (minimum of or ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) Visible on Aerial Im 'egetated Concave tions:	ne required; ch nagery (B7) Surface (B8)	neck all that apply) Water-Stained Leaves (B9) MLRA 1, 2, 4A, and 4B Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1 Oxidized Rhizospheres alou Presence of Reduced iron Recent Iron Reduction in Ti Stunted or Stressed Plants Other (Explain in Remarks)) (except)) ng Living Roots (C4) illed Soils (C6) (D1) (LRR A)	<u>Secon</u> W Dr Dr Sr (C3) Gr Sr F/ Rr	ater-Stained Leaves 4A, and 4B) rainage Patterns (B1 ry-Season Water Tat aturation Visible on A eomorphic Position (nallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D	(B9) (MLRA 1, 2 0) ble (C2) Aerial Imagery (C9 D2) 96) (LRR A)
emarks: /DROLOG /etland Hydro rimary Indicat 	Y ology Indicators: tors (minimum of or ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) Visible on Aerial Im regetated Concave tions: Present? Ye	nagery (B7) Surface (B8) s No_	meck all that apply) Water-Stained Leaves (B9) MLRA 1, 2, 4A, and 4B Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1 Oxidized Rhizospheres alou Presence of Reduced iron of the researce of Reduced iron of the researce of Reduced iron of the standard or Stressed Plants Other (Explain in Remarks) Depth (inches):) (except)) ng Living Roots (C4) illed Soils (C6) (D1) (LRR A)	<u>Secon</u> W Dr Dr Sr (C3) Gr Sr F/ Rr	ater-Stained Leaves 4A, and 4B) rainage Patterns (B1 ry-Season Water Tat aturation Visible on A eomorphic Position (nallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D	(B9) (MLRA 1, 2 0) ble (C2) Aerial imagery (C9 D2) 96) (LRR A)
Provide the second state of the second state o	Y blogy indicators: tors (minimum of or ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) bil Cracks (B6) Visible on Aerial In 'egetated Concave tions: Present? Ye	nagery (B7) Surface (B8) s No _ s No _	Meck all that apply) MLRA 1, 2, 4A, and 4B Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1 Oxidized Rhizospheres alor Presence of Reduced iron Recent iron Reduction in Ti Stunted or Stressed Plants Other (Explain in Remarks) Depth (inches): Depth (inches):) (except)) ng Living Roots (C4) illed Soils (C6) (D1) (LRR A)	<u>Secon</u> W Dr Dr Sa (C3) Ga Sł F <i>A</i> Ra Fr	ater-Stained Leaves 4A, and 4B) rainage Patterns (B1 ry-Season Water Tat aturation Visible on A eomorphic Position (nallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D ost-Heave Hummocl	(B9) (MLRA 1, 2 0) ble (C2) Aerial Imagery (C9 D2) (6) (LRR A) ks (D7)
Primarks: Primary Indicat Primary Indicat Primary Indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat of Iron Depos Surface So Inundation Sparsely V Ield Observat Vater Table Pr aturation Pres ncludes capilla	Y blogy indicators: tors (minimum of or ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) bil Cracks (B6) Visible on Aerial Im 'egetated Concave tions: Present? Ye sent? Ye ary fringe)	nagery (B7) Surface (B8) s No _ s No _ s No _) (except)) ng Living Roots (C4) illed Soils (C6) (D1) (LRR A)	<u>Secon</u> W Dr Sr (C3) Sr Sr Fr Fr Fr	ater-Stained Leaves 4A, and 4B) rainage Patterns (B1 ry-Season Water Tat aturation Visible on A eomorphic Position (nallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D	(B9) (MLRA 1, 2 0) ble (C2) D2) D2) (6) (LRR A) ks (D7)
Primarks: YDROLOG Vetland Hydro Primary Indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat of Iron Depos Surface So Inundation Sparsely V leid Observat Surface Water Vater Table Pr aturation Pres ncludes capilla	Y blogy indicators: tors (minimum of or ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) bil Cracks (B6) Visible on Aerial Im 'egetated Concave tions: Present? Ye sent? Ye ary fringe)	nagery (B7) Surface (B8) s No _ s No _ s No _	Meck all that apply) MLRA 1, 2, 4A, and 4B Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1 Oxidized Rhizospheres alor Presence of Reduced iron Recent iron Reduction in Ti Stunted or Stressed Plants Other (Explain in Remarks) Depth (inches): Depth (inches):) (except)) ng Living Roots (C4) illed Soils (C6) (D1) (LRR A)	<u>Secon</u> W Dr Sr (C3) Sr Sr Fr Fr Fr	ater-Stained Leaves 4A, and 4B) rainage Patterns (B1 ry-Season Water Tat aturation Visible on A eomorphic Position (nallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D ost-Heave Hummocl	(B9) (MLRA 1, 2 0) ble (C2) Aerial Imagery (C9 D2) (6) (LRR A) ks (D7)
Remarks: YDROLOG Vetland Hydro Primary Indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat of Iron Depos Surface So Inundation Sparsely V Vater Table Pr Saturation Pres ncludes capilla	Y blogy indicators: tors (minimum of or ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) bil Cracks (B6) Visible on Aerial Im 'egetated Concave tions: Present? Ye sent? Ye ary fringe)	nagery (B7) Surface (B8) s No _ s No _ s No _) (except)) ng Living Roots (C4) illed Soils (C6) (D1) (LRR A)	<u>Secon</u> W Dr Sr (C3) Sr Sr Fr Fr Fr	ater-Stained Leaves 4A, and 4B) rainage Patterns (B1 ry-Season Water Tat aturation Visible on A eomorphic Position (nallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D ost-Heave Hummocl	(B9) (MLRA 1, 2 0) ble (C2) Aerial Imagery (C9 D2) (6) (LRR A) ks (D7)

roject/site: Crude Rail Unlanding Fr	cility (City/County	: <u>Slea</u>	git Sampling Date: Jan 24, 7
pplicant/Owner: Shell PSR				State: WA Sampling Point:
vestigator(s): J- Walker, B. Fletcher				
				convex, none): <u>CCNCout</u> Siope (%): 2.9
				Long: Datum:
Haden Linit Nome: Basi Grada Qua La com	0631	Derry F	1.55	NWI classification:O
e climatic / hydrologic conditions on the site typical for				
				'Normal Circumstances" present? Yes X No
e Vegetation, Soii, or Hydrology				
e Vegetation, Soii, or Hydrology	_ naturally prol	biematic?	(it ne	eeded, explain any answers in Remarks.)
UMMARY OF FINDINGS – Attach site ma	p showing	samplin	g point le	ocations, transects, important features, etc
Hydrophytic Vegetation Present? Yes	No		_	
Hydric Soil Present? Yes X			e Sampied in a Wetlar	V
Vetiand Hydrology Present? Yes <u>×</u>	No			
Remarks:				
EGETATION – Use scientific names of pl	ants.		- · ·	Å
ree <u>Stratum</u> (Plot size: <u>مرز</u> /)	Absolute % Cover	Dominant Species?	Indicator	Dominance Test worksheet:
	60		FAC	Number of Dominant Species
- Manulus balsanikra	<u> </u>	<u> </u>	FAC	
_ ropulas the same -			1.11-	Total Number of Dominant Species Across All Strata: Species (B)
·			,	
·		= Total Co	ver	Percent of Dominant Specles
apling/Shrub Stratum (Plot size:15 /)		10tai 00		Prevalence index worksheet:
. Ruber Spectabilis	20	_X	FAC	Total % Cover of: Multiply by:
Malus tixa	30	χ	FACW	$\frac{1}{OBL \text{ species}} \frac{2}{2} \frac{1}{x + 1} \frac{2}{z} \frac{1}{z}$
•		51		FACW species $30 \times 2 = 60$
·				FAC species $90 \times 3 = 270$
•				FACU species 5 x4 = 20
	50	_ = Total Co	ver	UPL species
lerb Stratum (Plot size:) . Venarthe Saymentosa	2.	×	181	Column Totals: <u>145</u> (A) <u>378</u> (B)
			12	Prevalence Index = $B/A = \frac{2 \cdot 55}{2 \cdot 55}$
· · · · ·				Hydrophytic Vegetation Indicators:
·				 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50%
				$\frac{2}{3} - \text{Prevalence Index is } 50\%$
·				4 - Morphological Adaptations ¹ (Provide supporting
* <u>* · · · · · · · · · · · · · · · · · ·</u>				data in Remarks or on a separate sheet)
				5 - Wetland Non-Vascular Plants ¹
				1
· · · · · · · · · · · · · · · · · · ·				Problematic Hydrophytic Vegetation ¹ (Explain)
) 0			·	Indicators of hydric soil and wetland hydrology must
3 5 10 11		·		10.001
0 10 11 <u>Noody Vine Stratum</u> (Plot size: <u>5 (</u>)			ver	Indicators of hydric soil and wetland hydrology must
) 0		·		Indicators of hydric soil and wetland hydrology must
0 0 1 <u>Voody Vine Stratum</u> (Plot size: <u>5 (</u>)		·	ver	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Pseulo thuga menezierii is rosted ontiche plat

Sampling	Point:	<u>- 97-</u>	C	Ş

Profile Desc	ription: (Describe t	o the dept	h needed to docum	ent the l	ndicator	or confirm	the absence	e of indicators.)
Depth	Matrix			Features				
(inches)	Color (moist)		Color (moist)	%	Type ¹		<u> Texture</u>	Remarks
0-6	<u>loyr2/1</u>	(00					<u>s.</u>	
6-16+	2546/2	_35_	104Rullo	15	С	M	S.CL	
			· · · · · · · · · · · · · · · · · · ·					
			<u> </u>					
							12	
				<u> </u>		<u></u>		
			2					
			<u>_</u>					
	ncentration, D=Depie					d Sand Gra		cation: PL=Pore Lining, M=Matrix.
-	ndicators: (Applica	ble to all L			ed.)		indicate	ors for Problematic Hydric Soils ³ :
Histosol (• •	-	Sandy Redox (Signal Content of Signal Con					m Muck (A10)
	ipedon (A2)	-	Stripped Matrix (•				d Parent Material (TF2)
Black His		-	Loamy Mucky M	•	•••••	MLRA 1)		y Shallow Dark Surface (TF12)
	n Suifide (A4)		Loamy Gleyed M)		Oth	er (Explain In Remarks)
	Below Dark Surface	(A11) _	Depieted Matrix				1	
	rk Surface (A12)	-	Redox Dark Surf	• •				ors of hydrophytic vegetation and
	ucky Minerai (S1)	-	Depleted Dark S	•	()			and hydrology must be present,
	eyed Matrix (S4) ayer (if present):		Redox Depression				unies	ss disturbed or problematic.
_								
· · / · · · · · · · · · · · · · · · · ·								X
Depth (incl	hes):						Hydric Soil	Present? Yes <u> </u>
Remarks:								
HYDROLOG				· ·				
Wetland Hyd	rology Indicators:						· · · ·	·······
-	ators (minimum of one	a required:	check all that apply)				Same	ndan (Indicators (2 or more required)
Surface V		<u>s lequileu,</u>			- (00) (ndary Indicators (2 or more required)
	• •		Water-Stain			cept	v	Vater-Stained Leaves (B9) (MLRA 1, 2,
_ <u>X</u> High Wate			MLRA 1,		na 48)			4A, and 4B)
			Sait Crust (E	•				brainage Patterns (B10)
Water Ma			Aquatic Inve					Pry-Season Water Table (C2)
	Deposits (B2)		Hydrogen S					aturation Visible on Aerial Imagery (C9)
Drift Depo			Oxidized Rh	-	-	-	· · —	Geomorphic Position (D2)
	or Crust (B4)		Presence of					hallow Aquitard (D3)
Iron Depo			Recent iron			• •	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	AC-Neutral Test (D5)
	oil Cracks (B6)		Stunted or S	Stressed F	Plants (D1) (LRR A)	R	laised Ant Mounds (D6) (LRR A)
Inundation	n Visible on Aerial Im	agery (B7)	Other (Explanation)	ain in Ren	narks)		F	rost-Heave Hummocks (D?)
Sparsely \	Vegetated Concave S	Surface (B8	3)					
Field Observa	ations:							
Surface Water	Present? Yes	i No	o <u> </u>	ies):		_		
Water Table P	resent? Yes	i_ <u>√</u> No	Depth (inch	es):	(_		
Saturation Pre (includes capil	sent? Yes	/ ·	Depth (inch		0	Wetlar	nd Hydrolog	y Present? Yes <u>X</u> No
	orded Data (stream g	auge, mon	itoring well, aerial ph	otos, pre	vious insp	ections), if	available:	2 5
Pomerke								
Remarks:								

d Const Basian . 11 -----

WETLAND DETERMINAT	ION DATA FORM -	- Western Mour	itains, valleys, and coast Region
Project/Site: Crude Rail Unlack	ng Facility city	//County: <u> </u>	git Sampling Date: Jan 24,20
Applicant/Owner: Shull ISK			State: <u>VVPT</u> Sampling Point: <u>J / CC</u>
vestigator(s): J. Wallar, B. F	letcher se	ction, Township, Ran	ge: Section 33, 35N, 2E
andform (hillslope, terrace, etc.); terrace	Lo	cai relief (concave, c	onvex, none): <u>flat</u> Siope (%): <u>8</u>
	Lat:	•	Long: Datum: Datum: DB3
Boregion (Link) Bout a count for to	0 L 3 0	erout does	NWi classification: 1) aland
Soli Map Unit Name. <u>1900 Ar Maded (0</u>	$\frac{1}{1}$	Yes V No	(If no explain in Remarks)
re climatic / hydrologic conditions on the site typ			Normai Circumstances" present? Yes No
re Vegetation, Soli, or Hydrology			
Are Vegetation, Soil, or Hydrology			eded, expiain any answers in Remarks.)
		ampling point lo	ocations, transects, important features, etc.
	_X No	is the Sampled	Area
	№ <u>X</u> № <u>X</u>	within a Wetian	
Remarks:			
		3	
/EGETATION – Use scientific names		Verslevent ladientes	Dominance Test worksheet:
Tree Stratum (Plot size:		omInant Indicator pecies? Status	Number of Dominant Species
1. PSeuditsugn menericsi			That Are OBL, FACW, or FAC: (A)
	20		Total Number of Domizant
3.			Total Number of Dominant Species Across All Strata:(B)
4.			
		Total Cover	Percent of Dominant Species (A/B)
Sapling/Shrub Stratum (Plot size: 15/		Y FIC	Prevalence index worksheet:
1 Rubus Spectability	<u> </u>	X FAC	Total % Cover of: Multiply by:
2			OBL species 6 x 1 = _O
3			FACW species X 2 =
4			FAC species X3 = 210
5	50 =		FACU species x 4 = 것 것 ♡
Herb Stratum (Plot size:)		Total Cover	UPL species x 5 =
1. Drywfer:s expansa	10	X FACW	Column Totals: 175 (A) 610 (B)
2. Olzytania 510-			Prevalence Index = B/A = <u>3.49</u>
3. Coulium aparine	\overline{T}	FACU	Hydrophytic Vegetation Indicators:
4. Uctica disica		X FAC	1 - Rapid Test for Hydrophytic Vegetation
5. Poly stichan man tur		FACU	∠ 2 - Dominance Test is >50%
6. Stellaric cripe		FAC	3 - Prevalence Index is ≤3.0 ¹
7			 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
8			5 - Wetland Non-Vascular Plants ¹
9			Problematic Hydrophytic Vegetation ¹ (Explain)
10 11			Indicators of hydric soil and wetland hydrology must
	15=	Total Cover	be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 5	_)		
1. Rubus wirsing	/0	X FACU	Hydrophytic
2			Vegetation Present? Yes X No
a - 1	<u> </u>	Total Cover	
% Bare Ground in Herb Stratum <u>B5</u> (mag	in muss)		

Remarks:

1	ription: (Describe t	o the depth				or confirm	the absence	of indicators.)	· · · · · · · · · · · · · · · · · · ·
Depth	Matrix Color (moist)	%	Redox	<u>c Features</u>	3	Loc ²	T		2
(inches)	LOYR 22		Color (molst)	%	Type'		Texture	Remarks	040
0-8					<u> </u>	······	Sich	* 	
8-11	164R412	<u> (vv </u>					S.CL		
11-18	16 YR5/2	<u> </u>	IUYR46	20	<u> </u>	M	SiL	10% cobble	1grave
		÷			(*)				
	<u> </u>	<u>~</u>	,						
			1.1						
						<u> </u>			
	ncentration, D=Depie					d Sand Gra		ation: PL=Pore Lining,	
	ndicators: (Applica	ble to all Lf	RRs, uniess other	wise note	ed.)		indicato	rs for Problematic Hyd	tric Solls ³ :
Histosol (• •	_	_ Sandy Redox (S	•				n Muck (A10)	
-	ipedon (A2)	_	_ Stripped Matrix (Parent Material (TF2)	
Biack His	n Sulfide (A4)	_	_ Loamy Mucky M _ Loamy Gleyed N	•		MLRA 1)		/ Shailow Dark Surface ((1F12)
	Below Dark Surface	(A11) —	_ Depieted Matrix					er (Explain In Remarks)	
	rk Surface (A12)		Redox Dark Sur				³ Indicato	rs of hydrophytic vegeta	tion and
	ucky Mineral (S1)	_	Depieted Dark S	• • •	7)			nd hydrology must be pr	
	eyed Matrix (S4)		_ Redox Depression	ons (F8)				s disturbed or problemat	
Restrictive L	ayer (if present):								
Туре:									
Depth (incl	hes):		_				Hydric Soil	Present? Yes	_ No <u>×</u>
Remarks:									
HYDROLOG Wetland Hyd	SY rology Indicators:		· · · · · · · · · · · · · · · · · · ·						
Primary Indica	ators (minimum of one	e required; g	check all that apply)			<u>Secon</u>	dary Indicators (2 or mo	re required)
Surface V	Vater (A1)		Water-Stain	ed Leave	s (B9) (e)	cept	W	ater-Stained Leaves (B9	9) (MLRA 1, 2,
High Wate	er Table (A2)			, 2, 4A, ar		·		4A, and 4B)	
Saturation	ו (A3)		Salt Crust (I	B11)			Di	rainage Patterns (B10)	
Water Ma	rks (B1)		Aquatic Inve	ertebrates	(B13)		ଁ Dr	ry-Season Water Table ((C2)
	Deposits (B2)		Hydrogen S	uifide Odd	or (C1)		Sa	aturation Visible on Aeria	al imagery (C9)
Drift Depo			Oxidized RI	nizosphere	es along l	iving Root	s (C3) G	eomorphic Position (D2)	1
	or Crust (B4)		Presence of					nallow Aquitard (D3)	
Iron Depo			Recent iron					AC-Neutral Test (D5)	
	oil Cracks (B6)		Stunted or S		•) (LRR A)		aised Ant Mounds (D6) (
	Not Visible on Aerial Im		Other (Expl	ain in Ren	narks)		Fr	ost-Heave Hummocks (I	D?)
Field Observa	Vegetated Concave S								
Surface Water		No	Depth (incl						
Water Table P			Depth (inch		4	-			
Saturation Pre			Depth (incr			-		D	V
(includes capil		<u> </u>	Depth (incr	ies):		_ wetial	na Hyarology	Present? Yes	NoX
	orded Data (stream g	auge, monit	oring well, aerial ph	otos, prev	vious insp	ections), if	available:		
								2	
Remarks:	· · · ·		A	241.	1 2	N. 12	10.0	10.00	- 4
NGt	expected	40	naue u	-114	αC/ '	yard	in and,	long enoug	4
dyrir	ig the g	rowi	ng seas	on,	64520	d on	Iand	SCYP2 POS	ition.
Sai(.s and 1	18gzt	ation,					•	
	- 1								

project/site: Crude Rail (), loading Fe	cility o	City/County	: ska	state: WA Sampling Point: SP-C9
Applicant/Owner: Shell PSR				State: WA Sampling Point: 56-C9
investigator(s): J. Waller, B. Fletcher		Section To	wnshin Rar	100: Section 33, 35N 2E
Landform (hillslope, terrace, etc.): terrace	`			nonver none): Calla Calk Sione (%):
Λ				
Subregion (LRR):	Lat:	1 1		Long: Datum: <u>NAD83</u>
Subregion (LRR):A Soil Map Unit Name:A.velly loamO	to Spero	out SI	upes	NWI classification:
Are cilmatic / hydrologic conditions on the site typical for the	his time of yea	ar? Yes <u></u>	<u> No</u>	(if no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology	significantly	disturbed?	Are "	Normai Circumstances" present? Yes 🔀 No
Are Vegetation, Soll, or Hydrology	naturaliy pro	blematic?	(If ne	eded, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map	showing	samplin	g point le	ocations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes	No			
	No	is th	e Sampled	Area nd? Yes <u>X</u> No
	No	With		
Remarks: 113 - 501 photo 114,115 - plot				
102 -112 wellent proserce pluts				
VEGETATION – Use scientific names of pla	nts.		<u></u>	
Tree Stratum (Plot size: 30)	Absolute <u>% Cover</u>		Indicator Status	Deminance Test worksheet:
1. A (nus rubra				Number of Dominant Species
2.		<u> </u>	$\rightarrow \mu \Sigma$	
3.				Total Number of Dominant (B)
<u>A</u>				
/	<u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u>Ro</u>	= Total Co	ver	Percent of Dominant Species 26 (A/B)
Sapling/Shrub Stratum (Plot size:)				Prevalence index worksheet:
1. Rubus spectabilis	40	$- \times$	FAC	Total % Cover of: Multiply by:
2. Sunders recomose bead				OBL species x 1 =
3. Symphiscarps albes			FACU	FACW species 15 x 2 = 30
4. Louicen muolucrata	10		PAC	FAC species 160 x 3 = 480
5	- 55			FACU species6 x 4 =40
/ / / / / / / / / / / / / / / / / / /	_ 21	= Total Co	over	UPL species x 5 =
1. Eddisium Ciliatum	15	Х	FACW	Column Totals: 185 (A) 5508 (B)
2. Germ macrophyllum	16		FAC	Prevalence index = B/A = 2.97
3. Caren	20	X	FAC *	Hydrophytic Vegetation indicators:
4.				1 - Rapid Test for Hydrophytic Vegetation
5				X 2 - Dominance Test is >50%
6				X 3 - Prevalence Index is ≤3.0'
7				4 - Morphological Adaptations' (Provide supporting
8			0 	data in Remarks or on a separate sheet)
9			. <u> </u>	5 - Wetland Non-Vascular Plants ¹
10		. <u></u>	·	Problematic Hydrophytic Vegetation ¹ (Explain)
11		. <u></u>		Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size:)	45	_= Total Co	ver	
1 Pubus WS'Mus	5	X	FACU	liudeenkudie
		·	TAICO	Hydrophytic Vegetation
2		= Total Co	ver	Present? Yes <u>No</u>
% Bare Ground in Herb Stratum				
Remarks:				
ł				

Depth	Matrix			Features		<u> </u>	_ .	
(inches)	<u>Color (moist)</u>		Coior (moist)	%	Type ¹		<u>Texture</u>	Remarks
0-3	10 4R2/2	97_	754846	3	<u> </u>	M	<u><u>S</u>.cL _</u>	
8-16	2.57512	95	10464/6	_5_	_ <u>_</u>	<u>M</u>	<u>5.</u> L	· · · · · · · · · · · · · · · · · · ·
			· · · · · · · · · · · · · · · · · · ·					
<u> </u>								
					<u> </u>			
<u> </u>								
<u></u>		<u> </u>						
			Reduced Matrix, CS=			d Sand Gra	ains. ² Locatio	on: PL=Pore Lining, M=Matrix.
Hydric Soll I	ndicators: (Applica	able to all L	RRs, unless otherv	vise note	ed.)		Indicators f	for Problematic Hydric Solis ³ :
Histosol	(A1)	-	Sandy Redox (S	5)			2 cm M	uck (A10)
	ipedon (A2)	_	Stripped Matrix (•			Red Pa	rent Materiai (TF2)
Black His		-	Loamy Mucky Mi			MLRA 1)		nallow Dark Surface (TF12)
	n Suifide (A4)		Loamy Gleyed M)		Other (E	Explain In Remarks)
	Below Dark Surface rk Surface (A12)	(A11) _	▲ Depleted Matrix (Redox Dark Surface)				31	
	ucky Mineral (S1)	-	Redox Dark Suna Depleted Dark Si	• •	7)			of hydrophytic vegetation and hydrology must be present,
	leyed Matrix (S4)	́ –	Redox Depressio	•	')			sturbed or problematic.
	ayer (if present):	<u> </u>						
Туре:						:		
Depth (inc	hes):						Hydric Soil Pre	esent? Yes 🔨 No
Remarks:				<u> </u>				
IYDROLOG	GY			<u> </u>				
Wetland Hyd	rology indicators:							
Primary Indica	ators (minimum of on	e required;	check all that apply)				Secondar	v Indicators (2 or more required)
Surface V	Vater (A1)		Water-Stain	ed Leave	s (B9) (ex	cept		r-Stained Leaves (B9) (MLRA 1, 2,
K High Wat	er Table (A2)		MLRA 1,			•		A, and 4B)
K Saturation	ר (A3)		Salt Crust (E	311)				age Patterns (B10)
Water Ma	rks (B1)		Aquatic Inve	rtebrates	(B13)		Dry-S	eason Water Table (C2)
Sediment	Deposits (B2)		Hydrogen Si	ulfide Odd	or (C1)		Satura	ation Visible on Aerial Imagery (C9)
Drift Depo	osits (B3)		Oxidized Rh	izosphere	es along L	iving Roots	s (C3) Georr	norphic Position (D2)
	or Crust (B4)		Presence of	Reduced	Iron (C4))	Shallo	ow Aquitard (D3)
Iron Depo			Recent iron	Reduction	n in Tilled	Soils (C6)	FAC-I	Neutral Test (D5)
	oil Cracks (B6)		Stunted or S		-) (LRR A)	Raise	d Ant Mounds (D6) (LRR A)
	Visible on Aerial Im		Other (Expla	in in Rem	narks)		Frost-	Heave Hummocks (D?)
	Vegetated Concave	Surface (B8)					·
Fleid Observa		с.	7					
Surface Water		s No	•			-		
Water Table P			Depth (inch			-		N.
Saturation Pre (includes capil Describe Reco	lary fringe)		o Depth (inch toring well, aeriai ph					esent? Yes <u>X</u> No
	(terning trent aorial pri	-100, pier	nous map	cocons ₇ , II	a fanaUiç.	
Remarks:				<u> </u>				
•								

.

Project/Site: Crude Rat While Facility City/	County: Skag.t Sa	ampling Date: Jan 21, 201
Applicant/Owner: Shell PSR		impling Point: 52 D
	ion, Township, Range: Section 34, 3	
Landform (hillslope, terrace, etc.): Loca	al relief (concave, convex, none): <u>Con Cave</u>	د Slope (%): _2
Subregion (LRR): Lat:	Long:	Datum:
Soil Map Unit Name: Bow provely loan, O to 3 percent	NWI classificatio	Constant of the second s
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes <u>X</u> No (if no, explain in Rema	arks.)
Are Vegetation, Soil, or Hydrology significantly distu	Irbed? Are "Normal Circumstances" pres	ent? Yes X No
Are Vegetation, Soll, or Hydrology naturally problem	natic? (If needed, explain any answers in	n Remarks.)

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

Hydrophytic Vegetation Present? Hydric Soii Present? Wetland Hydrology Present?	Yes <u>V</u> No Yes <u>V</u> No Yes <u>No</u>	is the Sampled Area within a Wetland?	Yes No	
Remarks: Photos 1-2 3-4	soic Plot			

VEGETATION – Use scientific names of plants.

114

 	Absolute	Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 30')	<u>% Cover</u>	Species? Status	Number of Dominant Species
1			That Are OBL, FACW, or FAC: (A)
2			Total Number of Dominant
3.			Species Across Ali Strata:(B)
4			
	- <u> </u>	= Total Cover	Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
Sapling/Shrub Stratum (Plot size: 15)			Prevalence index worksheet:
1			
2			Total % Cover of: Multiply by:
			OBL species x 1 =
3			FACW species X 2 =
4			FAC species $75 \times 3 = 225$
5			FACU species <u>20</u> x 4 = <u>80</u>
		= Total Cover	UPL species x 5 =
Herb Stratum (Plot size: 5)	8.5	V EAC	Column Totals: 95 (A) 305 (B)
1. Agroits conlaris /shlanilera	<u></u>	FAC	
2. Cruosurus cristatus	_ 20	X FACU	Prevalence Index = B/A = 3.2
3. Tritotium	5		Hydrophytic Vegetation Indicators:
4. Festura a rundinacaa	40	X FAC	1 - Rapid Test for Hydrophytic Vegetation
5. Holcus anatus		FAC	🔀 2 - Dominance Test is >50%
6			3 - Prevalence index is ≤3.0 ¹
7			4 - Morphological Adaptations ¹ (Provide supporting
8			data in Remarks or on a separate sheet)
9.			5 - Wetland Non-Vascular Plants ¹
			Problematic Hydrophytic Vegetation ¹ (Explain)
10		· · ·	¹ Indicators of hydric soil and wetland hydrology must
11			be present, unless disturbed or problematic.
	100	_= Total Cover	
Woody Vine Stratum (Plot size:)			
1		·	Hydrophytic Vegetation
2	_		Present? Yes X No
% Bare Ground in Herb Stratum		_= Total Cover	
Remarks:			
grazzd			
U TELA			

US Army Corps of Engineers

4	ription: (Describe)	to the depth				or confirm	the absence of	of indicators.)
Depth (Inches)	<u>Matrix</u> Color (moist)	<u> </u>	Redox Color (moist)	Feature: %	s Type ¹	Loc ²	Texture	Remarks
0-6	101R 3/1	100		/0				Remarks
6 - 10	104R 3/1	<u> </u>	7.5 YR 4/3	3	C	M	<u>loam</u>	590 gravel
10-16	2.51 1/2	92	16 YR 4/4	0	C	M	SL	15% Travel
			<u>IS IK 74</u>		<u> </u>			Is to graver
						·	<u> </u>	
	<u> </u>		····			·		
			· · · · · · · · · · · · · · · · · · ·					
. <u> </u>								
¹ Type: C=Co	ncentration, D=Depl	etion, RM=R	educed Matrix, CS=	 Covered	or Coate	ed Sand Gra	ains. ² Loca	ation: PL=Pore Lining, M=Matrix.
	ndicators: (Applica							rs for Problematic Hydric Solis ³ :
Histosol		_	_ Sandy Redox (S	5)			2 cm	Muck (A10)
	ipedon (A2)	_	_ Stripped Matrix (Red I	Parent Material (TF2)
Biack His	• •	_	_ Loamy Mucky Mi			t MLRA 1)	-	Shallow Dark Surface (TF12)
	n Sulfide (A4) Below Dark Surface	(A11) \	Loamy Gleyed M Depleted Matrix (-)		Other	r (Explain in Remarks)
	rk Surface (A12)		_ Redox Dark Surf	• •			³ Indicator	s of hydrophytic vegetation and
	ucky Mineral (S1)	6	Depleted Dark Si		7)			d hydrology must be present,
	eyed Matrix (S4)		Redox Depressio	ons (F8)				disturbed or problematic.
Restrictive L	ayer (if present):							
Туре:			_					
Depth (inc	hes):		—				Hydric Soil F	Present? Yes <u>X</u> No
Remarks:								
HYDROLOG	SY			-				
	rology indicators:							
_	itors (minimum of on	e required: c	heck all that apply)				Second	dary Indicators (2 or more required)
Surface V			Water-Stain		es (B9) (e	xcent		ater-Stained Leaves (B9) (MLRA 1, 2,
High Wate	• •		MLRA 1,			λυσμι		4A, and 4B)
X Saturation	n (A3)		Salt Crust (E					ainage Patterns (B10)
Water Ma	rks (B1)		Aquatic Inve	rtebrates	s (B13)			y-Season Water Table (C2)
Sediment	Deposits (B2)		Hydrogen S	ulfide Od	or (C1)			turation Visible on Aerial Imagery (C9)
Drift Depo	sits (B3)		Oxidized Rh	izospher	es along	Living Root	is (C3) 🗶 Ge	comorphic Position (D2)
	or Crust (B4)		Presence of	Reduced	d Iron (C4	•)		allow Aquitard (D3)
Iron Depo	• •		Recent Iron					C-Neutral Test (D5)
	oil Cracks (B6)	(07)	Stunted or S		-	1) (LRR A)		ised Ant Mounds (D6) (LRR A)
	Visible on Aerial Im		Other (Expla	iin in Rer	narks)		Fro	ost-Heave Hummocks (D?)
Field Observa								<u>8</u> .1
Surface Water		s No	Y Dopth (inch	~~\·				
Water Table P			X Depth (inch Depth (inch					
Saturation Pre		•	Depth (inch		<u> </u>		nd Underland	Present? Yes X No
(includes capil	ary fringe)		· _ · ·		<u> </u>			Present? Yes <u>A</u> No
Describe Reco	rded Data (stream g	auge, monite	oring well, aerial ph	otos, pre	vious ins	pections), if	f available:	· · · · · · · · · · · · · · · · · · ·
Remarks:					-			

WETLAND DETERMINATION	DATA FORM -	- Western Mou	ntains, Valleys, a	and Coast Region	
Project/Site: Crude Roal Unlocology Fa			git	Sampling Date:	· · 21
Applicant/Owner: Shell PSR	/		State: WA	Sampling Point:	DZ
investigator(s): J. Walker, P. Hamidi	Sec	ction, Township, Rai	nge: Section	34, 35N, 2E	
Landform (hillsiope, terrace, etc.):					: 120
Subregion (LRR):A					
Soli Map Unit Name: Bow gravelly 10an					
Are climatic / hydrologic conditions on the site typical for					
Are Vegetation, Soil, or Hydrology				s" present? Yes 🗶 N	No.
Are Vegetation, Soil, or Hydrology			eded, explain any an	•	
SUMMARY OF FINDINGS – Attach site ma	ap showing sa	impling point le	ocations, transe	cts, important feature	es, etc.
Hydrophytic Vegetation Present? Yes X	No	In the Complet	A		
Hydric Soil Present? Yes X	No	is the Sampled within a Wetlan		KNo	
Wetland Hydrology Present? Yes	No				
Remarks: Photos 5-6 50,12	10 - 11	pording			
7-9 Plot	12 - Ra	igh			
/EGETATION – Use scientific names of p	ants				
		ominant Indicator	Dominance Test w	orksheet'	·
Tree Stratum (Plot size: <u>30</u>)		pecies? <u>Status</u>	Number of Dominar	t Species	
1			That Are OBL, FAC		(A)
2			Total Number of Do	minant 🥱	
3			Species Across All	Strata:	(B)
4			Percent of Dominar	t Species	
Sapling/Shrub Stratum (Plot size: 15)	<u> </u>	Total Cover	That Are OBL, FAC		_ (A/B)
1			Prevalence Index		
2			Total % Cover		-0
3			· · —	$\frac{b}{6} \times 1 = \frac{b}{2}$	
4				<u>35</u> x3= <u>255</u>	~
5			FACU species	$15 \times 4 = 60$	—
	=1	Total Cover	UPL species	0 x5= 0	
Herb Stratum (Plot size: 5) 1. Firmica arinder acea	40	X FAC	Column Totals:	100 (A) 315	(B)
2. Converses cristatus	<u> </u>	FALU			_ ` `
3. Azostis cooilluis/stationitera	<u> </u>	X FAC	Prevalence in Hydrophytic Vege		
4. Trislian	$\overline{\tau}$			for Hydrophytic Vegetation	
5			X 2 - Dominance		
6			3 - Prevalence		
7			4 - Morphologic	cal Adaptations ¹ (Provide su arks or on a separate sheet	pporting
8				n-Vascular Plants ¹	<i>,</i>
9				drophytic Vegetation (Expl	ain)
			· /		

- CO = Total Cover

= Total Cover

0

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

Yes X No _____

Hydrophytic	
Vegetation	
Present?	

% Bare Ground in Herb Stratum _

Woody Vine Stratum (Plot size:

1

١

5

0

Remarks: grazad

6

11.

1. ____ 2. ____ SOIL

 \mathbb{Z}

	Matrix						the absence	•
Depth	Color (molst)	%	Color (moist)	Feature %	Type1	Loc ²	Texture	Remarks
0-7	10/R7/2	100					L	
7-11	OYR 3/2	97	7.51R414	3	C	M	L	10 To gravel
11-16_5	Y512	83	<u>164844</u>	15	<u> </u>	M	SL	15 7. grandel
	-	0.52	104 5/1	2	D	Μ		
			· · · · · · · · · · · · · · · · · · ·		•			• •••••••••••••••••••••••••••••••••••••
			· · · · · · · · · · · · · · · ·		·		<u> </u>	
	•••••••••				·		<u> </u>	
		<u> </u>	<u> </u>			······		
¹ Type: C=Concen Hydric Soli indica						d Sand Gra		ocation: PL=Pore Lining, M=Matrix.
-	ators: (Applical				ea.)			tors for Problematic Hydric Solis ³ :
Histosol (A1)	on (A2)		Sandy Redox (SS Stripped Matrix (SS)					cm Muck (A10) ad Parent Materiai (TF2)
Black Histic (A			Loamy Mucky Mi		1) (excent	MLRA 1)		ry Shallow Dark Surface (TF12)
Hydrogen Suit		_	Loamy Gleyed M	•				her (Explain in Remarks)
	w Dark Surface	(A11) _	Depleted Matrix (-	-			,
Thick Dark Su		د	Kedox Dark Surfa					tors of hydrophytic vegetation and
Sandy Mucky	• •	4	Depieted Dark Su	•	7)			land hydrology must be present,
Sandy Gleyed Restrictive Layer			_ Redox Depressio	ns (F8)			unie I	ess disturbed or problematic.
Type:								
Depth (inches):			_				Uudala Ca	ll Present? Yes X No
Remarks:							riyuric So	
HYDROLOGY	— <u></u>							
HYDROLOGY Wetland Hydrolog	gy indicators:		· · · · · · · · · · · · · · · · · · ·					
	-	e required; o	check all that apply)				Sec	ondary Indicators (2 or more required)
Wetland Hydrolog Primary IndicatorsSurface Water	(minimum of one (A1)	e required; o	check all that apply)	ed Leave	es (B9) (e	xcept		ondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2,
Wetland Hydrolog Primary Indicators Surface Water Kigh Water Ta	(<u>minimum of one</u> (A1) bie (A2)	e required; c				xcept		
Wetland Hydrolog Primary Indicators Surface Water High Water Tal Saturation (A3)	(<u>minimum of one</u> (A1) bie (A2))	e required; d	Water-Staine MLRA 1, Salt Crust (B	2, 4A, a 11)	ind 4B)	xcept	_	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10)
Wetland Hydrolog Primary Indicators Surface Water High Water Tal Saturation (A3) Water Marks (B	(<u>minimum of one</u> (A1) ble (A2)) B1)	e required; d	Water-Staine MLRA 1, Salt Crust (B Aquatic Inve	2, 4A, a 11) rtebrate	and 4B) s (B13)	xcept	_	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2)
Wetland Hydrolog Primary Indicators Surface Water High Water Tal Saturation (A3) Water Marks (E Sediment Depo	(<u>minimum of one</u> (A1) ble (A2)) B1) psits (B2)	a required; o	Water-Staine MLRA 1, Salt Crust (B Aquatic Inve Hydrogen Su	2, 4A, a 11) rtebrate ulfide Oc	and 4B) s (B13) lor (C1)		-	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9)
Wetland Hydrolog Primary Indicators Surface Water High Water Tal Saturation (A3) Water Marks (E Sediment Depo Drift Deposits ((<u>minimum of one</u> (A1) ble (A2)) B1) posits (B2) (B3)	a required; o	Water-Staine MLRA 1, Salt Crust (B Aquatic Inve Hydrogen St Oxidized Rhi	2, 4A, a 11) rtebrate ulfide Oc izosphe	s (B13) dor (C1) res along	Living Root	s (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2)
Wetland Hydrolog Primary Indicators Surface Water High Water Tal Saturation (A3) Water Marks (E Sediment Depo Drift Deposits (Algal Mat or Cr	(<u>minimum of one</u> (A1) ble (A2)) B1) Dosits (B2) (B3) rust (B4)	e required; d	Water-Staine MLRA 1, Salt Crust (B Aquatic Inve Hydrogen Su Oxidized Rhi Presence of	2, 4A, a 11) rtebrate ulfide Oc zosphei Reduce	ind 4B) s (B13) dor (C1) res along d Iron (C4	Living Root	s (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3)
Wetland Hydrolog Primary Indicators Surface Water High Water Tal Saturation (A3) Water Marks (E Sediment Depo Drift Deposits (Algal Mat or Cr Iron Deposits ((<u>minimum of one</u> (A1) ble (A2)) B1) osits (B2) (B3) rust (B4) B5)	e required; d	Water-Staine MLRA 1, Salt Crust (B Aquatic Inve Hydrogen Su Oxidized Rhi Presence of Recent Iron	2, 4A, a 11) rtebrate ulfide Oc izosphe Reduce Reductio	nd 4B) s (B13) dor (C1) res along d Iron (C4 on in Tilled	Living Root	s (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5)
Wetland Hydrolog Primary Indicators Surface Water High Water Tal Saturation (A3) Water Marks (E Sediment Depo Drift Deposits (Algal Mat or Cr Iron Deposits (I Surface Soil Cr	(minimum of one (A1) ble (A2)) B1) osits (B2) (B3) rust (B4) B5) racks (B6)		Water-Staine MLRA 1, Salt Crust (B Aquatic Inve Hydrogen Su Oxidized Rhi Presence of Recent Iron Stunted or S	2, 4A, a 11) rtebrate ulfide Oc izospher Reduce Reduction tressed	nd 4B) s (B13) for (C1) res along d Iron (C4 on in Tilleo Plants (D	Living Root	s (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Wetland Hydrolog Primary Indicators Surface Water High Water Tal Saturation (A3) Water Marks (E Sediment Depo Drift Deposits (Algal Mat or Cr Iron Deposits (Surface Soil Cr Inundation Visil	(minimum of one (A1) ble (A2)) B1) osits (B2) (B3) rust (B4) B5) racks (B6) ble on Aerial Ima	agery (B7)	Water-Staine MLRA 1, Salt Crust (B Aquatic Inve Hydrogen Su Oxidized Rhi Presence of Recent Iron Stunted or S Other (Expla	2, 4A, a 11) rtebrate ulfide Oc izospher Reduce Reduction tressed	nd 4B) s (B13) for (C1) res along d Iron (C4 on in Tilleo Plants (D	Living Root	s (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5)
Wetland Hydrolog Primary Indicators — Surface Water High Water Tal Saturation (A3) — Water Marks (B — Sediment Depo — Drift Deposits (— Algal Mat or Cr — Iron Deposits (— Surface Soil Cr — Inundation Visil	(minimum of one (A1) ble (A2)) B1) osits (B2) (B3) rust (B4) B5) racks (B6) ble on Aerial Ima tated Concave S	agery (B7)	Water-Staine MLRA 1, Salt Crust (B Aquatic Inve Hydrogen Su Oxidized Rhi Presence of Recent Iron Stunted or S Other (Expla	2, 4A, a 11) rtebrate ulfide Oc izospher Reduce Reduction tressed	nd 4B) s (B13) for (C1) res along d Iron (C4 on in Tilleo Plants (D	Living Root	s (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Wetland Hydrolog Primary Indicators Surface Water High Water Tal Saturation (A3) Water Marks (E Sediment Depo Drift Deposits (Algal Mat or Cr Iron Deposits (Surface Soil Cr Inundation Visil Sparsely Veget	(minimum of one (A1) ble (A2)) B1) osits (B2) (B3) rust (B4) B5) racks (B6) ble on Aerial Ima tated Concave S s:	agery (B7) Surface (B8)	Water-Staine MLRA 1, Salt Crust (B Aquatic Inve Hydrogen St Oxidized Rhi Presence of Recent Iron Stunted or S Other (Expla	2, 4A, a (11) rtebrate ulfide Oc izospher Reduce Reduce tressed in in Re	and 4B) s (B13) for (C1) res along d Iron (C4 on in Tilled Plants (D marks)	Living Root	s (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Wetland Hydrolog Primary Indicators Surface Water High Water Tai Saturation (A3) Water Marks (E Sedirment Depo Drift Deposits (Algal Mat or Cr Iron Deposits (Surface Soil Cr Inundation Visil Sparsely Veget	(minimum of one (A1) ble (A2)) B1) osits (B2) (B3) rust (B4) B5) racks (B6) ble on Aerial Ima tated Concave S s: sent? Yes	agery (B7) Surface (B8)	Water-Staine MLRA 1, Salt Crust (B Aquatic Inve Hydrogen Su Oxidized Rhi Presence of Recent Iron Stunted or S Other (Expla)	2, 4A, a (11) rtebrate ulfide Oc izospher Reduce Reductio tressed in in Re 	and 4B) s (B13) dor (C1) res along d Iron (C4 on in Tilled Plants (D marks)	Living Root	s (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Wetland Hydrolog Primary Indicators Surface Water High Water Tal Saturation (A3) Water Marks (B Sediment Depo Drift Deposits (Algal Mat or Cr Iron Deposits (Surface Soil Cr Inundation Visit Sparsely Veget Field Observations Surface Water Preser Saturation Present? (includes capillary fr	(minimum of one (A1) ble (A2)) B1) osits (B2) (B3) rust (B4) B5) racks (B6) ble on Aerial Ima tated Concave S s: sent? Yes nt? Yes ringe)	agery (B7) Surface (B8) No X No	Water-Staine MLRA 1, Salt Crust (B Aquatic Inve Hydrogen Su Oxidized Rhi Presence of Recent Iron Stunted or S Other (Explain) Depth (inched Depth (inched)	2, 4A, a (11) rtebrate ulfide Oc izosphei Reduce Reductio tressed in in Re es): es): es):	nd 4B) s (B13) dor (C1) res along d Iron (C4 on in Tilled Plants (D marks) 1	Living Root) 1 Soils (C6) 1) (LRR A) – – Wetla	s (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Wetland Hydrolog Primary Indicators Surface Water High Water Tal Saturation (A3) Water Marks (B Sediment Depo Drift Deposits (Algal Mat or Cr Iron Deposits (Surface Soil Cr Inundation Visil Sparsely Veget Fleid Observations Surface Water Preser Saturation Present?	(minimum of one (A1) ble (A2)) B1) osits (B2) (B3) rust (B4) B5) racks (B6) ble on Aerial Ima tated Concave S s: sent? Yes nt? Yes ringe)	agery (B7) Surface (B8) No X No	Water-Staine MLRA 1, Salt Crust (B Aquatic Inve Hydrogen Su Oxidized Rhi Presence of Recent Iron Stunted or S Other (Explain) Depth (inched Depth (inched)	2, 4A, a (11) rtebrate ulfide Oc izosphei Reduce Reductio tressed in in Re es): es): es):	nd 4B) s (B13) dor (C1) res along d Iron (C4 on in Tilled Plants (D marks) 1	Living Root) 1 Soils (C6) 1) (LRR A) – – Wetla	s (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Wetland Hydrolog Primary Indicators Surface Water High Water Tal Saturation (A3) Water Marks (B Sediment Depo Drift Deposits (Algal Mat or Cr Iron Deposits (Surface Soil Cr Inundation Visit Sparsely Veget Field Observations Surface Water Preser Saturation Present? (includes capillary fr	(minimum of one (A1) ble (A2)) B1) osits (B2) (B3) rust (B4) B5) racks (B6) ble on Aerial Ima tated Concave S s: sent? Yes nt? Yes ringe)	agery (B7) Surface (B8) No X No	Water-Staine MLRA 1, Salt Crust (B Aquatic Inve Hydrogen Su Oxidized Rhi Presence of Recent Iron Stunted or S Other (Explain) Depth (inched Depth (inched)	2, 4A, a (11) rtebrate ulfide Oc izosphei Reduce Reductio tressed in in Re es): es): es):	nd 4B) s (B13) dor (C1) res along d Iron (C4 on in Tilled Plants (D marks) 1	Living Root) 1 Soils (C6) 1) (LRR A) – – Wetla	s (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Primary Indicators Surface Water High Water Tal Saturation (A3) Water Marks (R Sediment Depo Drift Deposits (Algal Mat or Cr Iron Deposits (Surface Soil Cr Inundation Visil Sparsely Vegel Fleid Observations Surface Water Prese Water Table Preser Saturation Present? (includes capillary fr	(minimum of one (A1) ble (A2)) B1) osits (B2) (B3) rust (B4) B5) racks (B6) ble on Aerial Ima tated Concave S s: sent? Yes nt? Yes ringe)	agery (B7) Surface (B8) No X No	Water-Staine MLRA 1, Salt Crust (B Aquatic Inve Hydrogen Su Oxidized Rhi Presence of Recent Iron Stunted or S Other (Explain) Depth (inched Depth (inched)	2, 4A, a (11) rtebrate ulfide Oc izosphei Reduce Reductio tressed in in Re es): es): es):	nd 4B) s (B13) dor (C1) res along d Iron (C4 on in Tilled Plants (D marks) 1	Living Root) 1 Soils (C6) 1) (LRR A) – – Wetla	s (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Wetland Hydrolog Primary Indicators Surface Water High Water Tal Saturation (A3) Water Marks (E Sediment Depo Drift Deposits (Algal Mat or Cr Iron Deposits (I Surface Soil Cr Inundation Visil Sparsely Vegel Fleld Observations Surface Water Preser Saturation Present? (includes capillary fr Describe Recorded	(minimum of one (A1) ble (A2)) B1) osits (B2) (B3) rust (B4) B5) racks (B6) ble on Aerial Ima tated Concave S s: sent? Yes nt? Yes ringe)	agery (B7) Surface (B8) No X No	Water-Staine MLRA 1, Salt Crust (B Aquatic Inve Hydrogen Su Oxidized Rhi Presence of Recent Iron Stunted or S Other (Explain) Depth (inched Depth (inched)	2, 4A, a (11) rtebrate ulfide Oc izosphei Reduce Reductio tressed in in Re es): es): es):	nd 4B) s (B13) dor (C1) res along d Iron (C4 on in Tilled Plants (D marks) 1	Living Root) 1 Soils (C6) 1) (LRR A) – – Wetla	s (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Wetland Hydrolog Primary Indicators 	(minimum of one (A1) ble (A2)) B1) osits (B2) (B3) rust (B4) B5) racks (B6) ble on Aerial Ima tated Concave S s: sent? Yes nt? Yes ringe)	agery (B7) Surface (B8) No X No	Water-Staine MLRA 1, Salt Crust (B Aquatic Inve Hydrogen Su Oxidized Rhi Presence of Recent Iron Stunted or S Other (Explain) Depth (inched Depth (inched)	2, 4A, a (11) rtebrate ulfide Oc izosphei Reduce Reductio tressed in in Re es): es): es):	nd 4B) s (B13) dor (C1) res along d Iron (C4 on in Tilled Plants (D marks) 1	Living Root) 1 Soils (C6) 1) (LRR A) – – – – Wetla	s (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)

			nge: Section 34, 35N, 25
Landform (hilisiope, terrace, etc.):			
Subregion (LRR):	Lat:	<u> </u>	_ Long: Datum:
Soil Map Unit Name: Bow gr, Log m	10-32	Slopes	NWI classification: UPIQNO
Are climatic / hydrologic conditions on the site typical for	r this time of year	? Yes 🖌 No _	(If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology	significantiy di	sturbed? Are "	'Normal Circumstances" present? Yes 🔜 🗶 No
Are Vegetation, Soil, or Hydrology			eded, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site m			
Hydrophytic Vegetation Present? Yes	No		
Hydric Soli Present? Yes	No X	is the Sampled	Area
Wetland Hydrology Present? Yes	No <u>+</u>	within a Wetlar	nd? YesNoX
Remarks: Photos 13-14 Soil			
15-16 Plot			
VEGETATION – Use scientific names of p			e
Tree Stratum (Plot size: 30 Ft.)		Dominant Indicator Species? Status	Dominance Test worksheet:
1			Number of Dominant Species That Are OBL, FACW, or FAC:
2			Total Number of Dominant
3			Species Across All Strata:
4			Percent of Dominant Species
15 54	<u> </u>	Total Cover	That Are OBL, FACW, or FAC:
Sapling/Shrub Stratum (Plot size: 15 ff)			Prevalence index worksheet:
1			Total % Cover of: Multiply by:
2			OBL species x 1 =
4.			FACW species x 2 =
5.			FAC species 104 x 3 = 312
		Total Cover	FACU species $12 \times 4 = 43$
Herb Stratum (Plot size: 5 1+)		Ear	UPL species $O \times 5 = O$ Column Totals: 1177 (A) 362
1. Aquostis Capillaris/Stok	11/14/19 75 10 15	FAC	
2. Festuca anundinacza 3. Cyrosurus cristatus	10	FAC FACU	Prevalence Index = B/A = <u>3.09</u>
3 CYrosorus cristatus 4 Civilium annense		FAC	Hydrophytic Vegetation Indicators:
5. Trifolium resul	<u> </u>	FAC	1 - Rapid Test for Hydrophytic Vegetation
6. Taraxacum officingle	2	FACU	 ✓ 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹
7. Ranunevius repens		FACW	
8			data in Remarks or on a separate sheet)
9.			5 - Wetland Non-Vascular Plants ¹
10			Problematic Hydrophytic Vegetation ¹ (Explain)
11			¹ Indicators of hydric soil and wetland hydrology mu
- 51	_1[7_=	Total Cover	be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 5 Ff)	- •		
1			Hydrophytic Vegetation
2	0	Tatal Causa	Present? Yes V. No
% Bare Ground in Herb Stratum	=	Total Cover	

ないで

Profile Description	n: (Describe f	to the dept	h needed	to docum	nent the l	ndicator	or confirm	the abs	sence of indicators	ş.)	
Depth	Matrix			Redo	x Feature:	5					
	olor (moist)		Color (r	noist)	%	Type ¹	Loc ²	<u> </u>		Remarks	
0-12 104	<u>IR 3/1,5</u>	100							5% ~~	obbles	
	<u>24 PYR 4/2</u>		10yR		<u> </u>	<u> </u>	<u>m</u>	<u>sl</u>		ine) 202 col	bbhs
18-20 101	4155/Z	90	loyR	<u>416</u>	10	<u> </u>	m	SL		cobbhs	
	•		8. ·								
						<u></u>	<u> </u>	ē.,			
	·,	······					·				———
<u></u>						<u></u>					
		<u> </u>					<u> </u>	<u> </u>			
						. <u></u>				(2)	
¹ Type: C=Concentr Hydric Soll Indicat							d Sand Gr			ore Lining, M=Matrix.	
1 -	ors: (Applica					θα.)		inc		ematic Hydric Soils ³	•
Histosol (A1) Histic Epipedon	ι (Δ 2)	-		[,] Redox (S ed Matrix					2 cm Muck (A10) Red Parent Mater		
Black Histic (A3	• •	-) (except	MLRA 1)		Very Shailow Dar		
Hydrogen Sulfic	-	-		Gleyed N	•		,		Other (Explain In	• •	
Depleted Below		(A11)		ted Matrix		•				,	
Thick Dark Surf	ace (A12)	-	Redox	Dark Sur	face (F6)			"in	dicators of hydroph	ytic vegetation and	
Sandy Mucky N		-		ed Dark S		7)			wetland hydrology	•	
Sandy Gleyed M		.	Redox	Depressi	ions (F8)				unless disturbed or	r problematic.	
Restrictive Layer (i	r present):										
Type:										w N /	\sim
Depth (inches): _								Hydric	c Soll Present?	Yes No	
Remarks:			~ 1								
	۸.	o hydr	ic soil	ndice	ators ;	present					
	11	o najo	-			N N					
Ξ.											
HYDROLOGY											
Wetland Hydrology	indicators:		0.000					1.1.1.1		L	
Primary Indicators (n	ninimum of on	e required;	check ali	that apply	n				Secondary Indicato	ors (2 or more require	ed)
Surface Water (/ater-Stair		es (B9) (e:	cept		-	Leaves (B9) (MLRA	_
High Water Tab	,				, 2, 4A, a				4A, and 4B		.,_,
Saturation (A3)	- (/		S	alt Crust (Drainage Patte	•	
Water Marks (B	1)			quatic Inv		s (B13)			Dry-Season W		
Sediment Depos	-			ydrogen S					-	ble on Aerial Imagery	/ (C9)
Drift Deposits (B						• •	Living Roo	ts (C3)	Geomorphic Po		
Algal Mat or Cru	st (B4)			resence o		-	-		Shallow Aquita		1
Iron Deposits (B	5)		R	ecent Iror	n Reductio	on in Tilleo	Soils (C6		FAC-Neutral To		
Surface Soil Cra	cks (B6)						1) (LRR A)		Raised Ant Mo	unds (D6) (LRR A)	
Inundation Visibi	le on Aerial Im	agery (B7)	o	ther (Expi	lain in Rei	marks)			Frost-Heave H	ummocks (D?)	
Sparsely Vegeta	ted Concave	Surface (B	8)								
Field Observations:										```````````````````````````````````````	
Surface Water Prese	nt? Ye	s N	<u>ہ کر</u> ر	Depth (inc	hes):	•	_				
Water Table Present	? Ye	s <u>X</u> N	o [Depth (inc	hes):	16	_				
Saturation Present?		s <u> X </u> N	o 0	Depth (inc	hes):	15	_ Wetla	and Hyd	rology Present?	Yes No 💆	
(includes capillary fri Describe Recorded D	nge) Data (stream o		itoring we		hoton pr			if quailab			
Describe Recorded L	ala (sileann g	auge, mor	intornig we	n, aenai p	notos, pre	evious ins	Dections),		iie.	;	
Remarks:										*.	1945 15
n	o wella	al hu	Intern	mla	ator	Dra (0	4		66.507 II		
•	• • •	-)	17	- -		r m	7				

- -

Project/site: Crude Rail Unloading Facility	City/County: Skagit	Si	ampling Date: Jan. 21,2013
Applicant/Owner: Shell PSR		State: WA Sa	ampling Point: <u>SP-DY</u>
Investigator(s): J. Walker, B. Fletcher	Section, Township, Range: _	Section 34	35N,25
Landform (hilislope, terrace, etc.): terrace	Local relief (concave, conve	x, none): <u>ConJL</u>	Siope (%):
		g:	
Soli Map Unit Name: Bow gravelly loan, 6to 3 per	ent slopes	NWI classification	on: Upland
Are climatic / hydrologic conditions on the site typical for this time of ye	ear? Yes X No		
Are Vegetation, Soil, or Hydrology significantly	disturbed? Are "Norm:	ai Circumstances" pres	sent? Yes 🔀 No
Are Vegetation, Soii, or Hydroiogy naturally pr	obiematic? (if needed,	explain any answers i	in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing	sampling point locati	ions, transects, i	mportant features, etc.

Hydropnytic Vegetation Present? Hydric Soli Present? Wetland Hydrology Present?	Yes No Yes No	is the Sampled Area within a Wetland?	Yes No <u>×</u>	
Remarks:				

VEGETATION – Use scientific names of plants.

2.1	Absolute	Dominant indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 30')	<u>% Cover</u>	Species? Status	Number of Dominant Species
1			That Are OBL, FACW, or FAC: (A)
2			
			Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3			Species Across Air Strata (b)
4	<u> </u>		Percent of Dominant Species
Sapling/Shrub Stratum (Plot size: 15)	_0_	= Total Cover	That Are OBL, FACW, or FAC: (A/B)
			Prevalence Index worksheet:
1			Totai % Cover of: Multiply by:
2			$\begin{array}{c} \hline \hline \\ $
3.			
4	- <u></u>		FAC species $70 \times 3 = 20$
5			FACU species <u>20</u> x 4 = <u>80</u>
		_ = Total Cover	UPL species x 5 =
Herb Stratum (Plot size: 5)	n	V tern	Column Totals: <u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u>
1. <u>Cynosurus cristatus</u>	20	X FACU	
2. Festuca arundinacea		X FAC	Prevalence Index = B/A = <u>3.22</u>
3. Trifolium	10		Hydrophytic Vegetation Indicators:
4. Agrostis capillaris / Stolonifera	40	X FAC	1 - Rapid Test for Hydrophytic Vegetation
5 Caranium Molle	T		X 2 - Dominance Test is >50%
6. <u>Cirsium Vulgare</u>		EA(1)	$3 - Prevalence Index is \leq 3.0^1$
			—
7			4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
8			5 - Wetland Non-Vascular Plants ¹
9			Problematic Hydrophytic Vegetation ¹ (Explain)
10	-		
11			¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
,	100	= Total Cover	be present, unless disturbed of problematic.
Woody Vine Stratum (Plot size: 5/)		-	
1			Hydrophytic
2			Manatation
²		= Total Cover	Present? Yes X No
% Bare Ground in Herb StratumO		_= Total Cover	
Remarks:			
grazed			

Depth <u>Matrix</u>		Redo	x Feature				
(inches) Color (moist)	%	Color (moist)	%	_Type ¹	_Loc ²		Remarks
0-9 10YR 3/2	100			<u> </u>		<u>sil</u>	
9-13 107R 3	(00)	·····				SL _	
13-18 IUYR 41	60	10 YRY6	30	<u> </u>	<u>M</u>	SCL	
							5
				·,			
	•	·····	·	<u> </u>			
			·	<u> </u>			
Type: C=Concentration, D=Dep	letion PM-1	Paducad Matrix CS					
lydric Soll Indicators: (Applic					u Sand Gra		on: PL=Pore Lining, M=Matrix. for Problematic Hydric Solis ³ :
Histosoi (A1)		Sandy Redox (,			luck (A10)
Histic Epipedon (A2)	-	Stripped Matrix					arent Materiai (TF2)
Biack Histic (A3)	_	Loamy Mucky M) (except	MLRA 1)		hallow Dark Surface (TF12)
Hydrogen Suifide (A4)	-	_ Loamy Gieyed			,		Explain in Remarks)
Depieted Below Dark Surface	∋ (A11) _	_ Depleted Matrix					
Thick Dark Surface (A12)	_	_ Redox Dark Su					of hydrophytic vegetation and
Sandy Mucky Mineral (S1)	-	_ Depleted Dark		7)			hydrology must be present,
Sandy Gieyed Matrix (S4) estrictive Layer (if present):		Redox Depress	lons (F8)			unless d	isturbed or problematic.
Type: Depth (inches):							
lemarks:		<u> </u>				Hydric Soli Pro	esent? Yes NoX
	ic suil	indicators	present	f			
YDROLOGY Vetland Hydrology Indicators:				f			
YDROLOGY Vetland Hydrology Indicators: rimary Indicators (minimum of or				f			ry Indicators (2 or more required)
/DROLOGY Vetland Hydrology indicators: rimary Indicators (minimum of or Surface Water (A1)		<u>check all that apply</u> Water-Stai	/) ned Leave	s (B9) (e)	cept		ry Indicators (2 or more required) or-Stained Leaves (B9) (MLRA 1, 2,
(DROLOGY /etland Hydrology Indicators: <u>rimary Indicators (minimum of or</u> Surface Water (A1) High Water Table (A2)		<u>check all that apply</u> Water-Stai MLRA *	/) ned Leave I, 2, 4A, al	s (B9) (e)	ICept	Wate 4/	er-Stained Leaves (B9) (MLRA 1, 2, A, and 4B)
/DROLOGY /etland Hydrology indicators: rimary Indicators (minimum of or Surface Water (A1) High Water Table (A2) Saturation (A3)		<u>check all that apply</u> Water-Stai MLRA ⁴ Salt Crust (/) ned Leave I, 2, 4A, an (B11)	s (B9) (ex nd 4 B)	cept	Wate 4/ Drair	er-Stained Leaves (B9) (MLRA 1, 2, A, and 4B) nage Patterns (B10)
/DROLOGY /etland Hydrology indicators: rimary Indicators (minimum of or Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1)		<u>check all that apply</u> Water-Stai Salt Crust (Aquatic Inv	/) ned Leave I, 2, 4A, an (B11) rertebrates	s (B9) (ex nd 4 B) - (B13)	icept	Wate 4/ Drair Dry-5	er-Stained Leaves (B9) (MLRA 1, 2, A, and 4B) hage Patterns (B10) Season Water Table (C2)
/DROLOGY /etiand Hydrology Indicators: rimary Indicators (minimum of or Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2)		<u>check all that apply</u> <u> Water-Stai</u> <u> MLRA <u> Salt Crust </u> <u> </u></u>	/) ned Leave I, 2, 4A, ar (B11) rertebrates Sulfide Od	s (B9) (ex nd 4 B) : (B13) or (C1)	·	Wate 4/ Drair Dry-S Satu	er-Stained Leaves (B9) (MLRA 1, 2, A, and 4B) hage Patterns (B10) Season Water Table (C2) ration Visible on Aerial Imagery (C9)
YDROLOGY Vetland Hydrology Indicators: rimary Indicators (minimum of or Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3)		<u>check all that apply</u> <u> Water-Stai</u> <u> MLRA </u>	/) ned Leave I, 2, 4A, ar (B11) rertebrates Sulfide Ode hizosphere	s (B9) (ex nd 4 B) (B13) or (C1) es along L	iving Roots	Wate 4/ Drair Dry-5 Satur s (C3) Geor	er-Stained Leaves (B9) (MLRA 1, 2, A, and 4B) hage Patterns (B10) Season Water Table (C2) ration Visible on Aerial Imagery (C9) morphic Position (D2)
YDROLOGY Vetland Hydrology Indicators: rimary Indicators (minimum of or 		check all that apply Water-Stai MLRA * Salt Crust (Aquatic Inv Hydrogen S Oxidized R Presence c	/) ned Leave I, 2, 4A, au (B11) rertebrates Sulfide Od hizosphere of Reduced	s (B9) (e) nd 4 B) (B13) or (C1) es along L I iron (C4)	iving Roots	Wate 4/ Drair Dry-5 Satu s (C3) Geor Shall	er-Stained Leaves (B9) (MLRA 1, 2, A, and 4B) hage Patterns (B10) Season Water Table (C2) ration Vlsible on Aerial Imagery (C9) norphic Position (D2) ow Aquitard (D3)
YDROLOGY Vetland Hydrology Indicators: rimary Indicators (minimum of or 		check all that apply Water-Stain MLRA for the second secon	/) ned Leave I, 2, 4A, an (B11) ertebrates Sulfide Odd hizosphere of Reduced n Reductio	s (B9) (e) nd 4 B) c (B13) or (C1) es along L l iron (C4 n in Tilled	iving Root:) Soils (C6)	Wate 4/ Drair Dry-5 Satu s (C3) Geor Shail FAC-	er-Stained Leaves (B9) (MLRA 1, 2, A, and 4B) hage Patterns (B10) Season Water Table (C2) ration VIsible on Aerial Imagery (C9) norphic Position (D2) ow Aquitard (D3) Neutral Test (D5)
YDROLOGY Vetland Hydrology Indicators: rimary Indicators (minimum of or 	ne required;	<u>check all that apply</u> <u> </u>	() ned Leave I, 2, 4A, an (B11) ertebrates Sulfide Odd hizosphere of Reduced of Reduced Stressed F	s (B9) (ex nd 4B) c (B13) or (C1) es along L l iron (C4) n in Tilled Plants (D1	iving Root:) Soils (C6)	Wate 4/ Drair Dry-S Satus s (C3) Geor Shall FAC- Raise	er-Stained Leaves (B9) (MLRA 1, 2, A, and 4B) hage Patterns (B10) Season Water Table (C2) ration VIsible on Aerial Imagery (C9) morphic Position (D2) ow Aquitard (D3) Neutral Test (D5) ed Ant Mounds (D6) (LRR A)
YDROLOGY Vetland Hydrology Indicators: <u>rimary Indicators (minimum of or</u> 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)	ne required; nagery (B7)	check all that apply Water-Stai MLRA Salt Crust Aquatic inv Hydrogen S Oxidized R Presence co Recent iror Stunted or Other (Exp	() ned Leave I, 2, 4A, an (B11) ertebrates Sulfide Odd hizosphere of Reduced of Reduced Stressed F	s (B9) (ex nd 4B) c (B13) or (C1) es along L l iron (C4) n in Tilled Plants (D1	iving Root:) Soils (C6)	Wate 4/ Drair Dry-S Satus s (C3) Geor Shall FAC- Raise	er-Stained Leaves (B9) (MLRA 1, 2, A, and 4B) hage Patterns (B10) Season Water Table (C2) ration VIsible on Aerial Imagery (C9) norphic Position (D2) ow Aquitard (D3) Neutral Test (D5)
//DROLOGY //etiand Hydrology Indicators: rimary Indicators (minimum of or	ne required; nagery (B7)	check all that apply Water-Stai MLRA Salt Crust Aquatic inv Hydrogen S Oxidized R Presence co Recent iror Stunted or Other (Exp	() ned Leave I, 2, 4A, an (B11) ertebrates Sulfide Odd hizosphere of Reduced of Reduced Stressed F	s (B9) (ex nd 4B) c (B13) or (C1) es along L l iron (C4) n in Tilled Plants (D1	iving Root:) Soils (C6)	Wate 4/ Drair Dry-S Satus s (C3) Geor Shall FAC- Raise	er-Stained Leaves (B9) (MLRA 1, 2, A, and 4B) hage Patterns (B10) Season Water Table (C2) ration VIsible on Aerial Imagery (C9) morphic Position (D2) ow Aquitard (D3) Neutral Test (D5) ed Ant Mounds (D6) (LRR A)
YDROLOGY Vetland Hydrology Indicators: Inimary Indicators (minimum of or 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 In Sparsely Vegetated Concave ield Observations:	ne required; nagery (B7) Surface (B8	check all that apply Water-Stai MLRA Salt Crust (Aquatic Inv Hydrogen S Oxidized R Presence c Recent Iror Stunted or Other (Expl	r) ned Leave (B11) rertebrates Sulfide Od hizosphere of Reductio Stressed F lain in Ren	s (B9) (ex nd 4B) c (B13) or (C1) es along L l iron (C4) n in Tilled Plants (D1	iving Root:) Soils (C6)	Wate 4/ Drair Dry-S Satus s (C3) Geor Shall FAC- Raise	er-Stained Leaves (B9) (MLRA 1, 2, A, and 4B) hage Patterns (B10) Season Water Table (C2) ration VIsible on Aerial Imagery (C9) norphic Position (D2) ow Aquitard (D3) Neutral Test (D5) ed Ant Mounds (D6) (LRR A)
YDROLOGY Vetland Hydrology Indicators: Primary Indicators (minimum of or 	nagery (B7) Surface (B8	check all that apply Water-Stai MLRA Salt Crust Aquatic inv Hydrogen S Oxidized R Presence co Recent iror Stunted or Other (Exp	() ned Leave I, 2, 4A, au (B11) ertebrates Sulfide Odd hizosphere of Reduced n Reductio Stressed F dain in Ren hes):	s (B9) (ex nd 4B) (B13) or (C1) es along L l iron (C4) n in Tilled Plants (D1 narks)	iving Root:) Soils (C6)	Wate 4/ Drair Dry-S Satus s (C3) Geor Shall FAC- Raise	er-Stained Leaves (B9) (MLRA 1, 2, A, and 4B) hage Patterns (B10) Season Water Table (C2) ration VIsible on Aerial Imagery (C9) norphic Position (D2) ow Aquitard (D3) Neutral Test (D5) ed Ant Mounds (D6) (LRR A)
YDROLOGY Vetland Hydrology Indicators: Irimary Indicators (minimum of or 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 in Sparsely Vegetated Concave Vetater Table Present? Ye	nagery (B7) Surface (B8	<u>check all that apply</u> <u> </u> Water-Stai <u> MLRA</u> <u> Salt Crust (</u> <u> Aquatic inv</u> <u> Hydrogen S</u> <u> Oxidized R</u> <u> Presence c</u> <u> Recent iror</u> <u> Stunted or</u> <u> Other (Exp</u>) <u> X</u> Depth (inc	() ned Leave I, 2, 4A, and (B11) rertebrates Sulfide Odd hizosphere of Reduced of Reduced of Reductio Stressed F lain in Ren hes): hes):	s (B9) (ex nd 4B) (B13) or (C1) es along L l iron (C4) n in Tilled Plants (D1 narks)	iving Root:) Soils (C6)) (LRR A)	Wate 4/ Drair Dry-S Satur s (C3) Geor Shall FAC- Raise Frost	er-Stained Leaves (B9) (MLRA 1, 2, A, and 4B) hage Patterns (B10) Season Water Table (C2) ration Visible on Aerial imagery (C9) morphic Position (D2) ow Aquitard (D3) Neutral Test (D5) ad Ant Mounds (D6) (LRR A) -Heave Hummocks (D7)
YDROLOGY Vetland Hydrology Indicators: Irimary Indicators (minimum of or 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 In Sparsely Vegetated Concave leid Observations: urface Water Present? Ye aturation Present? Ye	nagery (B7) Surface (B8 s No s No s No	check all that apply	() ned Leave I, 2, 4A, and (B11) rertebrates Sulfide Odd hizosphere of Reduced of Reduced of Reduced of Reduced for Reduced hessis hessis hessis	s (B9) (e) nd 4B) (B13) or (C1) es along L l iron (C4) n in Tilled Plants (D1 narks) $2 / \frac{8}{2}$	iving Roots Soils (C6)) (LRR A)	Wate 4/ Drair Dry-S Satu s (C3) Geor Shall FAC- Raise Frost	er-Stained Leaves (B9) (MLRA 1, 2, A, and 4B) hage Patterns (B10) Season Water Table (C2) ration VIsible on Aerial Imagery (C9) morphic Position (D2) ow Aquitard (D3) Neutral Test (D5) ed Ant Mounds (D6) (LRR A)
YDROLOGY Vetland Hydrology Indicators: Primary Indicators (minimum of or 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 In Sparsely Vegetated Concave Ield Observations: Purface Water Present? Ye vater Table Present? Ye naturation Present? Ye	nagery (B7) Surface (B8 s No s No s No	check all that apply	() ned Leave I, 2, 4A, and (B11) rertebrates Sulfide Odd hizosphere of Reduced of Reduced of Reduced of Reduced for Reduced hessis hessis hessis	s (B9) (e) nd 4B) (B13) or (C1) es along L l iron (C4) n in Tilled Plants (D1 narks) $2 / \frac{8}{2}$	iving Roots Soils (C6)) (LRR A)	Wate 4/ Drair Dry-S Satu s (C3) Geor Shall FAC- Raise Frost	er-Stained Leaves (B9) (MLRA 1, 2, A, and 4B) hage Patterns (B10) Season Water Table (C2) ration Visible on Aerial imagery (C9) morphic Position (D2) ow Aquitard (D3) Neutral Test (D5) ad Ant Mounds (D6) (LRR A) -Heave Hummocks (D7)
YDROLOGY Vetiand Hydrology indicators: Primary Indicators (minimum of or 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 In Sparsely Vegetated Concave Field Observations: Furface Water Present? Ye Vater Table Present? Ye Faturation Present? Ye Saturation Present? Ye Sat	nagery (B7) Surface (B8 s No s No s No	check all that apply	() ned Leave I, 2, 4A, and (B11) rertebrates Sulfide Odd hizosphere of Reduced of Reduced of Reduced of Reduced for Reduced hessis hessis hessis	s (B9) (e) nd 4B) (B13) or (C1) es along L l iron (C4) n in Tilled Plants (D1 narks) $2 / \frac{8}{2}$	iving Roots Soils (C6)) (LRR A)	Wate 4/ Drair Dry-S Satu s (C3) Geor Shall FAC- Raise Frost	er-Stained Leaves (B9) (MLRA 1, 2, A, and 4B) hage Patterns (B10) Season Water Table (C2) ration Visible on Aerial imagery (C9) morphic Position (D2) ow Aquitard (D3) Neutral Test (D5) ad Ant Mounds (D6) (LRR A) -Heave Hummocks (D7)
YDROLOGY Vetland Hydrology Indicators: Primary Indicators (minimum of or 	nagery (B7) Surface (B8 s No s No s No gauge, monit	check all that apply	() ned Leave I, 2, 4A, au (B11) rertebrates Sulfide Odd hizosphere f Reductio Stressed F lain in Ren hes): hes): hotos, prei	s (B9) (ex nd 4B) (B13) or (C1) es along L I iron (C4) n in Tilled Plants (D1 narks) 2 / 8 2 / 8 vious insp	iving Roots Soils (C6)) (LRR A)	Wate 4/ Drair Dry-S Satu s (C3) Geor Shall FAC- Raise Frost	er-Stained Leaves (B9) (MLRA 1, 2, A, and 4B) hage Patterns (B10) Season Water Table (C2) ration Visible on Aerial imagery (C9) morphic Position (D2) ow Aquitard (D3) Neutral Test (D5) ad Ant Mounds (D6) (LRR A) -Heave Hummocks (D7)
YDROLOGY Vetland Hydrology Indicators: Primary Indicators (minimum of or 	nagery (B7) Surface (B8 s No s No s No gauge, monit	check all that apply	() ned Leave I, 2, 4A, au (B11) rertebrates Sulfide Odd hizosphere f Reductio Stressed F lain in Ren hes): hes): hotos, prei	s (B9) (ex nd 4B) (B13) or (C1) es along L I iron (C4) n in Tilled Plants (D1 narks) 2 / 8 2 / 8 vious insp	iving Roots Soils (C6)) (LRR A)	Wate 4/ Drair Dry-S Satu s (C3) Geor Shall FAC- Raise Frost	er-Stained Leaves (B9) (MLRA 1, 2, A, and 4B) hage Patterns (B10) Season Water Table (C2) ration Visible on Aerial imagery (C9) morphic Position (D2) ow Aquitard (D3) Neutral Test (D5) ad Ant Mounds (D6) (LRR A) -Heave Hummocks (D7)
Algal Mat or Crust (B4) 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 In Sparsely Vegetated Concave eld Observations: urface Water Present? Ye ater Table Present? Ye ater Table Present? Ye ater Table Recorded Data (stream gemarks:	nagery (B7) Surface (B8 s No s No s No gauge, monit	check all that apply	() ned Leave I, 2, 4A, au (B11) rertebrates Sulfide Odd hizosphere f Reductio Stressed F lain in Ren hes): hes): hotos, prei	s (B9) (ex nd 4B) (B13) or (C1) es along L I iron (C4) n in Tilled Plants (D1 narks) 2 / 8 2 / 8 vious insp	iving Roots Soils (C6)) (LRR A)	Wate 4/ Drair Dry-S Satu s (C3) Geor Shall FAC- Raise Frost	er-Stained Leaves (B9) (MLRA 1, 2, A, and 4B) hage Patterns (B10) Season Water Table (C2) ration Visible on Aerial Imagery (C9) morphic Position (D2) ow Aquitard (D3) Neutral Test (D5) ad Ant Mounds (D6) (LRR A) -Heave Hummocks (D7)

Project/Site:	City/County: Skagit Sampling	Date: 21 Jan 2013
Applicant/Owner: Shell PSR		g Point: <u>5 P - D 5</u>
investigator(s): P. Hamid B. Kilder	Section, Township, Range: Section 34, 35	NIZE
Landform (hilisiope, terrace, etc.):	Local relief (concave, convex, none):	Slope (%):3 %
Subregion (LRR): Lat:	Long:	Datum:83
Soil Map Unit Name: Bow gravely loam, O to	3 percent Sopes NWI classification:	PEM
Are climatic / hydrologic conditions on the site typical for this time of ye	ear? Yes No (If no, explain in Remarks.)	1
Are Vegetation, Soli, or Hydrology significantly	disturbed? N Are "Normai Circumstances" present?	Yes 🗾 No
Are Vegetation, Soli, or Hydrology naturally pro	oblematic? 刘 🛛 (if needed, explain any answers in Rem	arks.)
SUMMARY OF FINDINGS - Attach site map showing	sampling point locations, transects, impor	tant features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes No Yes No Yes No	is the Sampled Area within a Wetland?	Yes No	
Remarks: 4 photos *				,

VEGETATION – Use scientific names of plants.

	Absolute	Dominant indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 10 m)	<u>% Cover</u>	Species? Status	Number of Dominant Species
1			That Are OBL, FACW, or FAC: (A)
2			Total Number of Dominant
3.			Species Across All Strata: (B)
4.			
····		= Total Cover	Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)
Sapling/Shrub Stratum (Plot size: <u>5 m</u>)	_		
1			Prevalence Index worksheet:
2			Total % Cover of: Multiply by:
3			OBL species x 1 =
			FACW species x 2 =
4		· ·	FAC species $\frac{85}{x3} = \frac{255}{x3}$
5			FACU species x 4 =60
Herb Stratum (Plot size: <u>2 m</u>)		_ = Totai Cover	UPL species x 5 =
1. Cynosurus cristatas	15	FACU	Column Totals: 100 (A) 315 (B)
	20	J FAC	
	60	V FAC	Prevalence index = B/A =
3. <u>Agrostis capillaris</u>			Hydrophytic Vegetation Indicators:
4. Trifolium repens		FAC	1 - Rapid Test for Hydrophytic Vegetation
5			
6			3 - Prevalence index is ≤3.0¹
7			 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
8			
9			5 - Wetland Non-Vascular Plants ¹
10			Problematic Hydrophytic Vegetation ¹ (Explain)
11			¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
		= Total Cover	be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 2,)			
1			Hydrophytic
2			Vegetation
	0	= Total Cover	Present? Yes No
% Bare Ground in Herb Stratum			
Remarks:			

SOIL

Sampling	Point: 🍼	P-P5
----------	----------	------

	cription: (Describe	to the de	oth needed to docu	ment the	indicator	or confirm	n the absence	e of Indicators.)
Depth (inches)	<u>Matrix</u> Color (moist)	%	Color (molst)	x Feature	s Type ¹	Loc ²	T _, .	Barra da
<u>(Incles)</u>		70		%		LOC-	Texture	Remarks
TOF	- under la		· · · · · · · · · · · · · · · · · · ·					10 C
0-5	10YR3/1	<u> </u>					loam	4
5-10	10YR3/1	95	7.5YR4/3	5	<u> </u>	M	loam	
10-16	545/2	82	10×R5/6	15	C	M	Sandy log	m 5% growel, 5% cobble
			1045/1	3	D	PL	- may	,, <u></u>
			101011				a 	
	·····							
			·	.	·			
					. <u> </u>			
¹ Type: C=C	oncentration, D=Dep	pietion, RM	=Reduced Matrix, CS	S=Covere	d or Coate	d Sand Gr		cation: PL=Pore Lining, M=Matrix.
	indicators: (Applic	adie to all			ed.)			ors for Problematic Hydric Solls ³ :
Histosol	pipedon (A2)		Sandy Redox (m Muck (A10)
	lstic (A3)		Stripped Matrix		1) /			d Parent Material (TF2)
	en Sulfide (A4)		Loamy Mucky Mucky Mucky			MLKA 1)		y Shallow Dark Surface (TF12) er (Explain in Remarks)
	d Below Dark Surfac	e (A11)	Depleted Matrix		•)			er (Explain in Remarks)
	ark Surface (A12)		Redox Dark Su				³ indicate	ors of hydrophytic vegetation and
	lucky Mineral (S1)		Depieted Dark					and hydrology must be present,
	Gieyed Matrix (S4)		Redox Depress	ions (F8)				ss disturbed or problematic.
	Layer (if present):	1 .						,,,,,,,,
		Sandy los	2 M					1
Depth (in	ches):10		<u> </u>				Hydric Soli	Present? Yes 🗹 No
Remarks:								
HYDROLO	GY							
Wetland Hvo	drology indicators:							
	ators (minimum of o		t check all that apply	N)			Seco	ndary Indicators (2 or more required)
	Water (A1)		Water-Stai		ac (BO) (a)	cont		Vater-Stained Leaves (B9) (MLRA 1, 2,
-	ter Table (A2)			1, 2, 4A, a		cept	v	4A, and 4B)
J Saturatio			Salt Crust		inu 40)		r	Prainage Patterns (B10)
Water Ma			Aquatic Inv		s (B13)	10 A	5 M	Dry-Season Water Table (C2)
	t Deposits (B2)		Hydrogen					aturation Visible on Aerial imagery (C9)
	osits (B3)		Oxidized F			iving Roof		Geomorphic Position (D2)
,	t or Crust (B4)		Presence d			-		Shallow Aquitard (D3)
	osits (B5)		Recent iro		•	, ,		AC-Neutral Test (D5)
	Soii Cracks (B6)		Stunted or					Raised Ant Mounds (D6) (LRR A)
	n Visible on Aerial Ir	magery (B7			•	, (,		rost-Heave Hummocks (D?)
Sparsely	Vegetated Concave	Surface (E	38)		•			
Field Observ	ations:	1	in depression	ns wli	n Pb	T		
Surface Wate	r Present? Ye	es <u>· · ·</u> ·	No Depth (inc	ches):	<u> </u>	_		
Water Table F	Present? Ye	es <u> </u>	No _ 🦈 _ Depth (inc	ches):	4	_		
Saturation Pre (includes capi		es 🗾 🗸 N	No Depth (inc	ches):	2	_ Wetia	and Hydroiog	y Present? Yes 🗸 No
	orded Data (stream	gauge, mo	nitoring well, aerial p	photos, pre	evious insp	ections), i	if available:	
a								
Remarks:								
-2								
-3							<i>21</i>	

•

Project/Site: Crude Part Unlanding Fredity Applicant/Owner: Shell PSR	_ City/County: Skagt	Samplin	g Date: Jan 21, 2013
Applicant/Owner: Shell PSK	0	State: WA Sampling	g Point: SP-D6
investigator(s): J. Welker, B. Fletcher	_ Section, Township, Range:	Section 34,35	N, 2e
Landform (hillslope, terrace, etc.): terrace	Local relief (concave, conve	ex, none): <u>Concrue</u>	Siope (%):
Subregion (LRR): Lat:	Lor	ıg:	Datum:
Soli Map Unit Name: Bow Grudelly loan, 0 to 3	percent slopes	NWI classification:	PEM
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 significant	tiy disturbed? Are "Norm	al Circumstances" present?	Yes 🔽 No
Are Vegetation, Soil, or Hydrology naturally p	problematic? (If needed	, explain any answers in Rem	arks.)
SUMMARY OF FINDINGS – Attach site map showing	ng sampling point locat	ions, transects, impor	tant features, etc.
Undrephytic Vegetation Present? Ves / No			

Hydrophylic Vegetation Present? Wetland Hydrology Present?	Yes No Yes No	is the Sampled Area within a Wetland?	Yes No	
Remarks:				

VEGETATION – Use scientific names of plants.

2.1	Absolute	Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 36')	% Cover	Species? Status	Number of Dominant Species
1			That Are OBL, FACW, or FAC: (A)
2.			
			Total Number of Dominant
3			Species Across All Strata: (B)
4			Percent of Dominant Species
. (0	= Total Cover	That Are OBL, FACW, or FAC: (A/B)
Sapling/Shrub Stratum (Plot size: 15)		•	Prevalence Index worksheet:
1			
			Total % Cover of: Multiply by:
2			OBL species O x 1 = O
3		<u> </u>	FACW species x 2 =0
4			FAC species $i r x_3 = 3 r w$
5.			
	0	= Total Cover	FACU species x 4 =
Herb Stratum (Plot size: <u>5</u>			UPL species
1. Alapeums pratensis	100	X FAC	Column Totals:(A)(B)
2. Runer crispus	T	FAC) Prevalence Index = B/A = <u>3</u> .00
3. Launtodon Shaahlis	T	FACU	Hydrophytic Vegetation Indicators:
4.			1 - Rapid Test for Hydrophytic Vegetation
5			2 - Dominance Test is >50%
6			X 3 - Prevalence Index is ≤3.0'
7			4 - Morphological Adaptations ¹ (Provide supporting
8			data in Remarks or on a separate sheet)
9			5 - Wetland Non-Vascular Plants1
10			Problematic Hydrophytic Vegetation ¹ (Explain)
11.			Indicators of hydric soil and wetland hydrology must
(100	= Total Cover	be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 5)			
1			Hydrophytic
2			Vegetation Present? Yes X No
	<u> </u>	= Total Cover	
% Bare Ground in Herb StratumO			
Remarks:			
1			

SOI	L
-----	---

Sampling PoInt: _	SP-D	جا
-------------------	------	----

[• • • • • • • • • • • • • • • • • • •	epth needed to docum	Bur rue u	idicator (or contirm	the absence of ind	icators.)
Depth <u>Matrix</u>		Features				
$\frac{(\text{Inches})}{D-7} = \frac{\text{Color}(\text{moist})}{D \vee R} \frac{\%}{3/1} \frac{\%}{80}$	Color (moist)	%	<u>Type</u> ¹	Loc ²	<u>Texture</u>	Remarks
				<u> </u>	_ <u>S</u> .L	
10 YR 4/3 20	-				·	
7-15 1045/1 50	7.57R46	40	C	M	SL	
15 104FU 70	164R4/6	15	0	M	56.	
	7.5 YRY/6	15	<u> </u>	M		
			al a	<u>L-</u> >		
				<u> </u>		
				<u></u>	······································	
	• ·		<u> </u>		· <u></u>	
¹ Type: C=Concentration, D=Depietion, Ri				d Sand Gr		PL=Pore Lining, M=Matrix.
Hydric Soli Indicators: (Applicable to a			d.)			Problematic Hydric Solis ³ :
Listosol (A1) Listic Epipedon (A2)	Sandy Redox (S5		8		2 cm Mucl	
Black Histic (A3)	Stripped Matrix (S Loamy Mucky Mir	-) (excent	MI RA 1)		it Materiai (TF2) ow Dark Surface (TF12)
Hydrogen Sulfide (A4)	Loamy Gleyed Ma					plain in Remarks)
Depleted Below Dark Surface (A11)	X Depleted Matrix (F3)				
Thick Dark Surface (A12)	Redox Dark Surfa					ydrophytic vegetation and
Sandy Mucky Mineral (S1)	Depleted Dark Su	•	7)		•	rology must be present,
Sandy Gleyed Matrix (S4) Restrictive Layer (if present):	Redox Depressio	ns (F8)		.	unless distu	rbed or problematic.
Type: <u>Completed layer</u>						
Depth (inches): 7 7 ades					Undela Call Duas	
					Hydric Soil Prese	nt? Yes X No
Remarks:						
11 S.						
	· · · · · · · · · · · · · · · · · · ·		-			
HYDROLOGY						
Wetland Hydrology Indicators:						· · · · · · · · · · · · · · · · · · ·
Primary Indicators (minimum of one require	ed; check all that apply)				Secondary I	ndicators (2 or more required)
Surface Water (A1)	Water-Staine	ed Leave	s (B9) (ex	cept	Water-S	tained Leaves (B9) (MLRA 1, 2,
High Water Table (A2)	MLRA 1,		nd 48)		4A, a	ind 4B)
Saturation (A3)	Salt Crust (B	11)			Drainag	e Patterns (B10)
Water Marks (B1)	Aquatic Inve	rtebrates	(B13)			son Water Table (C2)
Sediment Deposits (B2)	Hydrogen Su					on Visible on Aerial imagery (C9)
Drift Deposits (B3)	Oxidized Rhi					phic Position (D2)
X Algai Mat or Crust (B4)	Presence of		iron (C4)			
Iron Deposite (85)					_X Shallow	
Iron Deposits (B5)			n in Tilled	Soils (C6) FAC-Ne	utral Test (D5)
Surface Soil Cracks (B6)	Stunted or S	tressed F	n in Tilled Plants (D1	Soils (C6) FAC-Ne Raised .	utral Test (D5) Ant Mounds (D6) (LRR A)
Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (I	Stunted or S 37) Other (Expla	tressed F	n in Tilled Plants (D1	Soils (C6) FAC-Ne Raised .	utral Test (D5)
 Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (I Sparsely Vegetated Concave Surface 	Stunted or S 37) Other (Expla	tressed F	n in Tilled Plants (D1	Soils (C6) FAC-Ne Raised .	utral Test (D5) Ant Mounds (D6) (LRR A)
 Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (I Sparsely Vegetated Concave Surface Field Observations: 	Stunted or S 37) Other (Expla (B8)	tressed F in in Ren	n in Tilled Plants (D1	Soils (C6) FAC-Ne Raised .	utral Test (D5) Ant Mounds (D6) (LRR A)
Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (I Sparsely Vegetated Concave Surface Field Observations: Surface Water Present? Yes	Stunted or S 37) Other (Expla (B8) No X Depth (inch	tressed F in in Rem es):	n in Tilled Plants (D1 narks)	Soils (C6) FAC-Ne Raised .	utral Test (D5) Ant Mounds (D6) (LRR A)
Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (I Sparsely Vegetated Concave Surface Field Observations: Surface Water Present? Yes Water Table Present? Yes X	Stunted or S 37) Other (Expla (B8) No Depth (inche No Depth (inche	tressed F in in Ren es): es):7	n in Tilled Plants (D1 narks)	Soils (C6) (LR R A)) FAC-Ne Raised / Frost-He	utral Test (D5) Ant Mounds (D6) (LRR A) eave Hummocks (D?)
Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (I Sparsely Vegetated Concave Surface Field Observations: Surface Water Present? Yes Water Table Present? Yes Saturation Present? Yes	Stunted or S 37) Other (Expla (B8) No X Depth (inch	tressed F in in Ren es): es):7	n in Tilled Plants (D1 narks)	Soils (C6) (LR R A)) FAC-Ne Raised .	utral Test (D5) Ant Mounds (D6) (LRR A) eave Hummocks (D?)
Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (I Sparsely Vegetated Concave Surface Field Observations: Surface Water Present? Yes Water Table Present? Yes X	Stunted or S 37) Other (Expla (B8) No X Depth (inche No Depth (inche No Depth (inche	tressed F in in Rem es): es): es):	n in Tilled Plants (D1 narks)	Soils (C6) (LRR A)) FAC-Ne Raised Frost-He	utral Test (D5) Ant Mounds (D6) (LRR A) eave Hummocks (D?)
Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (I Sparsely Vegetated Concave Surface Field Observations: Surface Water Present? Yes Water Table Present? Yes Saturation Present? Yes (includes capillary fringe)	Stunted or S 37) Other (Expla (B8) No X Depth (inche No Depth (inche No Depth (inche	tressed F in in Rem es): es): es):	n in Tilled Plants (D1 narks)	Soils (C6) (LRR A)) FAC-Ne Raised Frost-He	utral Test (D5) Ant Mounds (D6) (LRR A) eave Hummocks (D?)
Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B Sparsely Vegetated Concave Surface Field Observations: Surface Water Present? Yes Water Table Present? Yes Saturation Present? Yes (includes capillary fringe) Describe Recorded Data (stream gauge, m	Stunted or S 37) Other (Expla (B8) No X Depth (inche No Depth (inche No Depth (inche nonitoring well, aerial phe	tressed F in in Rem es): es): es): ptos, prev	n in Tilled Plants (D1 Plants) D Vious insp	Soils (C6.) (LRR A)) FAC-Ne Raised Frost-He	utral Test (D5) Ant Mounds (D6) (LRR A) eave Hummocks (D?)
Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B Sparsely Vegetated Concave Surface Field Observations: Surface Water Present? Yes Water Table Present? Yes Saturation Present? Yes (includes capillary fringe) Describe Recorded Data (stream gauge, m	Stunted or S 37) Other (Expla (B8) No X Depth (inche No Depth (inche No Depth (inche nonitoring well, aerial phe	tressed F in in Rem es): es): es): ptos, prev	n in Tilled Plants (D1 Plants) D Vious insp	Soils (C6.) (LRR A)) FAC-Ne Raised Frost-He	utral Test (D5) Ant Mounds (D6) (LRR A) eave Hummocks (D?)
Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (I Sparsely Vegetated Concave Surface Field Observations: Surface Water Present? Yes Water Table Present? Yes Saturation Present? Yes (includes capillary fringe) Describe Recorded Data (stream gauge, m	Stunted or S 37) Other (Expla (B8) No X Depth (inche No Depth (inche No Depth (inche nonitoring well, aerial phe	tressed F in in Rem es): es): es): ptos, prev	n in Tilled Plants (D1 Plants) D Vious insp	Soils (C6.) (LRR A)) FAC-Ne Raised Frost-He	utral Test (D5) Ant Mounds (D6) (LRR A) eave Hummocks (D?)
Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B Sparsely Vegetated Concave Surface Field Observations: Surface Water Present? Yes Water Table Present? Yes Saturation Present? Yes (includes capillary fringe) Describe Recorded Data (stream gauge, m	Stunted or S 37) Other (Expla (B8) No X Depth (inche No Depth (inche No Depth (inche nonitoring well, aerial phe	tressed F in in Rem es): es): es): ptos, prev	n in Tilled Plants (D1 Plants) D Vious insp	Soils (C6.) (LRR A)) FAC-Ne Raised Frost-He	utral Test (D5) Ant Mounds (D6) (LRR A) eave Hummocks (D?)

1 -

Project/Site:	(City/County: 5kgi	Sampling Date: 21 Jan 2013
Applicant/Owner: Shell PSR			State: WA Sampling Point: 5P-D7
Investigator(s): P. Hamidi B. Kidder		Section, Township, Rar	nge: Section 34, 35N, 2E
Landform (hillslope, terrace, etc.):		Local relief (concave, o	convex, none): <u>Flat</u> Slope (%): <u>3</u>
			Long: Datum: NAD & 3
Soll Map Unit Name: Bow gravelly loan	c.b. 3	- son - slove	S NIMI classification:
Soll Map Unit Name: Jawa gravery Idam	1010 3	X	
Are climatic / hydrologic conditions on the site typical for t			
Are Vegetation, Soil, or Hydrology			Normal Circumstances" present? Yes X_ No
Are Vegetation, Soli, or Hydrology	_ naturally pro	blematic? (If ne	eded, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map	p showing	sampling point lo	ocations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes	No		A
	No	is the Sampled within a Wetlar	
Wetland Hydrology Present? Yes	No	within a wother	
Remarks: photos 25-26 soil 2		1	
VEGETATION – Use scientific names of pla	ints.		<u></u>
Tree Stratum (Plot size:/0)	Absolute <u>% Cover</u>	Dominant Indicator Species? Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC:
2.			
3.			Total Number of Dominant Species Across All Strata: (B)
4.		-	
	0	= Total Cover	Percent of Dominant Species That Are OBL, FACW, or FAC: /06 (A/B)
Sapling/Shrub Stratum (Plot size:)			Prevalence index worksheet:
1			Total % Cover of: Multiply by:
2		·	OBL species x 1 =
3			FACW species $x^2 = 0$
4			FAC species $\underline{88}$ $\times 3 = \underline{264}$
5	0	= Total Cover	FACU species $12 \times 4 = 48$
Herb Stratum (Plot size:)		-	UPL species $(2 \times 5 = 3)$
1. Cynosurus cristatus		FACY	Column Totals: 100 (A) 312 (B)
2. Agastis expilacis stalonifera	59	J FAC	Prevalence Index = B/A = 3.12
3. Trifolium repens	22	V FAC	Hydrophytic Vegetation Indicators:
4. Festuca arundinacae ea		FAC	1 - Rapid Test for Hydrophytic Vegetation
5	\$1		✓ 2 - Dominance Test Is >50%
6			3 - Prevalence Index is ≤3.0 ¹
7			4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
8			5 - Wetland Non-Vascular Plants ¹
9			Problematic Hydrophytic Vegetation ¹ (Explain)
11.		·	¹ Indicators of hydric soil and wetland hydrology must
	100	= Total Cover	be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 5,)		_	
1		·	Hydrophytic
2		·	Vegetation Present? Yes V No
% Bare Ground in Herb Stratum	0	= Total Cover	
Remarks:			

Sampling Point: _____7-D_7

Profile Des Depth	Matrix		Redox	Feature	S					
inches)	Color (moist)	%	Color (moist)	%	Type	Loc ²	<u>Texture</u>	Re	marks	· ·
0.10	Marila	07	New Arths	~				1.0.0		
0-10	10183/2.5	97	X- 101R4/4	3	<u> </u>	<u></u>	bain		10 h geore	
0-16	7.5YR 4/3	95	7.5 YR 4/4	5	<u> </u>	M		charcoal	10 b gravel	560
<u> </u>		<u> </u>			· · · · · · · · · · · · · · · · · · ·		<u> </u>			
		<u> </u>	·		·			<u></u>		
				<u>,</u> ,			<u> </u>			
ype: C=C	oncentration, D=Deple	etion, RM=	Reduced Matrix, CS	=Covered	d or Coate	d Sand G		ation: PL=Pore L		
_ Histosol	Indicators: (Applica	Die to all			ed.)			s for Problemat	ic Hydric Soils	s*:
_	pipedon (A2)		Sandy Redox (S					Muck (A10)		
_ Black Hi			Stripped Matrix (•				Parent Material (1	•	
	en Sulfide (A4)		Loamy Mucky M			MLKA 1)		Shallow Dark Su	• •	
	n Sunde (A4) 1 Below Dark Surface	(A11)	Loamy Gleyed N Depleted Matrix)		Other	r (Explain in Rem	arks)	
	ark Surface (A12)	(~))	Redox Dark Surl	• •			³ Indicator	s of hydrophytic v	enetation and	
	lucky Mineral (S1)		Depleted Dark S					d hydrology musi		
	ileyed Matrix (S4)		Redox Depressio		.,			disturbed or prol		
	_ayer (if present):									
Туре:	· · · · · · · · · · · · · · · · · · ·		<u> </u>							1
								Secont? Vee	No	J
Depth (inc	ches):	· <u> </u>	<u> </u>				Hydric Soil P	resentr res		
emarks:							Hydric Soll P			
DROLO(DROLO(GY Irology Indicators:		 ``							
omarks: DROLO(otland Hyd	GY Irology Indicators: ators (minimum of on					:		lary indicators (2		e <u>d)</u>
DROLO(etland Hyd imary Indica _ Surface V	GY Irology Indicators: ators (minimum of one Water (A1)		Water-Stain	ed Leave		cept	<u>Second</u>		or more require	
emarks: DROLOC etland Hyd imary Indica _ Surface V _ High Wat	GY Irology Indicators: ators (minimum of one Water (A1) ter Table (A2)		Water-Stain MLRA 1,	ed Leave , 2, 4A, a		ccept	<u>Second</u>	lary indicators (2	or more require	
emarks: DROLOC etland Hyd imary Indica Surface V High Wat Saturation	GY Irology Indicators: ators (minimum of one Water (A1) ter Table (A2) n (A3)		Water-Stain MLRA 1, Salt Crust (8	ed Leave , 2, 4A, a 311)	nd 4B)	ccept	<u>Second</u> Wa Dra	lary Indicators (2 ater-Stained Leav 4A, and 4B) ainage Patterns (1	or more require es (B9) (MLRA B10)	
emarks: DROLOC etland Hyd imary Indica Surface V High Wat Saturation Water Ma	GY Irology Indicators: ators (minimum of one Water (A1) ter Table (A2) n (A3) arks (B1)		Water-Stain MLRA 1, Salt Crust (E Aquatic Inve	ed Leave 2, 4A, a 311) ertebrates	nd 4B) s (B13)	ccept	<u>Second</u> Wa Dra Dry	lary Indicators (2 Iter-Stained Leav 4 A, and 4B) ainage Patterns (1 /-Season Water 1	or more require es (B9) (MLRA B10) Fable (C2)	. 1, 2,
emarks: DROLOC etland Hyd imary Indica Surface V High Wat Saturation Water Ma Sediment	GY Irology Indicators: ators (minimum of one Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2)		Water-Stain MLRA 1, Salt Crust (8 Aquatic Inve Hydrogen S	ed Leave 2, 4A, a 311) ertebrates ulfide Od	nd 4B) s (B13) lor (C1)	n.	<u>Second</u> Wa Dra Dry Sat	ary Indicators (2 Iter-Stained Leav 4A, and 4B) ainage Patterns (1 -Season Water 1 turation Visible or	or more require res (B9) (MLRA B10) Fable (C2) n Aerial Imager	. 1, 2,
emarks: DROLOC etland Hyd imary Indica Surface V High Wat Saturation Water Ma Sediment Drift Depo	GY Irology Indicators: ators (minimum of one Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3)		Water-Stain MLRA 1, Salt Crust (E Aquatic Inve Hydrogen S Cxidized Rh	ed Leave , 2, 4A, a 311) ertebrates ulfide Od izospher	nd 4B) s (B13) lor (C1) es along l	iving Roo	<u>Second</u> Wa Dra Dry Sat ts (C3) Geo	lary Indicators (2 Iter-Stained Leav 4A, and 4B) ainage Patterns (1 /-Season Water 1 turation Visible or omorphic Position	or more require es (B9) (MLRA B10) Fable (C2) n Aerial Imagen n (D2)	. 1, 2,
emarks: DROLOG etland Hyd imary Indica _ Surface V _ High Wate _ Saturation _ Water Ma _ Sediment _ Sediment _ Drift Depo _ Algal Mat	GY Irology Indicators: ators (minimum of one Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4)		Water-Stain MLRA 1, Salt Crust (8 Aquatic Inve Hydrogen S Oxidized Rh Presence of	ed Leave , 2, 4A, a 311) ertebrates ulfide Od izospher Reduced	nd 4B) s (B13) lor (C1) es along l d Iron (C4	.iving Roo)	<u>Second</u> Wa Dra Dry Sat ts (C3) Get Sha	lary Indicators (2 Iter-Stained Leav 4A, and 4B) ainage Patterns (1 7-Season Water T turation Visible or omorphic Position allow Aquitard (D	or more require res (B9) (MLRA B10) Fable (C2) n Aerial Imager n (D2) 3)	. 1, 2,
DROLOC etland Hyd imary Indica Surface V High Wat Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo	GY Irology Indicators: ators (minimum of one Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) posits (B3) ar Crust (B4) posits (B5)		Water-Stain MLRA 1, Salt Crust (8 Aquatic Inve Hydrogen S Oxidized Rh Presence of Recent Iron	ed Leave , 2, 4A, a 311) ertebrates ulfide Od izospher Reduced Reductio	nd 4B) s (B13) lor (C1) es along l d Iron (C4 on in Tilleo	iving Roo) Soils (C6	<u>Second</u> Wa Dra Dry Sat ts (C3) Geo Sha) FAG	lary Indicators (2 ater-Stained Leav 4A, and 4B) ainage Patterns (1 /-Season Water 1 turation Visible or omorphic Position allow Aquitard (D C-Neutral Test (D	or more require es (B9) (MLRA B10) Fable (C2) n Aerial Imager n (D2) 3) 95)	. 1, 2,
DROLOC etland Hyd imary Indica Surface V High Wat Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Surface S	GY Irology Indicators: ators (minimum of one Nater (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) c or Crust (B4) osits (B5) Goil Cracks (B6)	e required	Water-Stain MLRA 1, Salt Crust (8 Aquatic Inve Hydrogen S Oxidized Rh Presence of Recent Iron Stunted or S	ed Leave , 2, 4A, a 311) ertebrates ulfide Od izospher Reduced Reductio Stressed I	nd 4B) or (C1) res along l d iron (C4 on in Tilled Plants (D1	iving Roo) Soils (C6	<u>Second</u> Wa Dra Dry Sat ts (C3) Geo Sha) FA(lary Indicators (2 Iter-Stained Leav 4 A, and 4B) ainage Patterns (1 /-Season Water 1 turation Visible or omorphic Position allow Aquitard (D C-Neutral Test (C ised Ant Mounds	or more require es (B9) (MLRA B10) Table (C2) n Aerial Imager n (D2) 3) 05) (D6) (LR R A)	. 1, 2,
BROLOC etland Hyd imary Indica Surface V High Wat Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depoc Surface S Inundation	GY Irology Indicators: ators (minimum of one Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) to or Crust (B4) osits (B5) Soil Cracks (B6) n Visible on Aerial Im	e required	Water-Stain MLRA 1, Salt Crust (8 Aquatic Inve Hydrogen S Oxidized Rh Presence of Recent Iron Stunted or S Other (Expla	ed Leave , 2, 4A, a 311) ertebrates ulfide Od izospher Reduced Reductio Stressed I	nd 4B) or (C1) res along l d iron (C4 on in Tilled Plants (D1	iving Roo) Soils (C6	<u>Second</u> Wa Dra Dry Sat ts (C3) Geo Sha) FA(lary Indicators (2 ater-Stained Leav 4A, and 4B) ainage Patterns (1 /-Season Water 1 turation Visible or omorphic Position allow Aquitard (D C-Neutral Test (D	or more require es (B9) (MLRA B10) Table (C2) n Aerial Imager n (D2) 3) 05) (D6) (LR R A)	. 1, 2,
DROLOC etland Hyd imary Indica Surface V High Wat Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Surface S Inundation Sparsely	GY irology Indicators: ators (minimum of one Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) posits (B3) a or Crust (B4) posits (B5) Goil Cracks (B6) n Visible on Aerial Im Vegetated Concave S	e required	Water-Stain MLRA 1, Salt Crust (8 Aquatic Inve Hydrogen S Oxidized Rh Presence of Recent Iron Stunted or S Other (Expla	ed Leave , 2, 4A, a 311) ertebrates ulfide Od izospher Reduced Reductio Stressed I	nd 4B) or (C1) res along l d iron (C4 on in Tilled Plants (D1	iving Roo) Soils (C6	<u>Second</u> Wa Dra Dry Sat ts (C3) Geo Sha) FA(lary Indicators (2 Iter-Stained Leav 4 A, and 4B) ainage Patterns (1 /-Season Water 1 turation Visible or omorphic Position allow Aquitard (D C-Neutral Test (C ised Ant Mounds	or more require es (B9) (MLRA B10) Table (C2) n Aerial Imager n (D2) 3) 05) (D6) (LR R A)	. 1, 2,
BROLOC etland Hyd imary Indica Surface V High Wate Saturation Water Ma Sediment Drift Depo Algal Mate Iron Depo Surface S Inundation Sparsely V Id Observation	GY Irology Indicators: ators (minimum of one Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) n Visible on Aerial Im Vegetated Concave S atlons:	e required agery (B7 Surface (B	Water-Stain MLRA 1, Salt Crust (8 Aquatic Inve Hydrogen S Oxidized Rh Presence of Recent Iron Stunted or S Other (Expla 8)	ed Leave , 2, 4A, a 311) ertebrates ulfide Od izospher Reduced Reductio Stressed I ain in Rer	nd 4B) or (C1) res along l d iron (C4 on in Tilled Plants (D1	iving Roo) Soils (C6	<u>Second</u> Wa Dra Dry Sat ts (C3) Geo Sha) FA(lary Indicators (2 Iter-Stained Leav 4 A, and 4B) ainage Patterns (1 /-Season Water 1 turation Visible or omorphic Position allow Aquitard (D C-Neutral Test (C ised Ant Mounds	or more require es (B9) (MLRA B10) Table (C2) n Aerial Imager n (D2) 3) 05) (D6) (LR R A)	. 1, 2,
DROLOC etland Hyd imary Indica Surface V High Wat Saturation Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Surface S Inundation Sparsely Id Observa	GY Irology Indicators: ators (minimum of one Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) n Visible on Aerial Im Vegetated Concave S atlons: r Present? Yes	e required agery (B7 Surface (B	Water-Stain MLRA 1, Salt Crust (8 Aquatic Inve Hydrogen S Oxidized Rh Presence of Recent Iron Stunted or S Other (Expla 8)	ed Leave , 2, 4A, a 311) ertebrates ulfide Od izospher Reductio Stressed I ain in Rer	nd 4B) or (C1) res along l d iron (C4 on in Tilled Plants (D1	iving Roo) Soils (C6	<u>Second</u> Wa Dra Dry Sat ts (C3) Geo Sha) FA(lary Indicators (2 Iter-Stained Leav 4 A, and 4B) ainage Patterns (1 /-Season Water 1 turation Visible or omorphic Position allow Aquitard (D C-Neutral Test (C ised Ant Mounds	or more require es (B9) (MLRA B10) Table (C2) n Aerial Imager n (D2) 3) 05) (D6) (LR R A)	. 1, 2,
DROLOC etland Hyd imary Indica Surface V High Wate Saturation Saturation Orift Depo Algal Mat Iron Depo Surface S Inundation Sparsely eld Observa rface Water	GY irology Indicators: ators (minimum of one Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) n Visible on Aerial Im Vegetated Concave S atlons: r Present? Yes	e required agery (B7 Surface (B	Water-Stain MLRA 1, Salt Crust (8 Aquatic Inve Hydrogen S Oxidized Rh Presence of Recent Iron Stunted or S Other (Expla 8) Depth (inch	ed Leave , 2, 4A, a 311) ertebrates ulfide Od izospher Reduced Reductic Stressed I ain in Rer es):	nd 4B) s (B13) lor (C1) es along I d Iron (C4 on in Tilleo Plants (D1 marks)	iving Roo) Soils (C6) (LRR A)	<u>Second</u> Wa Dra Dry Sat ts (C3) Geo Sha) FAG Rai Fro	lary Indicators (2 ater-Stained Leav 4A, and 4B) ainage Patterns (1 /-Season Water T turation Visible or omorphic Position allow Aquitard (D C-Neutral Test (D ised Ant Mounds ist-Heave Hummo	or more require es (B9) (MLRA B10) Table (C2) n Aerial Imager n (D2) 3) 05) (D6) (LRR A) ocks (D7)	. 1, 2,
DROLOC etland Hyd imary Indica Surface V High Wate Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Surface S Inundation Sparsely eld Observa arface Water ater Table P turation Pre	GY Irology Indicators: ators (minimum of one Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) n Visible on Aerial Im Vegetated Concave S atlons: r Present? Yes present? Yes	e required agery (B7 Surface (B	Water-Stain MLRA 1, Salt Crust (8 Aquatic Inve Hydrogen S Oxidized Rh Presence of Recent Iron Stunted or S Other (Expla 8)	ed Leave , 2, 4A, a 311) ertebrates ulfide Od izospher Reduced Reductic Stressed I ain in Rer es):	nd 4B) or (C1) res along l d iron (C4 on in Tilled Plants (D1	iving Roo) Soils (C6) (LRR A)	<u>Second</u> Wa Dra Dry Sat ts (C3) Geo Sha) FAG Rai Fro	lary Indicators (2 Iter-Stained Leav 4 A, and 4B) ainage Patterns (1 /-Season Water 1 turation Visible or omorphic Position allow Aquitard (D C-Neutral Test (C ised Ant Mounds	or more require es (B9) (MLRA B10) Table (C2) n Aerial Imager n (D2) 3) 05) (D6) (LRR A) ocks (D7)	. 1, 2,
emarks: DROLO(etland Hyd imary Indica Surface V High Wat Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Surface S Inundation Sparsely V eld Observa urface Water ater Table P turation Pre cludes capil	GY Irology Indicators: ators (minimum of one Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) n Visible on Aerial Im Vegetated Concave S atlons: r Present? Yes present? Yes	agery (B7 Surface (B Surface N Surface N	Water-Stain MLRA 1, Salt Crust (8 Aquatic Inve Hydrogen S Oxidized Rh Presence of Recent Iron Stunted or S) Other (Expla 8) lo ✓ Depth (inch o	ed Leave , 2, 4A, a 311) ertebrates ulfide Od izospher Reductio Stressed I ain in Rer es): es):	nd 4B) s (B13) lor (C1) es along I d Iron (C4 on in Tilleo Plants (D ⁻ marks)	iving Roo) Soils (C6) (LRR A) 	<u>Second</u> Wa Dra Dry Sat ts (C3) Gea Sha) FAG Rai Fro	lary Indicators (2 ater-Stained Leav 4A, and 4B) ainage Patterns (1 /-Season Water T turation Visible or omorphic Position allow Aquitard (D C-Neutral Test (D ised Ant Mounds ist-Heave Hummo	or more require es (B9) (MLRA B10) Table (C2) n Aerial Imager n (D2) 3) 05) (D6) (LRR A) ocks (D7)	. 1, 2,
emarks: DROLOO etland Hyd imary Indica Surface V High Wate Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Surface S Inundation Sparsely V eld Observa inface Water ater Table P turation Pre cludes capil scribe Reco	GY irology Indicators: ators (minimum of one Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) posits (B3) a or Crust (B4) posits (B5) Goil Cracks (B6) n Visible on Aerial Im Vegetated Concave S atlons: r Present? Yes esent? Yes esent? Yes liary fringe) proded Data (stream given in the second in the second in the second the secon	e required agery (B7 Surface (B Surface (B Surface (B N N auge, mor	Water-Stain MLRA 1, MLRA 1, Salt Crust (8 Aquatic Inve Hydrogen S Oxidized Rh Presence of Recent Iron Stunted or S Other (Expla 8) Depth (inch o Depth (inch itoring well, aerial ph	ed Leave 2, 4A, a 311) Prebrates ulfide Od izospher Reduced Reductic itressed I ain in Rer es): es): otos, pre	nd 4B) s (B13) or (C1) es along I d Iron (C4 on in Tilled Plants (D1 marks)	Living Roo) Soils (C6) (LRR A) - -	<u>Second</u> Wa Dra Dry Sat ts (C3) Geo Sha) FAC Rai Fro Fro	ary Indicators (2 Iter-Stained Leav 4A, and 4B) ainage Patterns (1 2-Season Water 1 turation Visible or omorphic Position allow Aquitard (D C-Neutral Test (D ised Ant Mounds ist-Heave Hummo Present? Yes	or more require res (B9) (MLRA B10) Fable (C2) n Aerial Imager n (D2) 3) 05) (D6) (LRR A) ocks (D7)	. 1, 2,
DROLOC etland Hyd imary Indica Surface V High Wat Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Surface S Inundation Sparsely V eld Observa rface Water ater Table P turation Pre cludes capil scribe Reco	GY Irology Indicators: ators (minimum of one Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) n Visible on Aerial Im Vegetated Concave S atlons: r Present? Yes Present? Yes lary fringe)	e required agery (B7 Surface (B Surface (B Surface (B N N auge, mor	Water-Stain MLRA 1, MLRA 1, Salt Crust (8 Aquatic Inve Hydrogen S Oxidized Rh Presence of Recent Iron Stunted or S Other (Expla 8) Depth (inch o Depth (inch itoring well, aerial ph	ed Leave 2, 4A, a 311) Prebrates ulfide Od izospher Reduced Reductic itressed I ain in Rer es): es): otos, pre	nd 4B) s (B13) or (C1) es along I d Iron (C4 on in Tilled Plants (D1 marks)	Living Roo) Soils (C6) (LRR A) - -	<u>Second</u> Wa Dra Dry Sat ts (C3) Geo Sha) FAC Rai Fro Fro	ary Indicators (2 Iter-Stained Leav 4A, and 4B) ainage Patterns (1 2-Season Water 1 turation Visible or omorphic Position allow Aquitard (D C-Neutral Test (D ised Ant Mounds ist-Heave Hummo Present? Yes	or more require res (B9) (MLRA B10) Fable (C2) n Aerial Imager n (D2) 3) 05) (D6) (LRR A) ocks (D7)	. 1, 2,

Project/Site: Crude Rol Valachy Facility	City/County: Skagt	Sampling Date: Jan 24, 2013
Applicant/Owner: Shell PSK	State: With	Sampling Point: <u>7/-1)8</u>
Investigator(s): J. Walker, B. Flatcher	Section, Township, Range:	- 39, 33N/ac
Landform (hillslope, terrace, etc.):	_ Local relief (concave, convex, none): _Co	
Subregion (LRR): A Lat:	Long:	Datum:
Soil Map Unit Name: Bow gruely lean, Uto	3 percent slopes NWI cli	assification:
Are climatic / hydrologic conditions on the site typical for this time of y		n In Remarks.)
Are Vegetation, Soil, or Hydrology significantly	•	ces" present? Yes X No
Are Vegetation, Soil, or Hydrology naturally particular	roblematic? (If needed, explain any a	answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map showin	g sampling point locations, trans	ects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes X No Yes V No Yes X No	is the Sampled Area within a Wetiand?	Yes X No
Remarks:			······

VEGETATION – Use scientific names of plants.

	Absolute	Dominant Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>35</u>)	% Cover	Species? Status	Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2			Total Number of DomInant Z (B)
4 IX (0	_ = Total Cover	Percent of Dominant Species (IGO (A/B)
Sapling/Shrub Stratum (Plot size: 15)			Prevalence Index worksheet:
1			Total % Cover of: Multiply by:
2			OBL species x 1 =
3.			FACW species x 2 =
4			FAC species 37 $x_3 = 257$
5.			FACU species $10 \times 4 = 40$
	6	= Total Cover	
Herb Stratum (Plot size:5)			
1. Festuca annohacea	35	FAC	Column Totals: $(A) = 2^{-1} (B)$
2. Conosurus cristatus	10	FACU	Prevalence Index = B/A =
3. Triplium	5		Hydrophytic Vegetation Indicators:
4. Agents can lais/splanka	50	X FAC	1 - Rapid Test for Hydrophytic Vegetation
5.			_★ 2 - Dominance Test is >50%
6.			3 - Prevalence Index is ≤3.0 ¹
7	<u> </u>		 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
8			5 - Wetland Non-Vascular Plants ¹
9			Problematic Hydrophytic Vegetation ¹ (Explain)
10		<u> </u>	Indicators of hydric soil and wetland hydrology must
11		= Total Cover	be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 5)		_= Total Cover	
1			Hydrophytic Vegetation
2	0		Present? Yes X No
% Bare Ground in Herb Stratum	0	_= Total Cover	
Remarks:			
grazed			

Profile Descripti Depth	Matrix			Features				•
(inches) (Color (molst)	%	Color (moist)	<u>%</u>	Type ¹	_Loc ²	Texture	Remarks
0-8 1	OYR3/1	In					loan	
8 -	10-1RSh	Arros	104446		C	M	SEC	· · · · · · · · · · · · · · · · · · ·
			167 ~ 16			- PL		
		-85 -						
	··					<u> </u>		_
					<u> </u>	<u> </u>		
Type: C=Concen	tration, D=Depi	etion, RM=F	Reduced Matrix, CS=	Covered	or Coate	d Sand Gra	alns²L	ocation: PL=Pore Lining, M=Matrix.
	ators: (Applica	ible to all L	RRs, unless otherw	lse note	ed.)		Indica	tors for Problematic Hydric Solis ³ :
Histosol (A1)		_	_ Sandy Redox (S5	•				cm Muck (A10)
Histic Epipedo	• •	_	_ Stripped Matrix (S					ed Parent Material (TF2)
Black Histic (A Hydrogen Sulf		-	_ Loamy Mucky Mir			MLRA 1)		ery Shallow Dark Surface (TF12)
	w Dark Surface	(A11) (Loamy Gleyed Ma Depleted Matrix (F)		Ot	her (Explain In Remarks)
Thick Dark Su		7	Redox Dark Surfa	•			³ Indico	tors of hydrophytic vegetation and
Sandy Mucky		-	_ Depleted Dark Su		7)			land hydrology must be present,
_ Sandy Gleyed	• •	_	Redox Depression		· /			ess disturbed or problematic.
estrictive Layer	(If present):							
Туре:			_					
Depth (inches):							Hydric So	il Present? Yes 🗙 No
	v Indicatore -							
etiand Hydrolog	-	e required:	there all that apply)					
etiand Hydrolog	minimum of on	e required; c	check all that apply)					ondary Indicators (2 or more required)
etland Hydrolog	(<u>minimum of on</u> (A1)	e required; c	Water-Staine			cept		Water-Stained Leaves (B9) (MLRA 1, 2,
Petland Hydrolog rimary Indicators (Surface Water High Water Tal	(<u>minimum of on</u> (A1) ble (A2)	<u>e required; c</u>	Water-Staine MLRA 1, 2	2, 4A, an		cept		Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
etland Hydrolog imary Indicators (Surface Water High Water Tal Saturation (A3)	(<u>minimum of on</u> (A1) ble (A2)	<u>e required; c</u>	Water-Staine MLRA 1, 2 Salt Crust (B1	2, 4 A, an 1)	nd 4B)	cept	` !	Water-Stained Leaves (B9) (MLRA 1, 2 , 4A, and 4B) Drainage Patterns (B10)
etland Hydrolog imary Indicators (Surface Water High Water Tal Saturation (A3) Water Marks (E	(A1) (A1) ble (A2) 31)	e required; c	Water-Stainer MLRA 1, 2 Salt Crust (B1	2, 4 A, an 1) tebrates	(B13)	cept		Water-Stained Leaves (B9) (MLRA 1, 2 , 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2)
Image: Arrow of the second structure Surface Water Surface Water High Water Tal Saturation (A3) Water Marks (E Water Marks (E SedIment Deport	(Minimum of on (A1) ble (A2) 91) 931) 931s (B2)	e required; c	Water-Stainer MLRA 1, 2 Salt Crust (B1 Aquatic Invert Hydrogen Sul	2, 4 A , an 11) tebrates fide Odo	(B13) or (C1)	·	'' '	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation VIsible on Aerial Imagery (C9
etland Hydrolog imary Indicators (Surface Water High Water Tal Saturation (A3) Water Marks (E SedIment Depo Drift Deposits (I	(A1) (A1) ble (A2) (A1) ble (B2) (B1) (B2) (B2) (B3)	e required; c	Water-Stainer MLRA 1, 2 Salt Crust (B1 Aquatic Invert Hydrogen Sul Oxidized Rhiz	2, 4 A , an 11) tebrates fide Odo cosphere	(B13) or (C1) s along L	iving Roots		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)
Image: Arrow of the second structure Surface Water High Water Tail Saturation (A3) Water Marks (E SedIment Deposits (I Drift Deposits (I Algal Mat or Cr	(A1) (A1) ble (A2) 31) osits (B2) B3) ust (B4)	<u>e required; c</u>	Water-Stained MLRA 1, 2 Salt Crust (B1 Aquatic Invert Hydrogen Sul Oxidized Rhiz Presence of F	2, 4 A, an lebrates fide Odo cosphere Reduced	(B13) (B13) or (C1) es along L Iron (C4)	iving Roots	 s (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation VIsible on Aerial Imagery (C9 Geomorphic Position (D2) Shallow Aquitard (D3)
Vetland Hydrolog rimary Indicators (Surface Water High Water Tal Saturation (A3) Water Marks (E SedIment Depo Drift Deposits (I Algal Mat or Cr Iron Deposits (I	(Minimum of on (A1) ble (A2) 31) bsits (B2) B3) ust (B4) 35)	<u>e required; c</u>	Water-Stainer MLRA 1, 2 Salt Crust (B1 Aquatic Invert Hydrogen Sul Oxidized Rhiz Presence of F Recent Iron R	2, 4 A, an lebrates fide Odo cosphere Reduced	(B13) (B13) or (C1) es along L Iron (C4) n in Tilled	iving Roots Soils (C6)	 s (C3) X	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)
Yetland Hydrolog rimary Indicators (Surface Water High Water Tal Saturation (A3) Water Marks (E Sediment Depo Drift Deposits (f Algal Mat or Cr Iron Deposits (f Surface Soil Cr	(Minimum of on (A1) ble (A2) 931) 9315 (B2) B3) 935) 935) 935) 936)		Water-Stained MLRA 1, 2 Salt Crust (B1 Aquatic Invert Hydrogen Sul Oxidized Rhiz Presence of F Recent Iron R Stunted or Str	2, 4 A, an lebrates fide Odo cosphere Reduced leduction ressed P	(B13) (B13) or (C1) es along L Iron (C4) n in Tilled Plants (D1)	iving Roots Soils (C6)		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)
Vetland Hydrolog rimary Indicators (Surface Water High Water Tal Saturation (A3) Water Marks (E SedIment Depo Drift Deposits (I Algal Mat or Cr Iron Deposits (I	(Minimum of on (A1) ble (A2) B1) B31) B3) B3) B3) B3) B35) B35) B4 B5) B4 B5) B5) B4 B5) B4 B4 B5) B4 B4 B4 B4 B4 B4 B4 B4 B4 B4 B4 B4 B4	agery (B7)	Water-Stainer MLRA 1, 2 Salt Crust (B1 Aquatic Invert Hydrogen Sul Oxidized Rhiz Presence of F Recent Iron R Stunted or Str Other (Explain	2, 4 A, an lebrates fide Odo cosphere Reduced leduction ressed P	(B13) (B13) or (C1) es along L Iron (C4) n in Tilled Plants (D1)	iving Roots Soils (C6)		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)
Vetland Hydrolog rimary Indicators ((Minimum of on (A1) ble (A2) B1) bsits (B2) B3) ust (B4) B5) acks (B6) ble on Aerial Im ated Concave S	agery (B7)	Water-Stainer MLRA 1, 2 Salt Crust (B1 Aquatic Invert Hydrogen Sul Oxidized Rhiz Presence of F Recent Iron R Stunted or Str Other (Explain	2, 4 A, an lebrates fide Odo cosphere Reduced leduction ressed P	(B13) (B13) or (C1) es along L Iron (C4) n in Tilled Plants (D1)	iving Roots Soils (C6)		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)
Vetland Hydrolog rimary Indicators (Surface Water High Water Tal Saturation (A3) Water Marks (E SedIment Deposits (I Algal Mat or Cri Iron Deposits (I Surface Soil Cri Surface Soil Cri Sparsely Veget eld Observations	(Minimum of on (A1) ble (A2) B1) bsits (B2) B3) ust (B4) B5) acks (B6) ble on Aerial Im ated Concave S	agery (B7) Surface (B8)	Water-Stainer MLRA 1, 2 Salt Crust (B1 Aquatic Invert Hydrogen Sul Oxidized Rhiz Presence of F Recent Iron R Stunted or Str Other (Explain	2, 4 A , an 11) fide Odo cosphere Reduced reduction ressed P n in Rem	(B13) (B13) or (C1) es along L Iron (C4) n in Tilled Plants (D1)	iving Roots Soils (C6)		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)
 Surface Water High Water Tal Saturation (A3) Water Marks (E SedIment Deposits (I Algal Mat or Critical Interposits (I Surface Soil Critical Interposits (I Inundation Visiti 	(Minimum of on (A1) ble (A2) (A1) ble (A2) (B1) (B2) (B3) (B2) (B2) (B2) (B2) (B2) (B2) (B2) (B2	agery (B7) Surface (B8)	Water-Stainer MLRA 1, 2 Salt Crust (B1 Aquatic Invert Hydrogen Sul Oxidized Rhiz Presence of F Recent Iron R Stunted or Str Other (Explain	2, 4 A , an 11) lebrates fide Odo cosphere Reduced leductior ressed P n in Rem s):	(B13) (B13) or (C1) es along L Iron (C4) n in Tilled Plants (D1)	iving Roots Soils (C6)		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)
Vetland Hydrolog rimary Indicators (Surface Water High Water Tal Saturation (A3) Water Marks (E SedIment Depo Drift Deposits (I Algal Mat or Cr Iron Deposits (I Surface Soil Cr Inundation Visit Sparsely Veget eid Observations ater Table Presen	(Minimum of on (A1) (A1) (A1) (A1) (A1) (A1) (A1) (A1)	agery (B7) Surface (B8)	Water-Stainer MLRA 1, 2 Salt Crust (B1 Aquatic Invert Hydrogen Sul Oxidized Rhiz Presence of F Recent Iron R Stunted or Str Other (Explain Depth (inche	2, 4A, an 11) lebrates fide Odo cosphere Reduced leductior ressed P n in Rem s): s):	(B13) (B13) or (C1) es along L Iron (C4) n in Tilled Plants (D1)	iving Roots Soils (C6)) (LRR A)		Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation VIsible on Aerial Imagery (C9 Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Vetland Hydrolog rimary Indicators (Surface Water High Water Tall Saturation (A3) Water Marks (E SedIment Deposits (I Algal Mat or Cri Iron Deposits (I Surface Soil Cr. Inundation Visit Sparsely Veget eld Observations ater Table Present aturation Present?	(A1) (A1) ble (A2) (A1) ble (A2) (A1) ble (A2) (A1) (A2) (A1) (A2) (A2) (A2) (A3) (A2) (A3) (A4) (A5) (A2) (agery (B7) Surface (B8) Surface (B8)	Water-Stainer MLRA 1, 2 Salt Crust (B1 Aquatic Invert Hydrogen Sul Oxidized Rhiz Presence of F Recent Iron R Stunted or Str Other (Explain Depth (inches Depth (inches	2, 4A, an 11) lebrates fide Odo cosphere Reduced leductior ressed P n in Rem s): s): s):	(B13) (B13) or (C1) es along L Iron (C4) n in Tilled Plants (D1) narks)	iving Roots Soils (C6)) (LRR A)		Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation VIsible on Aerial Imagery (C9 Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Vetland Hydrolog rimary Indicators (Surface Water High Water Tall Saturation (A3) Water Marks (E SedIment Deposits (I Algal Mat or Cri Iron Deposits (I Surface Soil Cr. Inundation Visit Sparsely Veget eld Observations ater Table Present aturation Present?	(A1) (A1) ble (A2) (A1) ble (A2) (A1) ble (A2) (A1) (A2) (A2) (A2) (A2) (A2) (A3) (A2) (A3) (A4) (A5) (A2) (agery (B7) Surface (B8) Surface (B8)	Water-Stainer MLRA 1, 2 Salt Crust (B1 Aquatic Invert Hydrogen Sul Oxidized Rhiz Presence of F Recent Iron R Stunted or Str Other (Explain Depth (inche	2, 4A, an 11) lebrates fide Odo cosphere Reduced leductior ressed P n in Rem s): s): s):	(B13) (B13) or (C1) es along L Iron (C4) n in Tilled Plants (D1) narks)	iving Roots Soils (C6)) (LRR A)		Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation VIsible on Aerial Imagery (C9 Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Vetland Hydrolog rimary Indicators (Surface Water High Water Tall Saturation (A3) Water Marks (E SedIment Deposits (I Algal Mat or Cri Iron Deposits (I Surface Soil Cr. Inundation Visit Sparsely Veget eld Observations ater Table Present aturation Present?	(A1) (A1) ble (A2) (A1) ble (A2) (A1) ble (A2) (A1) (A2) (A2) (A2) (A2) (A2) (A3) (A2) (A3) (A4) (A5) (A2) (agery (B7) Surface (B8) Surface (B8)	Water-Stainer MLRA 1, 2 Salt Crust (B1 Aquatic Invert Hydrogen Sul Oxidized Rhiz Presence of F Recent Iron R Stunted or Str Other (Explain Depth (inches Depth (inches	2, 4A, an 11) lebrates fide Odo cosphere Reduced leductior ressed P n in Rem s): s): s):	(B13) (B13) or (C1) es along L Iron (C4) n in Tilled Plants (D1) narks)	iving Roots Soils (C6)) (LRR A)		Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation VIsible on Aerial Imagery (C9 Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Vetland Hydrolog rimary Indicators (Surface Water High Water Tall Saturation (A3) Water Marks (E SedIment Depo Drift Deposits (I Algal Mat or Cri Iron Deposits (I Surface Soil Cri Inundation Visit Sparsely Veget eld Observations ater Table Presen aturation Present? cludes capillary fr	(A1) (A1) ble (A2) (A1) ble (A2) (B3) ust (B2) B3) ust (B4) 35) acks (B6) ble on Aerial Im ated Concave S ated Concave S inge) Data (stream ga	agery (B7) Surface (B8) Surface (B8)	Water-Stainer MLRA 1, 2 Salt Crust (B1 Aquatic Invert Hydrogen Sul Oxidized Rhiz Presence of F Recent Iron R Stunted or Str Other (Explain Depth (inches Depth (inches	2, 4A, an 11) lebrates fide Odo cosphere Reduced leductior ressed P n in Rem s): s): s): s): tos, prev	(B13) (B13) or (C1) es along L Iron (C4) n in Tilled Plants (D1) narks)	iving Roots Soils (C6)) (LRR A) 		Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation VIsible on Aerial Imagery (C9 Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Iteliand Hydrolog rimary Indicators (Surface Water High Water Tall Saturation (A3) Water Marks (E Sediment Deposits (I Drift Deposits (I Iron Deposits (I Surface Soil Cr. Inundation Visit Sparsely Veget Id Observations strace Water Present sturation Present? cludes capillary fr escribe Recorded	(A1) (A1) ble (A2) (A1) ble (A2) (B3) ust (B2) B3) ust (B4) 35) acks (B6) ble on Aerial Im ated Concave S ated Concave S inge) Data (stream ga	agery (B7) Surface (B8) Surface (B8)	Water-Stainer MLRA 1, 2 Salt Crust (B1 Aquatic Invert Hydrogen Sul Oxidized Rhiz Presence of F Recent Iron R Stunted or Str Other (Explain Depth (inches Depth (inches	2, 4A, an 11) lebrates fide Odo cosphere Reduced leductior ressed P n in Rem s): s): s): s): tos, prev	(B13) (B13) or (C1) es along L Iron (C4) n in Tilled Plants (D1) narks)	iving Roots Soils (C6)) (LRR A) 		Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation VIsible on Aerial Imagery (C9 Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
etiand Hydrolog imary Indicators (Surface Water High Water Tal Saturation (A3) Water Marks (E Sediment Depo Drift Deposits (I Algal Mat or Cr Iron Deposits (I Surface Soil Cr Iron Deposits (I Surface Soil Cr Inundation Visit Sparsely Veget Id Observations Inface Water Present turation Present? cludes capillary fr scribe Recorded	(A1) (A1) ble (A2) (A1) ble (A2) (B3) ust (B2) B3) ust (B4) 35) acks (B6) ble on Aerial Im ated Concave S ated Concave S inge) Data (stream ga	agery (B7) Surface (B8) Surface (B8)	Water-Stainer MLRA 1, 2 Salt Crust (B1 Aquatic Invert Hydrogen Sul Oxidized Rhiz Presence of F Recent Iron R Stunted or Str Other (Explain Depth (inches Depth (inches	2, 4A, an 11) lebrates fide Odo cosphere Reduced leductior ressed P n in Rem s): s): s): respectively.	(B13) (B13) or (C1) es along L Iron (C4) n in Tilled Plants (D1) narks)	iving Roots Soils (C6)) (LRR A) 		Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation VIsible on Aerial Imagery (C9 Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)

Project/Site:		City/County:	Skapit	Sampling Date: 21 Jan 2013
Applicant/Owner: Shell PSR				State: WA Sampling Point: <u>5P-D9</u>
Investigator(s): 0 Kidder P Hamidi		Section, Tov	vnship, Rar	190: Section 34, 35N, 2E
Landform (hillslope, terrace, etc.):		Local relief	(concave, d	convex, none): Slope (%): 0-3
Subregion (LRR):	l at:			Long: Datum: NAD 83
Soit Map Unit Name: Bow gravelly loam	0630	annat s	loses	NWI classification: Upland
Solf Map Unit Name.		Van	No	(If no explain in Remarks)
Are climatic / hydrologic conditions on the site typical for t				
Are Vegetation, Soil, or Hydrology				
Are Vegetation, Soil, or Hydrology				eded, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site may	o showing	sampling	g point le	ocations, transects, important features, etc.
	No		e Sampled	Area
	No	1	n a Wetlar	
Wetland Hydrology Present? Yes	No <u> </u>			
Remarks: 29-30 soils				
31-32 plt				
VEGETATION – Use scientific names of pla	ints			
	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 10 m)		Species?		Number of Dominant Species
1			<u> </u>	That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3				Species Across All Strata: (B)
4	0			Percent of Dominant Species
Sapling/Shrub Stratum (Plot size: 5~)	-	= Total Co	ver	That Are OBL, FACW, or FAC: (A/B)
1				Prevalence Index worksheet: Total % Cover of: Multiply by:
2				
3				FACW species $2 \times 2 = 6$
4		. <u> </u>		FAC species $\underline{88}$ x 3 = $\underline{264}$
5				FACU species <u>(2</u> x 4 = <u>48</u>
Herb Stratum (Plot size:2)	_0	= Total Co	ver	UPL species x 5 =
	5		FAC	Column Totals:((A)(A)(B)
1. <u>Phy Festuca acundinacea</u> 2. Agrostis stolonitera /capillari	63	J	FAC	Prevalence Index = B/A = (2
3. Intelium repens	20		FAC	Hydrophytic Vegetation Indicators:
4. Cynosurus cristatus	10		FACU	1 - Rapld Test for Hydrophytic Vegetation
5				2 - Dominance Test is >50%
6. Leonto don saxitilis	_ 2		FACU	3 - Prevalence Index is ≤3.0 ¹
7				4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
8				5 - Wetland Non-Vascular Plants ¹
9				Problematic Hydrophytic Vegetation ¹ (Explain)
10				¹ Indicators of hydric soil and wetland hydrology must
11		= Total Co		be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size:2 ~)	100	Total CO	VCI	
1				Hydrophytic
2			·	Vegetation Present? Yes Ves No
	0	_= Total Co	ver	
% Bare Ground in Herb Stratum	_			
Remarks:				

SOIL									g Point: SP-D
Profile Des	cription: (Describe	to the dep	oth needed to docum	nent the l	ndicator	or confir	m the absence o	of Indicators.)	
Depth	Matrix			x Feature	S		_		
(iriches)	Color (molst)	%	Color (moist)	%	Type ¹	_Loc ²	Texture	Re	marks
	1011-2/ 1	N <u> </u>			···· ··· ··	<u> </u>			Y2.Y
0_8	10YR3/2.5	100					loam	5% pravel	
8 - 16	10YR4/4	95	7.5YR 4/4	5	٢	M	loam	charcoal.	burned lays
16-18	545/2	85	104R4/3	15	0	M	sandy loam		
							12		
			20						
¹ Type: C=Co	oncentration, D=Depl	etion, RM=	Reduced Matrix, CS	=Covered	or Coate	d Sand G	irains. ² Locat	tion: PL=Pore I	ning, M=Matrix.
Hydric Soli i	ndicators: (Applica	bie to ali	LRRs, unless other	wise note	ed.)				c Hydric Solis ³ :
Histosol	(A1)		Sandy Redox (S	5)			2 cm /	Muck (A10)	-
	ipedon (A2)		Stripped Matrix (Red P	arent Material (1	F2)
Black His	• •		Loamy Mucky M	ineral (F1) (except	MLRA 1)		Shallow Dark Su	•
· _	n Sulfide (A4)		Loamy Gleyed N	fatrix (F2))			(Explain in Rem	• •
-	Below Dark Surface	(A11)	Depleted Matrix	• •					·
	rk Surface (A12)		Redox Dark Surf				³ Indicators	of hydrophytic v	egetation and
	ucky Mineral (S1)		Depleted Dark S		7)			l hydrology must	
	leyed Matrix (S4) ayer (if present):		Redox Depression	ons (F8)			unless	disturbed or prot	lematic.
Type:	ayer (ir present).								
Depth (inc	hes):						Hydric Soil Pi		
							Hydric Soli Pi	resent? Yes_	No <u></u>
n	is hydric suit	indic	ators present	-					
	0								
		·					······································		
YDROLOG	-								
	rology indicators:								
		e required	; check all that apply)				<u>Seconda</u>	ary Indicators (2	or more required
Surface V	vater (A1)		Water-Stain	ed Leave	s (B9) (ex	cept	Wat	er-Stained Leave	s (B9) (MI RA 1

rinner maloulors (minimum of one required, ci		Secondary Indicators (2 or more required)
Surface Water (A1)	Water-Stained Leaves (B9) (except	Water-Stained Leaves (B9) (MLRA 1, 2,
High Water Table (A2)	MLRA 1, 2, 4A, and 4B)	4A, and 4B)
Saturation (A3)	Sait Crust (B11)	Drainage Patterns (B10)
Water Marks (B1)	Aquatic Invertebrates (B13)	Dry-Season Water Table (C2)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)	Saturation VIsIble on Aerial Imagery (C9)
Drift Deposits (B3)	Oxidized Rhizospheres along Living Roots (C3)	
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 Imagery (B7)	Other (Explain in Remarks)	Frost-Heave Hummocks (D?)
Sparsely Vegetated Concave Surface (B8)		
Fleid Observations:		·
Surface Water Present? Yes No _	✓ Depth (inches):	
,	Depth (inches):/3	
		drology Present? Yes No 🗾
Describe Recorded Data (slrearn gauge, monitor	ring well, aerial photos, previous inspections), if availa	able:
Remarks:		
no wetland hudrals	gy indicators present	
the we cannot helperter	J/	01

Applicant/Owner: Shell PSR State: WA Sampling Point: Dr-Ulo Anvestigator(s): R Hamistic B Kibblec Section, Township, Range: Section, 35N, 28E Subregion (LRR): A Lat: Local relief (concave, convex, none): Flat Slope (%): 0-1 Soil Map Unit Name: Bow G.R., Loan, 0-3 & Slope (%): Ord NWI classification: Uplocd Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.) Are Vegetation Soil or Hydrology significantly disturbed? N Are "Normal Circumstances" present? Yes No Are Vegetation Soil or Hydrology naturally problematic? N (if needed, explain any answers in Remarks.) SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc Hydrology Present? Yes No Hydrology Present? Yes No	-AUE	C		+ Sampling Date: 22 Jan 2013
pp://tan.ib. B (1)//r Section, Township, Range: Section, Section, 1000000000000000000000000000000000000	Project/Site: <u>CRVF</u>			State: WA Sampling Point: 5'P - DID
gandform (hillsibge, israe, stc.): fsr C sc. Lat: Lat: Local relief (concave, convex, none): fslope (%): 0.2. gold Mag Unit Name: GAV GR L Concort Updaed NWI disalification: Updaed Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (fno, explain In Farmarks.) Are Vegetation Soll	Applicant/Owner: <u>Shell Prod</u>			
Subregion (LRR):	Investigator(s): <u>P. Hamida IS Lidd 4</u>	3	ecuon, rownship, Kar	Igo Sione (%): 0-3
Soil Map Unit Name: Gev. Gev. Gev. Soil Gev. Gev. No (If no, explain In Remarks.) ver Vegetation Soil or Hydrology significantly disurbed? N Are "Normal Circumstances" present? Ves. No SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, Important features, etc If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, Important features, etc No Is the Sampled Area Hydrology Present? Yes No Is the Sampled Area No ////////////////////////////////////	Landform (hillslope, terrace, etc.):		_ocal relief (concave, o	
Are climatic / hydrologic conditions on the site typical for this time of year? Yea No (if no, explain In Remarks.) Are VegetationSoll or Hydrology initicativy disturbed? N Are 'Normal Circumstances' present? Yes No Are 'Normal Circumstances' present? Yes No Hydrophytic Vegetation Present? Yes No Is the Sampled Area within a Wetland Hydrology Present? Yes No Hydrophytic Vegetation Present? Yes No Yes No Hydrology Present? Yes No Yes No Is the Sampled Area within a Wetland Hydrology Present? Yes No Wetland Hydrology Present? Yes No Yes No Imatic Difference Yes No Imatic Difference Yes No Yes No Imatic Difference Yes No Imatic Difference Yes No Imatic Difference Yes No Imatic Difference Imatic Difference <	Subregion (LRR):	Lat:	<i>(</i>) <i>() <i>() <i>() () () () () () <i>() () () () <i>() () <i>() () () <i>() () <i>() () <i>() () () <i>() () <i>() () <i>() () <i>() () <i>() <i>() () <i>() <i>() () <i>() <i>() () <i>() <i>((</i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i></i>	Long: Datum
very VegetationSolior Hydrologysignificantly disturbed? N Are "Normal Circumstances" present? Yes No very Vegetationsolior Hydrologynurally problematic? N (if needed, explain any answers in Remarks.) SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc Hydrophylic Vegetation Present? Yes No Hydro Soli Present? Yes No Yes No Is the Sampled Area Hydro Soli Present? Yes No Remarks: Photo 5 33+34 501L35-37 Ploft VEGETATION - Use scientific names of plants. No	Soil Map Unit Name: Bow GR, Logi	n, 0-32	>10113	NWI classification:pond
very VegetationSolior Hydrologysignificantly disturbed? N Are "Normal Circumstances" present? Yes No very Vegetationsolior Hydrologynurally problematic? N (if needed, explain any answers in Remarks.) SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc Hydrophylic Vegetation Present? Yes No Hydro Soli Present? Yes No Yes No Is the Sampled Area Hydro Soli Present? Yes No Remarks: Photo 5 33+34 501L35-37 Ploft VEGETATION - Use scientific names of plants. No	Are climatic / hydrologic conditions on the site typical	for this time of yea	r? Yes No	(If no, explain in Remarks.)
Ave VegetationSoil, or Hydrologynaturally problematic? N (if needed, explain any answers in Remarks.) SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc Hydrophylic Vegetation Present? Yes No	Are Vegetation, Soll, or Hydrology	significantly d	listurbed? 📈 🛛 Are "	Normal Circumstances" present? Yes 🗹 No
Hydrophylic Vegetation Present? Yes No Is the Sampled Area within a Wetland? Yes No Hydrophylic Vegetation Present? Yes No Is the Sampled Area within a Wetland? Yes No Remarks: Photo 5 33+34 - 501 35-37 Plot VEGETATION - Use scientific names of plants. No				eded, explain any answers in Remarks.)
Hydric Sol Present? Yes No	SUMMARY OF FINDINGS - Attach site r	nap showing	sampling point lo	ocations, transects, important features, etc.
Hydric Soli Present? Yes No within a Wetland? Yes No Remarks: P No to 5 33 + 34 - 501 L 35 - 37 Plot VEGETATION - Use scientific names of plants. Tree Stratum (Plot size: 10 m) % Cover Species? Status Number of Dominant Species / (A) 2.	Hydrophytic regetation recent		is the Sampled	Area
Wetland Hydrology Present? Yes No Image: No </td <td>Hydric Soil Present? Yes</td> <td> No</td> <td></td> <td>nd? Yes No</td>	Hydric Soil Present? Yes	No		nd? Yes No
P Noto 5 33 + 34 - 50 iL 35 - 37 Plot VEGETATION - Use scientific names of plants. Tree Stratum (Plot size: 10 m Absolute Stratum (Plot size: 10 m Species? Status Status Stratum (Plot size: 10 m Number of Dominant Species 1 mat Are OBL, FACW, or FAC: 1 (A) 1.		No		
VEGETATION – Use scientific names of plants. Interview of plants. Dominant Indicator Yee Stratum (Plot size: 10 m) Absolute % Cover Dominant Indicator Number of Dominant Species 1 2.	Remarks:			
VEGETATION – Use scientific names of plants. Interview of plants. Dominant Indicator Yee Stratum (Plot size: 10 m) Absolute % Cover Dominant Indicator Number of Dominant Species 1 2.	Photo 5 33+34 - 5011	35-	37 plot	
Tree Stratum (Plot size: 10 Absolute Dominant Indicator Number of Dominant Species 1.				
Tree Stratum (Plot size: 1	VEGEIATION - Use scientific names of		Dominant Indicator	Dominance Test worksheet:
1.	Tree Stratum (Plot size: 10 m)			
2. Total Number of Dominant Species Across All Strats:	_			That Are OBL, FACW, or FAC: (A)
3.	2			Total Number of Dominant
Sapilna/Shrub Stratum (Plot size: $\int m$) 0 = Total Cover That Are OBL, FACW, or FAC: $\int aO$ (AB) 1.				
Sapiling/Shrub Stratum (Plot size: $5 - $) 1.	4			Percent of Dominant Specles
1.	C.	0	= Total Cover	That Are OBL, FACW, or FAC: /00 (A/B)
2.				Prevalence index worksheet:
3.				
4.				
5. 0 = Total Cover Herb Stratum (Plot size: 2 0 = Total Cover 1. (A) (A) 31 (B) 2. Aggestic regularized 73 3. $F45V_{C0}$ ergodinged 73 4. $Tritelium$ repres 75 5. 74 74 6. 73 FAC 7. 74 74 8. 75 74 9. 74 74 10. 74 74 11. 74 74 $10.$ 74 74 $10.$ 74 74 $10.$ 74 74 $10.$ 74 74 $10.$ 74 74 $10.$ 74 74 $10.$ 74 74 $10.$ 74 74 $10.$ 74 74 $10.$ 74 74 $10.$ 74 74 $10.$ 746				
Herb Stratum (Plot size: $2m$) 0 = Total Cover UPL species 0 x 5 = 0 1. $(x h h h h h h h h h h h h h h h h h h h$				
Herb Stratum (Plot size: (m_{1}) (m_{2}) <th< td=""><td>5</td><td>0</td><td>= Total Cover</td><td></td></th<>	5	0	= Total Cover	
2. Agrostic regiller is 57 ✓ FAC Prevalence Index = B/A =	Herb Stratum (Plot size:)		-	
2.				
3. Trifelium reprod 4. Trifelium reprod 5.				
4. Introduction reports 5.				
6				
0.				
8				
8.				data in Remarks or on a separate sheet)
9.				
10				
11.			• •	¹ Indicators of hydric soil and wetland hydrology must
Woody Vine Stratum (Plot size:) Hydrophytic 1 Vegetation 2 Present? Yes % Bare Ground in Herb Stratum Total Cover Yes % Bare Ground in Herb Stratum Remarks:	11		= Total Cover	be present, unless disturbed or problematic.
1	Woody Vine Stratum (Plot size: 1 m)			
2.				- Hydrophytic
% Bare Ground in Herb Stratum				Vegetation
Remarks:			_= Total Cover	
grazea				
	grazea			

Depth (inches) Matrix Color (molst) Redox Features Color (molst) Type Loc ² Texture Remarks 0-16 10 Y R 3/1.5 100 ////////////////////////////////////	Profile Descrip	otion: (Describe	to the de	pth needed to docu	ument the	Indicator	or confirm	the absence	e of indic	ators.)	
Inchesis Color (molet) % Total Loc Texture Remarks 0-16 10 % 3/.5 100 ////////////////////////////////////	Depth _	Matrix									
I6-18 57 5/1 65 IDYR.5/6 30 M IdX 5/6 30 Andy (by losm 5/6 grant) IDY5/1 5 0 M IdX 5/6 0 M IdX 5/6 10/5 0 M IDY5/1 5 0 M IdX 5/6 0 M IdX 5/6 10/6 10/6 10/5 10/6	<u>(inches)</u>	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	, 495. 10	Remai	′ks
ID ISC/2	0-16	10YR 3/1.5	100		-			loam	10%	6 gravel	
IOY 52/1 5 0 M ''Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. *Location: PL=Pore Lining, M=Matrix. Hydric Soll Inflicators: (Applicable to all LRRs, unless otherwise noted.) Inflicators for Problematic Hydric Solls': Histosol (A1) Sandy Redux (S5) 2 cm Muck (A10) Black Histic (A2) Stripped Matrix (S5) - Red Parent Material (TF2) Depleted Bdw Dark Surface (A11) Depleted Matrix (F3) - Very Shallow Dark Surface (TF12) Depleted Bdw Dark Surface (A11) Depleted Matrix (F3) - Inflicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Sandy Glayed Matrix (S4) Redox Depressions (F8) - Very Shallow Dark Surface (T7) Berk Higher Matrix (S4) Redox Depressions (F8) - Water Stained Laaves (B9) (wccept Wetland Hydrology Indicators: - Mirriar Unificators (2 or more required) - Water Stained Laaves (B9) (wccept High Water Table (A2) Matrix (S1) - Depleted Natrix (S1) - Depleted Natrix (S1) Saturation (A3) Satt Crust (S1) - Darage Patterns (Rini) - Darage Patterns (Rini) Water Matrix (S1) - Aquatic Invertebrates (B1) - Drainage Patterns (B10) - Drainage Pattens (B10) </td <td>16-18 5</td> <td>Y5/1</td> <td>65</td> <td></td> <td>-</td> <td><</td> <td>M</td> <td>sundy clay</td> <td>loo.m</td> <td>5% 20</td> <td>ave</td>	16-18 5	Y5/1	65		-	<	M	sundy clay	loo.m	5% 20	ave
Hydric Soll Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Solls ² : Histocol (A1) Sandy Redox (S5) 2 cm Muck (A10) Histo Epipedon (A2) Stripped Matrix (S6) Red Parent Material (TF2) Diack Histic (A3) Loamy Mucky Mineral (F1) (except MLRA 1) Very Shallow Dark Surface (A11) Other (Explain in Remarks) Thick Dark Surface (A12) Redox Dark Surface (F6) ³ Indicators of hydrophylic vegetation and sandy Mucky Mineral (S1) Depleted Matrix (F3) Thick Dark Surface (A12) Redox Dark Surface (F7) wetiand hydrology must be present, unless disturbed or problematic. Sandy Gleyed Matrix (S4) Redox Depressions (F8) unless disturbed or problematic. Type:				1075/1	5	<u> </u>	M			J	
Hydric Soft Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soits ² : Histocol (A1) Sandy Redox (S5) 2 cm Muck (A10) Histocol (A2) Stripped Matrix (S6) Red Parent Material (TF2) Black Histic (A3) Loamy Mucky Mineral (F1) (except MLRA 1) Very Shallow Dark Surface (A11) Depleted Matrix (F3) Thick Dark Surface (A12) Redox Dark Surface (F6) 'Indicators of hydrophylic vegetation and sandy Mucky Mineral (S1) Depleted Matrix (F3) Sandy Gleyed Matrix (S4) Redox Dark Surface (F7) wetiand hydrology must be present, unless disturbed or problematic. Type:			6			·					
Hydric Soll Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Solls ² : Histocol (A1) Sandy Redox (S5) 2 cm Muck (A10) Histocol (A2) Stripped Matrix (S6) Red Parent Material (TF2) Black Histic (A3) Loamy Mucky Minerai (F1) (except MLRA 1) Very Shallow Dark Surface (TF12) Depleted Below Dark Surface (A11) Depleted Matrix (F3) "Didicators of hydrophylic vegetation and sandy Mucky Minerai (S1) Sandy Gleyed Matrix (S4) Redox Dark Surface (F7) wetiand hydrology must be present, unless disturbed or problematic. Type:	¹ Type: C=Conce	entration, D=Depi	letion. RM:	=Reduced Matrix_C	S=Covered	d or Coate		21			
	Hydric Soil Indi	cators: (Applica	able to all	LRRs, unless othe	rwise not	ed.)	a Sand Gra				
						,					yune sons :
Hydrogen Sulfde (A4) Lcamy Gleyed Matrix (F2) Other (Explain in Remarks)				Loamy Mucky	Mineral (F1	1) (except	MLRA 1)				
				Loamy Gleyed	Matrix (F2		·				
			e (A11)						-		
Unless districtive Layer (if present): Type:						()					
Type:								unle	ss alsturbe	a or problem	atic.
Depth (inches): Hydric Soil Present? Yes No Remarks: HyDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) Secondary Indicators (2 or more required)	-										
No	Type:										
Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) Secondary Indicators (2 or more required)	Depth (inches							Hydrlc Soi	Present?	' Yes	No
Primary Indicators (Inlinium of one required; check all that apply) Secondary Indicators (2 or more required)	Depth (inches Remarks:		· · · · · · · · · · · · · · · · · · ·					Hydric Soi	Present7	' Yes	No
	Depth (inches Remarks:):						Hydric Soi	Present7	Yes	NoX
High Water Table (A2) MLRA 1, 2, 4A, and 4B) 4A, and 4B) Saturation (A3) Salt Crust (B1) Drainage Patterns (B10) Water Marks (B1) Aquatic Invertebrates (B13) Dry-Season Water Table (C2) Drift Deposits (B2) Hydrogen Sulfide Odor (C1) Saturation Visible on Aerial Imagery (C 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 Imagery (B7) Other (Explain in Remarks) Frost-Heave Hummocks (D7) Sparsely Vegetated Concave Surface (B8) Depth (inches): Depth (inches): No Saturation Present? Yes No Depth (inches): Wetland Hydrology Present? Yes No Saturation Present? Yes No Depth (inches): Wetland Hydrology Present? Yes No No	Depth (inches Remarks: IYDROLOGY Wetland Hydrolo):							-	1	
	Depth (inches Remarks: IYDROLOGY Wetland Hydrolo Primary Indicators): gy Indicators: s (minimum of on		; check all that apply					-	1	
	Depth (inches) Remarks: IYDROLOGY Wetland Hydrolo Primary Indicators Surface Wate): gy Indicators: : (minimum of on ir (A1)		<u>; check all that apply</u>	ned Leave		ccept	Seco	ndary Indic	ators (2 or med Leaves (1	tore required)
	Depth (inches) Remarks: IYDROLOGY Wetland Hydrolo Primary Indicators Surface Wate High Water Ta): gy Indicators: s (minimum of on ir (A1) able (A2)		; check all that apply Water-Stai MLRA	ned Leave 1, 2, 4A, ai		ccept	Seco	ndary Indic	ators (2 or med Leaves (1	tore required)
	Depth (inches) Remarks: HYDROLOGY Wetland Hydrolo Primary Indicators Surface Wate High Water Ta Saturation (A3)):		<u>; check all that apply</u> Water-Stai Sait Crust	ned Leave 1, 2, 4A, ai (B11)	nd 4B)	cept	<u>Seco</u> r V D	ndary Indic /ater-Stalr 4 A, and rainage P	ators (2 or m led Leaves (1 4B) atterns (B10)	<u>tore required)</u> 39) (MLRA 1, 2
	Depth (inches) Remarks: IYDROLOGY Wetland Hydrolo Primary Indicators Surface Wate High Water Ta Saturation (A: Water Marks (): gy Indicators: a (minimum of on able (A2) 3) (B1)		<u>; check all that apply</u> Water-Stai Salt Crust Salt Crust	ned Leave 1, 2, 4A, ai (B11) /ertebrates	nd 4B) ; (B13)	cept	<u>Seco</u> V D	ndary Indic Vater-Stalr 4 A, and rainage Pa ry-Season	ators (2 or m red Leaves (1 4B) atterns (B10) Water Table	nore required) 39) (MLRA 1, 2
	Depth (inches) Remarks: IYDROLOGY Wetland Hydrolo Primary Indicators Surface Wate High Water Ta Saturation (A: Water Marks Sediment Dep): gy Indicators: a (minimum of one (A1) able (A2) 3) (B1) posits (B2)		<u>; check all that apply</u> Water-Stai Sait Crust Sait Crust Aquatic Inv Hydrogen s	ned Leave 1, 2, 4A, ai (B11) /ertebrates Sulfide Ode	nd 4B) ; (B13) or (C1)		<u>Seco</u> V D D	ndary Indic /ater-Stalr 4 A, and rainage Pa ry-Season aturation \	ators (2 or m red Leaves (1 4 B) atterns (B10) Water Table /Isible on Ae	tore required) 39) (MLRA 1, 2 e (C2) rial Imagery (Ct
	Depth (inches) Remarks: IYDROLOGY Wetland Hydrolo Primary Indicators Surface Wate High Water Ta Saturation (A3 Water Marks (Sediment Dep Drift Deposits): gy Indicators: a (minimum of one or (A1) able (A2) 3) (B1) posits (B2) (B3)		<u>; check all that apply</u> Water-Stai Salt Crust Aquatic Inv Hydrogen S Oxidized R	ned Leave 1, 2, 4A, ar (B11) vertebrates Sulfide Ode hizosphere	nd 4B) ; (B13) or (C1) es along L	iving Roots	<u>Seco</u> V D S (C3) G	ndary India /ater-Stalr 4 A, and rainage Pa ry-Season aturation \ eomorphic	ators (2 or m red Leaves (1 4B) atterns (B10) Water Table /Isible on Ae Position (D:	tore required) 39) (MLRA 1, 2 e (C2) rial Imagery (Ct
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) Frost-Heave Hummocks (D?) Sparsely Vegetated Concave Surface (B8) Fleid Observations: Surface Water Present? Yes No Depth (inches): Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): (includes capillary fringe) Wetland Hydrology Present? Yes No	Depth (inches) Remarks: IYDROLOGY Wetland Hydrolo Primary Indicators Surface Wate High Water Ta Saturation (A: Sediment Dep Drift Deposits Algal Mat or C): gy Indicators: <u>a (minimum of on</u> (A1) able (A2) 3) (B1) boosits (B2) (B3) Crust (B4)		<u>; check all that apply</u> Water-Stai Water-Stai Salt Crust Aquatic Inv Hydrogen S Oxidized R Presence c	ned Leave 1, 2, 4A, au (B11) vertebrates Sulfide Odd hizosphere of Reduced	nd 4B) 6 (B13) or (C1) es along L 1 Iron (C4)	iving Roots	<u>Seco</u> V D D S (C3) G S	ndary India /ater-Stalr 4 A, and rainage Pa ry-Season aturation \ eomorphic hallow Aqu	attors (2 or m led Leaves (1 4 B) atterns (810) Water Table /Isible on Ae Position (D3)	<u>tore required)</u> 39) (MLRA 1, 2 e (C2) rial Imagery (C1
Sparsely Vegetated Concave Surface (B8) Fleid Observations: Surface Water Present? Yes No ↓ Depth (inches): Water Table Present? Yes No ↓ Depth (inches): Saturation Present? Yes No ↓ Depth (inches): Saturation Present? Yes No ↓ Depth (inches): (includes capillary fringe) Wetland Hydrology Present? Yes No ↓	Depth (inches) Remarks: IYDROLOGY Wetland Hydrolo Primary Indicators Surface Wate High Water Ta Saturation (A: Water Marks (Sediment Dep Drift Deposits Algal Mat or C Iron Deposits): gy Indicators: <u>a (minimum of on</u>) or (A1) able (A2) 3) (B1) boosits (B2) (B3) Crust (B4) (B5)		<u>; check all that apply</u> <u> </u>	ned Leave 1, 2, 4A, ar (B11) vertebrates Sulfide Odd hizosphere of Reduced n Reduction	nd 4B) i (B13) or (C1) es along L f Iron (C4) n in Tilled	iving Roots	<u>Seco</u> V D D S (C3) G S F	ndary Indic /ater-Stalr 4 A, and rainage Pa ry-Season aturation \ eomorphic hallow Aqu AC-Neutra	attors (2 or m red Leaves (1 4 B) atterns (B10) Water Table /Isible on Aer Position (D2 uitard (D3) I Test (D5)	tore required) 39) (MLRA 1, 2 e (C2) rial Imagery (C9 2)
Surface Water Present? Yes No Depth (inches): Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): (includes capillary fringe) Wetland Hydrology Present? Yes No No	Depth (inches) Remarks: IYDROLOGY Wetland Hydrolo Primary Indicators):	e required	<u>; check all that apply</u> <u> </u>	ned Leave 1, 2, 4A, au (B11) vertebrates Sulfide Odd hizosphere of Reduced n Reduction Stressed F	nd 4B) or (C1) es along L f Iron (C4) n in Tilled Plants (D1	iving Roots	<u>Seco</u> V D D S (C3) G S F R	ndary Indic Vater-Stalr 4 A, and rainage Pa ry-Season aturation N eomorphic hallow Aqu AC-Neutra aised Ant	attors (2 or m red Leaves (1 4B) atterns (B10) Water Table /Isible on Ae Position (D2 uitard (D3) I Test (D5) Mounds (D6)	<u>nore required)</u> 39) (MLRA 1, 2 e (C2) rial Imagery (C9 2) (LRR A)
Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): Water Table Present? Yes No Depth (inches): Water Table Present? Yes No Depth (inches): Wetland Hydrology Present? Yes No	Depth (inches) Remarks: IYDROLOGY Wetland Hydrolo Primary Indicators Surface Wate High Water Ta Saturation (A: Water Marks Sediment Dep Drift Deposits Algal Mat or C Iron Deposits Surface Soil C Inundation Vis Sparsely Vege): gy Indicators: a (minimum of one or (A1) able (A2) 3) (B1) bosits (B2) (B3) Crust (B4) (B5) Crust (B4) (B5) Cracks (B6) bible on Aerial Im- etated Concave S	e required	<u>; check all that apply</u> <u> </u>	ned Leave 1, 2, 4A, au (B11) vertebrates Sulfide Odd hizosphere of Reduced n Reduction Stressed F	nd 4B) or (C1) es along L f Iron (C4) n in Tilled Plants (D1	iving Roots	<u>Seco</u> V D D S (C3) G S F R	ndary Indic Vater-Stalr 4 A, and rainage Pa ry-Season aturation N eomorphic hallow Aqu AC-Neutra aised Ant	attors (2 or m red Leaves (1 4B) atterns (B10) Water Table /Isible on Ae Position (D2 uitard (D3) I Test (D5) Mounds (D6)	<u>nore required)</u> 39) (MLRA 1, 2 e (C2) rial Imagery (C9 2) (LRR A)
Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): Wetland Hydrology Present? Yes No	Depth (inches) Remarks: HYDROLOGY Wetland Hydrolo Primary Indicators Surface Wate High Water Ta Saturation (A: Water Marks of Sediment Dep Drift Deposits Algal Mat or C Iron Deposits Surface Soil C Inundation Vis Sparsely Vege): gy Indicators: a (minimum of one or (A1) able (A2) 3) (B1) boosits (B2) (B3) Crust (B4) (B5) Crust (B4) (B5) Cracks (B6) bible on Aerial Im- etated Concave S is:	e required	<u>; check all that apply</u> <u> </u>	ned Leave 1, 2, 4A, au (B11) vertebrates Sulfide Odd hizosphere of Reduced n Reduction Stressed F	nd 4B) or (C1) es along L f Iron (C4) n in Tilled Plants (D1	iving Roots	<u>Seco</u> V D D S (C3) G S F R	ndary Indic Vater-Stalr 4 A, and rainage Pa ry-Season aturation N eomorphic hallow Aqu AC-Neutra aised Ant	attors (2 or m red Leaves (1 4B) atterns (B10) Water Table /Isible on Ae Position (D2 uitard (D3) I Test (D5) Mounds (D6)	<u>nore required)</u> 39) (MLRA 1, 2 e (C2) rial Imagery (C9 2) (LRR A)
Saturation Present? Yes No Depth (inches): Wetland Hydrology Present? Yes No	Depth (inches) Remarks: HYDROLOGY Wetland Hydrolo Primary Indicators Surface Wate High Water Ta Saturation (A: Water Marks of Sediment Dep Drift Deposits Algal Mat or C Iron Deposits Surface Soil C Inundation Vis Sparsely Vege): gy Indicators: (minimum of on- or (A1) able (A2) 3) (B1) boosits (B2) (B3) Crust (B4) (B5) Crust (B4) (B5) Cracks (B6) bible on Aerial Im- etated Concave S Is:	e required agery (B7) Surface (B8	<u>; check all that apply</u> Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen S Oxidized R Presence c Recent Iron Stunted or Other (Exp 8)	ned Leave 1, 2, 4A, ar (B11) vertebrates Sulfide Odd thizosphere of Reduced n Reduction Stressed F lain in Ren	nd 4B) or (C1) es along L f Iron (C4) n in Tilled Plants (D1 narks)	iving Roots Soils (C6)) (LRR A)	<u>Seco</u> V D D S (C3) G S F R	ndary Indic Vater-Stalr 4 A, and rainage Pa ry-Season aturation N eomorphic hallow Aqu AC-Neutra aised Ant	attors (2 or m red Leaves (1 4B) atterns (B10) Water Table /Isible on Ae Position (D2 uitard (D3) I Test (D5) Mounds (D6)	nore required) 39) (MLRA 1, 2 e (C2) rial Imagery (C1 2) (LRR A)
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	Depth (inches) Remarks: IYDROLOGY Wetland Hydrolo Primary Indicators):	e required agery (B7) Surface (B	<u>; check all that apply</u> Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen S Oxidized R Presence c Recent Iror Stunted or 0 Other (Exp 8) 0 Depth (inc	ned Leave 1, 2, 4A, ar (B11) vertebrates Sulfide Odd hizosphere of Reduced n Reduction Stressed F lain in Ren hes):	nd 4B) is (B13) or (C1) es along L is	iving Roots	<u>Seco</u> V D D S (C3) G S F R	ndary Indic Vater-Stalr 4 A, and rainage Pa ry-Season aturation N eomorphic hallow Aqu AC-Neutra aised Ant	attors (2 or m red Leaves (1 4B) atterns (B10) Water Table /Isible on Ae Position (D2 uitard (D3) I Test (D5) Mounds (D6)	nore required) 39) (MLRA 1, 2 e (C2) rial Imagery (C1 2) (LRR A)
	Depth (inches) Remarks: IYDROLOGY Wetland Hydrolo Primary Indicators):	e required	<u>: check all that apply</u> Water-Stai Salt Crust Salt Crust Aquatic Inv Hydrogen 3 Oxidized R Oxidized R Presence c Recent Iror Stunted or Other (Exp 8) o Depth (inc Depth (inc	ned Leave 1, 2, 4A, ar (B11) vertebrates Sulfide Odd hizosphere of Reduced n Reduction Stressed F lain in Ren hes): hes):	nd 4B) or (C1) es along L f Iron (C4) n in Tilled Plants (D1 narks)	iving Roots Soils (C6)) (LRR A)	<u>Secon</u> V D D S S F F F	ndary Indic Vater-Stalr 4 A, and rainage Pa aturation N eomorphic hallow Aqu AC-Neutra aised Ant rost-Heave	attors (2 or m red Leaves (1 4B) atterns (B10) Water Table /Isible on Ae Position (D2) Litard (D3) I Test (D5) Mounds (D6) Hummocks	<u>tore required)</u> 39) (MLRA 1, 2 e (C2) rial Imagery (C9 2) (LRR A) (D7)
Remarks:	Depth (inches) Remarks: IYDROLOGY Wetland Hydrolo Primary Indicators):	e required	<u>: check all that apply</u> Water-Stai Salt Crust Salt Crust Aquatic Inv Hydrogen 3 Oxidized R Oxidized R Presence c Recent Iror Stunted or Other (Exp 8) o Depth (inc Depth (inc	ned Leave 1, 2, 4A, ar (B11) vertebrates Sulfide Odd hizosphere of Reduced n Reduction Stressed F lain in Ren hes): hes):	nd 4B) or (C1) es along L f Iron (C4) n in Tilled Plants (D1 narks)	iving Roots Soils (C6)) (LRR A)	<u>Secon</u> V D D S S F F F	ndary Indic Vater-Stalr 4 A, and rainage Pa aturation N eomorphic hallow Aqu AC-Neutra aised Ant rost-Heave	attors (2 or m red Leaves (1 4B) atterns (B10) Water Table /Isible on Ae Position (D2) Litard (D3) I Test (D5) Mounds (D6) Hummocks	<u>tore required)</u> 39) (MLRA 1, 2 e (C2) rial Imagery (C9 2) (LRR A) (D7)

Pres.

0

1997 - 19	and the second second	😹 da kara 🖓 Timara	en i de la
WETLAND DETERM	INATION DATA FORM - We	stern Mountains, Valleys, a	and Coast Region
Project/Site: Cruck Rail Uni	ouding Faciliteity/coun	ty: Skagt	Sampling Date: 22 Jan 2013
Applicant/Owner: Shell PS	RO	State: WA	Sampling Point: <u>\$?-\$11</u>
Applicant/Owner: Shell PS Investigator(s): PINamidi	B, Kidder Section, T	ownship, Range: Section	34 35N,2E
Landform (hillslope, terrace, etc.):			
Subregion (LRR):A	Lat:	Long:	Datum: <u>MAD 83</u>
Soli Map Unit Name: Bow	>r. Loam, 0-3%	Slofts NWI class	slfication: <u>PEM</u>
Are climatic / hydrologic conditions on the s	-		
Are Vegetation, Soli, or Hyd	Irology significantly disturbed?	? N Are "Normal Circumstance	s" present? Yes 🚺 No
Are Vegetation, Soll, or Hyd	Irology naturally problematic?	N (If needed, explain any ans	wers in Remarks.)
SUMMARY OF FINDINGS – Atta	ch site map showing sampli	ng point locations, transe	cts, important features, etc.

1100

......

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes No Yes No Yes No	is the Sampled Area within a Wetland?	Yes	No
Remarks: Photos 38-40 soil 41-42 pbt	43-46 water channe	1		

VEGETATION – Use scientific names of plants.

	Absolute	Dominant Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>10 m</u>) 1		Specles? Status	Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2 3			Total Number of Dominant Species Across All Strata:(B)
4		= Total Cover	Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
			Prevalence index worksheet:
1			Total % Cover of: Multiply by:
2			OBL species O x 1 = 5
3			FACW species X 2 =
4		<u> </u>	FAC species $97 \times 3 = 291$
5			FACU species x 4 =
	0	= Total Cover	
Herb Stratum (Plot size: 2m)		-	
1. <u>Cynosurus cristatus</u>	3	FACU	Column Totals: / 100 (A) 303 (B)
2. Trifelium repens	20	J FAC	Prevalence Index = B/A = 3, 0, 3
3. Festuca acundinacea	10	FAC	Hydrophytic Vegetation Indicators:
4. Agrestis capillaris	59	J FAC	1 - Rapid Test for Hydrophytic Vegetation
5. Elytrigia repens	8	FAC	
	- -		✓ 2 - Dominance Test is >50%
6			3 - Prevalence Index is ≤3.0'
7			4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
			5 - Wetland Non-Vascular Plants ¹
9			Problematic Hydrophytic Vegetation ¹ (Explain)
10			Indicators of hydric soil and wetland hydrology must
11			be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 2 - 2 -)	/00	= Total Cover	
1			Hydrophytic
			Vegetation
2			Present? Yes No
% Bare Ground in Herb Stratum	8-	= Total Cover	a e jin
Remarks:			
	848 - M M	n = 51 - 52 m	
Grazed			

Depth	Matrix			x Feature				
ncheś)	<u>Color (moist)</u>	%	Color (moist)	%	Type ¹		<u>Texture</u>	Remarks
0-8	10YR 3/2	9 7	7.5 YR 4/4	3	<u> </u>	ρ	learn	10°6 grave
8-16	10484/2	90	10YR4/4	10	C	M	lugary sand	J
			Reduced Matrix, CS			ed Sand G		ation: PL=Pore Lining, M=Matrix.
		abie to all	i LRRs, unless other		əd.)			rs for Problematic Hydric Soils ³ :
_ Histosol	• •		Sandy Redox (S					Muck (A10)
	plpedon (A2)		Stripped Matrix		1.			Parent Material (TF2)
_ Black H	istic (A3) en Sulfide (A4)		Loamy Mucky N Loamy Gleyed			(MLRA 1)		Shallow Dark Surface (TF12)
	d Below Dark Surfac	α (Δ11)	Depleted Matrix)		Othe	er (Explain In Remarks)
and a second sec	ark Surface (A12)	© (A 1 1)	Redox Dark Su				³ Indicator	rs of hydrophytic vegetation and
_	Aucky Mineral (S1)		Depleted Dark \$	• •	7)			nd hydrology must be present,
	Sleyed Matrix (S4)		Redox Depress		.,			s disturbed or problematic.
	Layer (If present):							· · · · · · · · · · · · · · · · · · ·
Туре:	- ~		·····					
	ches):						Hydric Soli	Present? Yes <u>/</u> No
omarks: DROLO	GY						Hydric Soli	Present? Yes <u>V</u> No
emarks: DROLO etland Hyd	GY drology Indicators:	1	d; check all that apply				. I	Present? Yes <u>V</u> No <u>No</u>
emarks: DROLO etland Hyd	GY drology Indicators: ators (minimum of o	1	d; check all that apply	•		xcept	Secon	£
DROLO etland Hyd imary Indic C Surface	GY drology Indicators: ators (minimum of o	1	d; check all that apply	ned Leave		xcept	Secon	dary Indicators (2 or more required)
DROLO etland Hyd imary Indic C Surface	GY drology Indicators: sators (minimum of o Water (A1) ter Table (A2)	1	d; check all that apply	ned Leave 1, 2, 4A, a		xcept	<u>Secon</u> W	dary Indicators (2 or more required) later-Stained Leaves (B9) (MLRA 1, 2
DROLO etland Hyd imary Indic Surface	GY drology Indicators: mators (minimum of o Water (A1) ter Table (A2) on (A3)	1	d; check all that apply Water-Stai MLRA	ned Leave 1, 2, 4A, a (B11)	nd 4B)	xcept	<u>Secon</u> W Dr	dary Indicators (2 or more required) ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
DROLO etland Hyd imary Indic Surface High Wa Saturatic Water M	GY drology Indicators: mators (minimum of o Water (A1) ter Table (A2) on (A3)	1	d; check all that apply Water-Stai MLRA	ned Leave 1, 2, 4A, a (B11) vertebrates	nd 4B) s (B13)	xcept	<u>Secon</u> W Dr Dr	dary Indicators (2 or more required) ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2)
Processing of the second secon	GY drology Indicators: ators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1)	1	d; check all that apply Water-Stai MLRA Salt Crust Aquatic Inv	ned Leave 1, 2, 4A, a (B11) vertebrates Sulfide Od	nd 4B) s (B13) lor (C1)	* J	<u>Secon</u> W Dr Dr Dr Sa	dary Indicators (2 or more required) ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2)
DROLO etland Hyd imary Indic C Surface High Wa Saturatic Saturatic Sedimen Drift Dep	GY drology Indicators: sators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1) t Deposits (B2)	1	d; check all that apply Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen S	ned Leave 1, 2, 4A, a (B11) vertebrates Sulfide Od thizospher	nd 4B) s (B13) lor (C1) res along	Living Roo	<u>Secon</u> W Dr Dr Sa ots (C3) _ y ≤ Ge	dary Indicators (2 or more required) ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9
DROLO etland Hyd imary Indic Surface High Wa Saturatic Water M Sedimen Drift Dep Algal Ma Iron Dep	GY drology Indicators: mators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5)	1	d; check all that apply Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen S Cxidized R	ned Leave 1, 2, 4A, a (B11) vertebrates Sulfide Od Rhizospher of Reduced	nd 4B) s (B13) lor (C1) res along d iron (C4	Living Roo	<u>Secon</u> W Dr Dr Sr ots (C3) _K G	dary Indicators (2 or more required) ater-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9 eomorphic Position (D2)
DROLO etland Hyd imary Indic Surface High Wa Saturatic Water M Sedimen Drift Dep Algal Ma Iron Dep Surface S	GY frology Indicators: mators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6)	ne require	d; check all that apply Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen S Oxidized R Presence c Recent Iron Stunted or	ned Leave 1, 2, 4A, a (B11) vertebrates Sulfide Od thizospher of Reduced n Reductio	nd 4B) s (B13) lor (C1) res along d Iron (C4 on in Tilled	Living Roo l) d Soils (Cé	<u>Secon</u> W Dr Dr Sr ots (C3) _⊻ Gr St 5) F4	dary Indicators (2 or more required) ater-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9 eomorphic Position (D2) hallow Aquitard (D3)
DROLO etland Hyd imary Indic Surface High Wa Saturatic Water M Sedimen Drift Dep Algal Ma Iron Dep Surface S Inundatic	GY drology Indicators: sators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aerial In	ne required	d; check all that apply Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen S Oxidized R Presence o Recent Iron Stunted or 7) Other (Exp	ined Leave 1, 2, 4A, a (B11) vertebrates Sulfide Od Rhizospher of Reduced n Reductio Stressed	nd 4B) s (B13) lor (C1) res along d Iron (C4 on in Tilleo Plants (D	Living Roo l) d Soils (Cé	<u>Secon</u> W Dr Dr Sr ots (C3) _ J ≾ Gr Sr 5) F4	dary Indicators (2 or more required) dater-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9 eomorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5)
DROLO etland Hyd imary Indic Surface High Wa Saturatic Saturatic Drift Dep Algal Ma Iron Dep Surface S Inundatic Sparsely	GY drology Indicators: sators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aerial In Vegetated Concave	ne required	d; check all that apply Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen S Oxidized R Presence o Recent Iron Stunted or 7) Other (Exp	ined Leave 1, 2, 4A, a (B11) vertebrates Sulfide Od Rhizospher of Reduced n Reductio Stressed	nd 4B) s (B13) lor (C1) res along d Iron (C4 on in Tilleo Plants (D	Living Roo l) d Soils (Cé	<u>Secon</u> W Dr Dr Sr ots (C3) _ J ≾ Gr Sr 5) F4	dary Indicators (2 or more required) ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9 eomorphic Position (D2) nallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A)
DROLO etland Hyd imary Indic Surface High Wa Saturatic Saturatic Saturatic Jift Dep Algal Ma Iron Dep Surface Surface Sparsely eld Observ	GY drology Indicators: iators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aerial In Vegetated Concave rations:	ne required magery (B) Surface (1	d; check all that apply Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen S Oxidized R Presence c Recent Iron Stunted or 7) Other (Exp B8)	ined Leave 1, 2, 4A, a (B11) vertebrates Sulfide Od thizospher of Reduced n Reductio Stressed lain in Rer	nd 4B) s (B13) lor (C1) res along d Iron (C4 on in Tilled Plants (D marks)	Living Rod I) d Soils (Cf 1) (LRR A	<u>Secon</u> W Dr Dr St ots (C3) _ ⊻ Ga St 5) F4 5) Ra Fr	dary Indicators (2 or more required) ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9 eomorphic Position (D2) nallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) ost-Heave Hummocks (D7)
DROLO DROLO etiand Hyd imary Indic Surface High Wa Saturatic Water M Sedimen Drift Dep Algal Ma Iron Dep Surface S Inundatic Sparsely eld Observ	GY drology Indicators: rators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aerial In Vegetated Concave rations: r Present? Ye	magery (Bi Surface (i es	d; check all that apply Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen S Oxidized R Presence c Recent Iron Stunted or 7) Other (Exp B8) No Depth (inc	ined Leave ined Leave (B11) vertebrates Sulfide Od thizospher of Reduced n Reductio Stressed lain in Rer	nd 4B) s (B13) lor (C1) res along d Iron (C4 on in Tilled Plants (D marks)	Living Rod I) d Soils (Cf 1) (LRR A	<u>Secon</u> W Dr Dr St ots (C3) _ ⊻ Ga St 5) F4 5) Ra Fr	dary Indicators (2 or more required) ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9 eomorphic Position (D2) nallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A)
DROLO Etland Hyd imary Indic Surface High Wa Saturatic Water M Sedimen Drift Dep Algal Ma Iron Dep Surface S Inundatic Sparsely eld Observ urface Wate	GY drology Indicators: ators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aerial In Vegetated Concave rations: or Present? Ye	magery (Bi Surface (I es I	d; check all that apply Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen S Oxidized R Presence o Recent Iron Stunted or 7) Other (Exp B8) No Depth (inc No Depth (inc	ches):	nd 4B) s (B13) lor (C1) res along d Iron (C4 on in Tilled Plants (D marks)	Living Rod I) d Soils (Cf 1) (LRR A	<u>Secon</u> W Dr Dr Sa ots (C3) _k Ga St 5) FA 5) FA Fr	dary Indicators (2 or more required) later-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9 eomorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) rost-Heave Hummocks (D7)
emarks: (DROLO (etland Hyo rimary Indic Surface High Wa Saturatic Water M Sedimen Drift Dep Algal Ma Iron Dep Surface S Inundatic Sparsely eld Observ vurface Wate fater Table f aturation Principles capi	GY drology Indicators: ators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aerial In Vegetated Concave rations: or Present? Present? Ye esent? Ye	magery (8) Surface (1 es	d; check all that apply Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen S Oxidized R Presence c Recent Iron Stunted or 7) Other (Exp B8) No Depth (inc	ches):	nd 4B) s (B13) lor (C1) res along d Iron (C4 on in Tilled Plants (D marks)	Living Rod) d Soils (Cf 1) (LRR A	<u>Secon</u> W Dr Dr Sr ots (C3) _k Gr St 5) Fr b) Rr Fr Fr Fr abog co and Hydrology	dary Indicators (2 or more required) ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9 eomorphic Position (D2) nallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) ost-Heave Hummocks (D7)
emarks: DROLO Vetland Hyd rimary Indic Surface High Wa Saturatic Water M Sedimen Drift Dep Algal Ma Iron Dep Surface S Inundatic Sparsely eld Observ urface Wate aturation Pro- ncludes capi escribe Rec	GY drology Indicators: ators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aerial In Vegetated Concave rations: or Present? Present? Ye esent? Ye	magery (8) Surface (1 es	d; check all that apply Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen S Oxidized R Presence of Recent Iron Stunted or 7) Other (Exp B8) No Depth (inc No Depth (inc	ches):	nd 4B) s (B13) lor (C1) res along d Iron (C4 on in Tilled Plants (D marks)	Living Rod) d Soils (Cf 1) (LRR A	<u>Secon</u> W Dr Dr Sr ots (C3) _k Gr St 5) F/ 5) F/ 5) Fr Fr Fr abog co and Hydrology	dary Indicators (2 or more required) later-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9 eomorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) rost-Heave Hummocks (D7)
DROLO DROLO detland Hyd imary Indic Surface High Wa Saturatic Water M Sedimen Drift Dep Algal Ma Iron Dep Surface S Inundatic Sparsely eld Observ urface Wate ater Table f aturation Priceludes capi	GY drology Indicators: iators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aerial In Vegetated Concave rations: or Present? Present? Ye esent? Ye esent? Ye orded Data (stream	magery (B) e Surface (I es I es I gauge, mo	d: check all that apply Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen S Coxidized R Presence of Recent Iron Stunted or 7) Other (Exp B8) No Depth (inc No Depth (inc pritoring well, aerial p	ches): ches):	nd 4B) s (B13) lor (C1) res along d Iron (C4 on in Tilled Plants (D marks) <u>2003 50</u> <u>70</u> <u>8-9</u> evious ins	Living Rod) d Soils (Cf 1) (LRR A Wetl pections),	<u>Secon</u> W Dr Dr Sa St St Fr Fr Fr fr abong co and Hydrology if available:	dary Indicators (2 or more required) later-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9 eomorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) rost-Heave Hummocks (D?)

Project/Site: C.Fude Rol Valueding	Fucility City/County:_	Skagit	Sampling Date: Jan 22,201
Applicant/Owner: Shell PSR	•	State: Wrt	Sampling Point: <u>SP - 012</u>
investigator(s): J. Wilker, B. Fletch	Section, Town	ship, Range: Section 33	,35N,2E
Landform (hillislope, terrace, etc.):		concave, convex, none):	we Siope (%):
Subregion (LRR):	Lat:	Long:	
Soil Map Unit Name: Bon gravely loom	0-to 3 prost	slypes NWI classifi	cation:
Are climatic / hydrologic conditions on the site typical for		No (if no, explain in i	
Are Vegetation, Soil, or Hydrology	significantiy disturbed?	Are "Normal Circumstances"	present? Yes X No
Are Vegetation, Soil, or Hydrology	naturaliy problematic?	(if needed, explain any answ	ers in Remarks.)
SUMMARY OF FINDINGS - Attach site ma	ap showing sampling	point locations, transect	s, important features, etc.
	No		

Hydrophytic Vegetation Present? Hydric Soli Present? Wetland Hydrology Present?	Yes No Yes No Yes No	is the Sampled Area within a Wetland?	Yes No	
Remarks:				

VEGETATION – Use scientific names of plants.

2,1	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Plot size: 30')	% Cover	Specles?	<u>Status</u>	Number of Dominant Species
1				That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3				Total Number of Dominant 3 (B)
4.				
	D	= Total Co	ver	Percent of Dominant Species (A/B)
Sapling/Shrub Stratum (Plot size: [5])				Prevalence Index worksheet:
2				Total % Cover of: Multiply by:
3.				OBL species x 1 =
			1. A	FACW species x 2 =
4				FAC species x 3 =
5	0			FACU speciesO x 4 =O
Herb Stratum (Plot size:	0	_ = Total Co	ver	UPL species x 5 =00
1. Agasts capellaris / stalewiller	25	Y	FAC	Column Totals: 100 (A) 33 (B)
		<u> </u>	FAC	
2. Cusum arvine				Prevalence Index = B/A =
3. Alapurus pratencis	<u> </u>		FAC	Hydrophytic Vegetation Indicators:
4. Phalans areaderacen			FACW	1 - Rapid Test for Hydrophytic Vegetation
5. Holais lanatus			FAC	X 2 - Dominance Test is >50%
6. Payantucalla Ugasa			FAC	3 - Prevalence Index is ≤3.0 ¹
7. Johns Corniculatus	10		FAC	4 - Morphological Adaptations ¹ (Provide supporting
8. Antoyan Sp.	20	<u> </u>	彩版 U	data in Remarks or on a separate sheet)
9. Farture armiliance	20	<u>×</u>	FAC	5 - Wetland Non-Vascular Plants ¹
10		_		Problematic Hydrophytic Vegetation ¹ (Explain)
11.				¹ Indicators of hydric soil and wetland hydrology must
	10	_= Total Cov	/er	be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 5)		_ 10(01000		
1.				Hydrophytic
2.				Vegetation V
Z		_= Total Co		Present? Yes No
% Bare Ground in Herb Stratum		10(a) 00		
		6 1 1		
Remarks: Agropy row is essented to have	"upland	statu	\$	
	•			

6

Sampling Point: 59-D12

Histosol (A1) Sandy Redox (S5)	_
15-18 57 4/2 3.0 10 Y(P'1/c 20 M 5.0 **Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Ind **Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Ind **Hydrlc Soll Indicators: Applicable to all LRRs, unless otherwise noted.) Ind Histo Epipedon (A2) Stripped Matrix (S6)	reRemarks
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. tydric Soll Indicators: (Applicable to all LRRs, unless otherwise noted.) Ind Histic Epidedin (A2) Stripped Matrix (S5) Histic Epideon (A2) Stripped Matrix (S5) Depleted Delow Dark Surface (A1) Loamy Mucky Mineral (F1) (except MLRA 1) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Depleted Delow Dark Surface (A12) Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Sandy Gleyed Matrix (S4) Redox Depressions (F8) Vestinand Hydrology Indicators: Hydric gramer Sized Matrix (S1) Water-Stained Leaves (B9) (except Mick 12, 2, 4A, and 4B) Salt Crust (B11) Saturation (A3) Salt Crust (B11) Saturation (A3) Salt Crust (B11) Softment Deposits (B2) Hydrogen Sulfide Odor (C1) Drift Deposits (B3) Oxidized Rhizospheres along Living Roots (C3) Algai Mato Crust (B4) Presence of Reduced Iron (C4) I'non Deposits (B5) Recent Iron Reduction In Tilled Solis (C6) Surface Soli Cracks (B6) Stunted or Stressed Plants (D1) (LRR A) <th>······································</th>	······································
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Hydric Soll Indicators: (Applicable to all LRRs, unless otherwise noted.) Ind Histic Epideoin (A2) Stripped Matrix (S6) Ind Histic Epideoin (A2) Stripped Matrix (S7) Depleted Datrix (T2) Depleted Datrix (T2) <td< td=""><td></td></td<>	
tydric Soll Indicators: (Applicable to all LRRs, unless otherwise noted.) Ind Histic Expland Natrix (Sol)	
tydric Soll Indicators: (Applicable to all LRRs, unless otherwise noted.) Ind	
tydric Soll Indicators: (Applicable to all LRRs, unless otherwise noted.) Ind Histic Expland Natrix (Sol)	
tydric Soll Indicators: (Applicable to all LRRs, unless otherwise noted.) Ind Histic Explortion (A2) Stripped Matrix (S6) Histic Explortion (A2) Stripped Matrix (F2) Depleted Below Dark Surface (A11) X Depleted Matrix (F2) Depleted Below Dark Surface (A12) Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Sandy Gleyed Matrix (S4) Redox Depressions (F8) Estrictive Layer (If present): Hydrice Type: Compresent): Type: Compresent): Firmarx Indicators (minimum of one required; check all that apply) S Surface Water (A1) Water-Stained Leaves (B9) (except High Water Table (A2) MLRA 1, 2, 4A, and 4B) Saturation (A3) Salit Crust (B11) Sediment Deposits (B2) Hydrogen Sulfide Odor (C1) Uro Deposits (B3) Oxidized Rhizospheres along Living Roots (C3) Algal Mat or Crust (B4) Presence of Reduced inon Tilled Solis (C6) Surface Soli Cracks (B6) Stunted or Stressed Planis (D1) (LRR A) Iron Deposits (B5) Recent Iron Reduction in Tilled Solis (C6) Surface Soli Cracks (B6) Stunted or Stressed Planis (D1) (LRR A) Ira	
tydric Soll Indicators: (Applicable to all LRRs, unless otherwise noted.) Ind Histic Explorted Natrix (S3) Stripped Matrix (S6) Histic Explorted Natrix (F2) Depleted Below Dark Surface (A11) Depleted Below Dark Surface (A12) Redox Dark Surface (F5) Sandy Mucky Mineral (S1) Depleted Dark Surface (F6) Sandy Gleyed Matrix (S4) Redox Depressions (F8) Estrictive Layer (If present): Type: Type: Comptediation Jopin (inches): 1 Water Natrix (B1) Water-Stained Leaves (B9) (except Higt Cators: Minore Natrian (B13) Surface Water (A1) Water-Stained Leaves (B9) (except Higt Water Table (A2) MLRA 1, 2, 4A, and 4B) Saturation (A3) Salit Crust (B11) Sediment Deposits (B2) Hydrogen Sulfide Odor (C1) Uro Deposits (B3) Oxidized Rhizospheres along Living Roots (C3) Algal Mat or Crust (B4) Presence of Reduced in riled Solis (C6) Surface Soli Cracks (B6) Stunted or Stressed Plans (D1) (LRR A) Inno Deposits (B5) Recent Iron Reduction in Tiled Solis (C6) Surface Soli Cracks (B6) Stunted or Stressed Plans (D1) (LRR A) Indadutor Visible on Aeria	
tydric Soll Indicators: (Applicable to all LRRs, unless otherwise noted.) Ind Histic Explorted Natrix (S3) Stripped Matrix (S6) Histic Explorted Natrix (F2) Depleted Below Dark Surface (A11) Depleted Below Dark Surface (A12) Redox Dark Surface (F5) Sandy Mucky Mineral (S1) Depleted Dark Surface (F6) Sandy Gleyed Matrix (S4) Redox Depressions (F8) Estrictive Layer (If present): Type: Type: Comptediation Jopin (inches): 1 Water Natrix (B1) Water-Stained Leaves (B9) (except Higt Cators: Minore Natrian (B13) Surface Water (A1) Water-Stained Leaves (B9) (except Higt Water Table (A2) MLRA 1, 2, 4A, and 4B) Saturation (A3) Salit Crust (B11) Sediment Deposits (B2) Hydrogen Sulfide Odor (C1) Uro Deposits (B3) Oxidized Rhizospheres along Living Roots (C3) Algal Mat or Crust (B4) Presence of Reduced in riled Solis (C6) Surface Soli Cracks (B6) Stunted or Stressed Plans (D1) (LRR A) Inno Deposits (B5) Recent Iron Reduction in Tiled Solis (C6) Surface Soli Cracks (B6) Stunted or Stressed Plans (D1) (LRR A) Indadutor Visible on Aeria	
tydric Soll Indicators: (Applicable to all LRRs, unless otherwise noted.) Ind Histic Explortion (A2) Stripped Matrix (S6) Histic Explortion (A2) Stripped Matrix (F2) Depleted Below Dark Surface (A11) X Depleted Matrix (F2) Depleted Below Dark Surface (A12) Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Sandy Gleyed Matrix (S4) Redox Depressions (F8) Estrictive Layer (If present): Hydrice Type: Compresent): Type: Compresent): Firmarx Indicators (minimum of one required; check all that apply) S Surface Water (A1) Water-Stained Leaves (B9) (except High Water Table (A2) MLRA 1, 2, 4A, and 4B) Saturation (A3) Salit Crust (B11) Sediment Deposits (B2) Hydrogen Sulfide Odor (C1) Uro Deposits (B3) Oxidized Rhizospheres along Living Roots (C3) Algal Mat or Crust (B4) Presence of Reduced inon Tilled Solis (C6) Surface Soli Cracks (B6) Stunted or Stressed Planis (D1) (LRR A) Iron Deposits (B5) Recent Iron Reduction in Tilled Solis (C6) Surface Soli Cracks (B6) Stunted or Stressed Planis (D1) (LRR A) Ira	· ·
tydric Soll Indicators: (Applicable to all LRRs, unless otherwise noted.) Ind Histic Explortion (A2) Stripped Matrix (S6) Histic Explortion (A2) Stripped Matrix (F2) Depleted Below Dark Surface (A11) X Depleted Matrix (F2) Depleted Below Dark Surface (A12) Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Sandy Gleyed Matrix (S4) Redox Depressions (F8) Estrictive Layer (If present): Hydrice Type: Compresent): Type: Compresent): Firmarx Indicators (minimum of one required; check all that apply) S Surface Water (A1) Water-Stained Leaves (B9) (except High Water Table (A2) MLRA 1, 2, 4A, and 4B) Saturation (A3) Salit Crust (B11) Sediment Deposits (B2) Hydrogen Sulfide Odor (C1) Uro Deposits (B3) Oxidized Rhizospheres along Living Roots (C3) Algal Mat or Crust (B4) Presence of Reduced inon Tilled Solis (C6) Surface Soli Cracks (B6) Stunted or Stressed Planis (D1) (LRR A) Iron Deposits (B5) Recent Iron Reduction in Tilled Solis (C6) Surface Soli Cracks (B6) Stunted or Stressed Planis (D1) (LRR A) Ira	
Histosoi (A1) Sandy Redox (S5) Histic Epipedon (A2) Stripped Matrix (S6) Biack Histic (A3) Loamy Klucky Mineral (F1) (except MLRA 1) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Depleted Below Dark Surface (A11) X Depleted Matrix (F3) Thick Dark Surface (A12) Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Sandy Mucky Mineral (S1) Redox Depressions (F8) Leestrictive Layer (If present): Type: Type: Cwn1pt Link Sufface Water (A1) Water-Stained Leaves (B9) (except High Water Table (A2) MLRA 1, 2, 4A, and 4B) Saturation (A3) Salt Crust (B11) Water Marks (B1) Aquatic Invertebrates (B13) Sediment Deposits (B3) Oxidized Rhizospheres along Living Roots (C3) X Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Iron Deposits (B5) Recent Iron Reduction in Tilled Solis (C6) Surface Soli Cracks (B6) Stunted or Stressed Plants (D1) (LRR A) Iron Deposits (B5) Stunted or Stressed Plants (D1) (LRR A) Sparsely Vegetated Concave Surface (B8) <t< td=""><td>²Location: PL=Pore Lining, M=Matrix.</td></t<>	² Location: PL=Pore Lining, M=Matrix.
Histic Epipedon (A2) Stripped Matrix (S6) Black Histic (A3) Loamy Mucky Mineral (F1) (except MLRA 1) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Depleted Below Dark Surface (A12) Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Sandy Gleyed Matrix (S4) Redox Depressions (F8) testrictive Layer (If present): Type: Type: Constructure (augure (augur	cators for Problematic Hydric Solis ³ :
Black Histic (A3) Loamy Mucky Mineral (F1) (except MLRA 1) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Depleted Below Dark Surface (A11) X Depleted Matrix (F2) Thick Dark Surface (A12) Redox Dark Surface (F3) Sandy Gleyed Matrix (S4) Depleted Dark Surface (F7) Sandy Gleyed Matrix (S4) Redox Depressions (F8) testrictive Layer (If present): Type: Type: Camp Sufface (A12) Bestrictive Layer (If present): Hydrolegy Indicators: Popth (Inches): 1 Surface Water (A1) Water-Stained Leaves (B9) (except High Water Table (A2) MLRA 1, 2, 4A, and 4B) Saturation (A3) Salt Crust (B11) Surface Water (B4) Presence of Reduced Iron (C4) Drift Deposits (B3) Oxidized Rhizospheres along Living Roots (C3) X Adgal Mar Crust (B4) Presence of Reduced Iron (C4) Inondation Visible on Aerial Imagery (B7) Other (Explain In Remarks) Sparsely Vegetated Concave Surface (B8) Edid Observations: urface Water Present? Yes X No Depth (Inches): 0 Externed (Externed (Extern	2 cm Muck (A10)
Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Depleted Below Dark Surface (A11) Depleted Matrix (F3) Thick Dark Surface (A12) Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Sandy Mucky Mineral (S1) Redox Depressions (F8) Lesstrictive Layer (if present): Redox Depressions (F8) Type: Completed Matrix (S4) Redox Depressions (F8) Lesstrictive Layer (if present): Hydric Depth (inches): $\widehat{A} \cdot \underline{X}$ Matrix : Muchanismum of one required; check all that apply) S Surface Water (A1) Water-Stained Leaves (B9) (except High Water Table (A2) High Water Table (A2) MLRA 1, 2, 4A, and 4B) Salturation (A3) Saturation (A3) Salt Crust (B11) Saltwater (C1) Water Marks (B1) Aquatic Invertebrates (B13) Saltwater (C1) Sediment Deposits (B2) Hydrogen Sulfide Odor (C1) Sufface Soli Cracks (B6) Surface Soli Cracks (B5) Recent Iron Reduction in Tilled Solis (C6) Surface Soli Cracks (C6) Surface Soli Cracks (B6) Stunted or Stressed Plants (D1) (LRR A) Solit Crust (B4) Solit Crust (B4) Inundation Visible on Aerial I	Red Parent Material (TF2)
	Very Shailow Dark Surface (TF12) Other (Explain in Remarks)
	Other (Explain in Remarks)
	icators of hydrophytic vegetation and
	vetland hydrology must be present,
Type: Contracted with with a second seco	inless disturbed or problematic.
Depth (inches): 4.5 Itermarks: //DROLOGY //detand Hydrology Indicators: primary Indicators (minimum of one required; check all that apply)	
Image: Second Stress Image: Second Stress //DROLOGY ////////////////////////////////////	
Image: Second Stress YDROLOGY //DROLOGY //detiand Hydrology Indicators: rimary Indicators (minimum of one required; check all that apply) S	Soli Present? Yes X No
//DROLOGY //etland Hydrology Indicators: rimary Indicators (minimum of one required; check ail that apply) S	
rimary Indicators (minimum of one required; check all that apply) S Surface Water (A1) Water-Stained Leaves (B9) (except High Water Table (A2) MLRA 1, 2, 4A, and 4B) Saturation (A3) Salt Crust (B11) Water Marks (B1) Aquatic Invertebrates (B13) Sediment Deposits (B2) Hydrogen Sulfide Odor (C1) Drift Deposits (B3) Oxidized Rhizospheres along Living Roots (C3) Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Iron Deposits (B5) Recent Iron Reduction in Tilled Soils (C6) Surface Soil Cracks (B6) Stunted or Stressed Plants (D1) (LRR A) Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) Sparsely Vegetated Concave Surface (B8) Inches): Ield Observations: Mo Depth (inches): urface Water Present? Yes No Depth (inches): aturation Present? Yes No Depth (inches): Wetland Hydro wetland Hydro Depth (inches): O Wetland Hydro water Present? Yes No Depth (inches): O water Table Present? Yes No Depth (inches): O	
Surface Water (A1)	
High Water Table (A2) MLRA 1, 2, 4A, and 4B) Saturation (A3) Water Marks (B1) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Surface Soil Cracks (B6) Inundation Visible on Aerial imagery (B7) Other (Explain in Remarks) Sparsely Vegetated Concave Surface (B8) Ves Vater Table Present? Yes Yes No Depth (inches): O Wetland Hydroge Wetland Hydroge	econdary indicators (2 or more required)
Saturation (A3)	_ Water-Stained Leaves (B9) (MLRA 1, 2,
	4A, and 4B)
	_ Drainage Patterns (B10)
Drift Deposits (B3) Oxidized Rhizospheres along Living Roots (C3) Algal Mat or Crust (B4) Presence of Reduced Iron (C4)	_ Dry-Season Water Table (C2)
	_ Saturation Visible on Aerial Imagery (C9)
Iron Deposits (B5) Recent Iron Reduction in Tilled Soils (C6) Recent Iron Reduction in Tilled Soils (C6) Surface Soil Cracks (B6) Stunted or Stressed Plants (D1) (LRR A) Other (Explain in Remarks) Sparsely Vegetated Concave Surface (B8) eld Observations: No Depth (inches): for each stressent? Yes No Depth (inches): Mo Depth (inches): Wetland Hydro atter Table Present? Yes No Depth (inches): Wetland Hydro cludes capillary fringe) escribe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available	Geomorphic Position (D2)
Surface Soil Cracks (B6)Stunted or Stressed Plants (D1) (LRR A) Inundation Visible on Aerial Imagery (B7)Other (Explain in Remarks) Sparsely Vegetated Concave Surface (B8) eld Observations: urface Water Present? Yes X No Depth (inches): atter Table Present? Yes X No Depth (inches): aturation Present? Yes X No Depth (inches): aturation Present? Yes X No Depth (inches): escribe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available	_ Shallow Aquitard (D3)
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) 	_ FAC-Neutral Test (D5)
Sparsely Vegetated Concave Surface (B8) leid Observations: urface Water Present? Yes X No Depth (inches): 6.27 /ater Table Present? Yes X No Depth (inches): 6 aturation Present? Yes X No Depth (inches): 0 meludes capillary fringe) escribe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available	_ Raised Ant Mounds (D6) (LRR A)
eld Observations: Ves X No Depth (inches): 6.25 vater Table Present? Yes X No Depth (inches): 6 vater Table Present? Yes X No Depth (inches): 6 aturation Present? Yes X No Depth (inches): 6 aturation Present? Yes X No Depth (inches): 0 holudes capillary fringe) escribe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available	_ Frost-Heave Hummocks (D7)
urface Water Present? Yes X No Depth (inches): 6.27 vater Table Present? Yes X No Depth (inches): 0 aturation Present? Yes X No Depth (inches): 0 aturation Present? Yes X No Depth (inches): 0 acturation Present? Yes X No Depth (inches): 0 acturation Present? Yes X No Depth (inches): 0 escribes capillary fringe) Wetland Hydro escribe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available	
Vater Table Present? Yes X No Depth (inches): Ø aturation Present? Yes X No Depth (inches): Ø ncludes capillary fringe) Wetland Hydro escribe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available	
aturation Present? Yes X No Depth (inches): Vetland Hydro Includes capillary fringe) Wetland Hydro escribe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available	
ncludes capillary fringe) escribe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available	
escribe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available	logy Present? Yes X No
emarks:	
ay the second	

Project/Site: Shell Crude Rail Unlowling Facture	City/County: Skant Sampling Date: Jan 22, 2003
Applicant/Owner: Shell BR	State: Wr Sampling Point: 2-013
investigator(s): J. Walker, B. Fletcher	Section, Township, Range: Section 33, 35N, 2E
Landform (hillslope, terrace, etc.):	Local relief (concave, convex, none): <u>Citurex</u> Siope (%): <u>5</u>
Subregion (LRR): Lat:	Datum: Datum:
Soil Map Unit Name: Ban gravely toan Uto 3	percent stupper NWI classification: Upland
Are ciimatic / hydrologic conditions on the site typical for this time of ye	ear? Yes No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly	y disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation, Soil, or Hydrology naturally pr	oblematic? (if needed, explain any answers in Remarks.)
	a second and leasting transacts important features ato

SUMMARY OF FINDINGS -	Attach site map showi	ing sampling point	locations, transi	ects, important to	atures, etc.

Hydrophytic Vegetation Present? Hydric Soli Present? Wetland Hydrology Present?	Yes No Yes No Yes No	is the Sampled Area within a Wetland?	Yes No	-
Remarks: plot peer the y	slope just upslope of	wetland plot	(SEDIZ)	

VEGETATION – Use scientific names of plants.

	Absolute	Dominant indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 30)	% Cover	Species? Status	Number of Dominant Species
1			That Are OBL, FACW, or FAC: (A)
2		······	Total Number of Dominant
3			Species Across All Strata: (B)
4.			Recent of Deminent Speeles
	0	_ = Total Cover	Percent of Dominant Species That Are OBL, FACW, or FAC:(A/B)
Sapling/Shrub Stratum (Plot size: 15)			Prevalence Index worksheet:
1			Total % Cover of: Multiply by:
2			OBL species x 1 =
3			
4			FACW species x 2 =O
5.			FAC species $50 \times 3 = 150$
	5	= Total Cover	FACU species x 4 =
Herb Stratum (Plot size:)			UPL species x 5 =
1. Aavopyron Sp.	50	X UPL	Column Totals:((A)((C) (B)
2. Pavantuallin Viscosa	10	FAC	Prevalence Index = B/A = <u>4.0</u>
3. Cyclus ariens		FAC	Hydrophytic Vegetation indicators:
4. Festure arundicace	30	X FAC	1 - Rapid Test for Hydrophytic Vegetation
5. Azonti capillars/ styleriter	10	FAC	2 - Dominance Test Is >50%
	T		3 - Prevalence Index is $\leq 3.0^1$
6. yican hir sata			4 - Morphological Adaptations ¹ (Provide supporting
7			data in Remarks or on a separate sheet)
8			5 - Wetland Non-Vascular Plants ¹
9			Problematic Hydrophytic Vegetation ¹ (Explain)
10			Indicators of hydric soil and wetland hydrology must
11			be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size:)	100	_= Total Cover	
-			
1			Hydrophytic Vegetation
2			Present? Yes <u></u> No <u></u>
	O	_≕ Total Cover	
% Bare Ground in Herb Stratum			
Remarks: Assumed Anyropyron has "	pard"	status	
	-		
		10 A	

SOIL	
------	--

Profile Description: (Des	cribe to the de	opth needed to docume	ent the	Indicator of	or confirm	n the absence of	f Indicators.)
	atrix	Redox	Feature				
	2 /	Color (moist)	%	<u>Type'</u>	<u>Loc²</u>		Remarks
						-	8.2
6-10 104	R3/2 95		3	<u> </u>	M	S.CL	5 perant ubbles,
		7.5YR 4/6	_1	_C	M		Frank
		loyR 5/3	1	C	M		<u> </u>
					<u> </u>		
				· ·	<u> </u>		
				· ·		<u> </u>	
				· ·			
		·					
¹ Type: C=Concentration, D	=Depletion, RM	=Reduced Matrix, CS=	Covered	d or Coated	Sand Gr		ion: PL=Pore Lining, M=Matrix.
Hydric Soli indicators: (A	pplicable to al			ed.)		Indicators	for Problematic Hydric Soils ³ :
Histosol (A1)		Sandy Redox (S5					/luck (A10)
Histic Epipedon (A2)		Stripped Matrix (S					arent Material (TF2)
Biack Histic (A3)		Loamy Mucky Min			MLRA 1)		hailow Dark Surface (TF12)
Depleted Below Dark S	urface (A11)	Loamy Gleyed Ma Depleted Matrix (F)		Other ((Explain in Remarks)
Thick Dark Surface (A1		Kedox Dark Surfa				³ Indicators	
Sandy Mucky Mineral (Depleted Dark Sulla		7)			of hydrophytic vegetation and hydrology must be present,
Sandy Gleyed Matrix (S	54)	Redox Depression		• ,			listurbed or problematic.
Restrictive Layer (if prese	nt):					r	
Туре:							• 1 11
Depth (inches):						Hydric Soil Pr	esent? Yes X No
Remarks:						(
HYDROLOGY Wetland Hydrology Indica			······································				
Primary Indicators (minimun	of one required					<u>Seconda</u>	ry indicators (2 or more required)
Surface Water (A1)		Water-Stained	d Leave	s (B9) (ex o	cept	Wate	er-Stained Leaves (B9) (MLRA 1, 2,
High Water Table (A2)		MLRA 1, 2		nd 4B)		4.	A, and 4B)
Saturation (A3)		Salt Crust (B1				Drair	nage Patterns (B10)
Water Marks (B1)		Aquatic Invert				Dry-\$	Season Water Table (C2)
Sediment Deposits (B2)		Hydrogen Sul		• •			ration Visible on Aerial Imagery (C9)
Drift Deposits (B3)		Oxidized Rhiz			ving Root	s (C3) Geor	morphic Position (D2)
Algal Mat or Crust (B4) Iron Deposits (B5)		Presence of R			54.7		low Aquitard (D3)
Surface Soil Cracks (B6		Recent Iron R					-Neutrai Test (D5)
Inundation Visible on Ae		Stunted or Str			(LRR A)		ed Ant Mounds (D6) (LRR A)
Sparsely Vegetated Con			n Ren	narks)		Frost	t-Heave Hummocks (D?)
Field Observations:							
Surface Water Present?		No 🔀 Depth (inches	-).				
Water Table Present?		No Depth (inches		5			
Saturation Present?		Vo Depth (Inches	s):'	1			,
(includes capillary fringe)	$res _{\underline{//}}$ r	No Depth (inches	s):	1.0	Wetiar	nd Hydrology Pr	resent? Yes No
Describe Recorded Data (str	eam gauge, mo	nitoring well, aerial phot	tos, prev	vious inspe	ctions), if	available:	
				-	-		
Remarks:	. 1	916 - P	·				<i>n</i>
No well	and hydr	logy indicators	pre	sent			
	J	(1	L.				
- 2							

t.

	_ City/County: _ Skagt	Sampling Date: 22 Jan 2013
Applicant/Owner: Shell PSR		Sampling Point: <u>5P-D14</u>
Investigator(s): P Hamidi B Kilder Landform (hilislope, terrace, etc.): terrace	_ Section, Township, Range: Local relief (concave, convex, none):	Slope (%): 0-3
Subregion (LRR): Lat: Lat:	Long: 5ίο β23 NWi clas	Datum: <u>NAD 83</u> sification: <u>Upland</u>
Are Climatic / hydrologic conditions on the site typical for this time of Are Vegetation, Soil, or Hydrology significant	year? Yes 🟒 No (if no, explain)	
Are Vegetation, Soil, or Hydrology naturally p		

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes No Yes No Yes No	is the Sampled Area within a Wetland?	Yes No
Remarks: photos 47-51			

VEGETATION – Use scientific names of plants.

	Absolute	Dominant Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>10 m</u>)	<u>% Cover</u>	Species? Status	Number of Dominant Species
1			That Are OBL, FACW, or FAC: (A)
2			Total Number of Dominant
3			Species Across All Strata: (B)
4.			
TI	0	= Total Cover	Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
Sapling/Shrub Stratum (Plot size: 5 m)			Prevalence Index worksheet:
1			
2.			Total % Cover of: Multiply by:
3			OBL species $0 \times 1 = 0$
			FACW species x 2 =
4		·	FAC species x 3 =
5	0		FACU species x 4 =66
Herb Stratum (Plot size: 🏹 🧑)		_ = Total Cover	UPL species
	15	FACV	Column Totals: 100 (A) 3(5 (B)
1. <u>Cynesurus Cristatus</u>	20	V FAC	
2. Trifelium repeat	56		Prevalence Index = B/A = _3.(5
3. <u>Agrostis capillaris</u>		V FAC	Hydrophytic Vegetation Indicators:
4. Festuca grundingcea	_ 1_	FAC	1 - Rapid Test for Hydrophytic Vegetation
5			2 - Dominance Test is >50%
6			3 - Prevalence Index is ≤3.0 [°]
7			4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
8		·	5 - Wetland Non-Vascular Plants ¹
9		·	Problematic Hydrophytic Vegetation ¹ (Explain)
10			
11			¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
	100	= Total Cover	
Woody Vine Stratum (Plot size: 2 ~)			
1			Hydrophytic
2			Vegetation Present? Yes V No No
	0	_= Total Cover	Presentr res No
% Bare Ground in Herb Stratum0			
Remarks:			
grazed			
1			

÷

OIL								s	ampling Point:	SP-DI4
Profile Description:	(Describe to the	he depth nee	ded to docur	nent the inc	dicator o	or confirm	the absenc	e of Indicate	ors.)	
Depth	Matrix			x Features						
(Inches) Colo	<u>r (moist)</u>	<u>% Co</u>	ior (moist)	%	Type ¹	<u>Loc²</u>	Texture		Remarks	
									1	<u></u>
0		3		<u> </u>			2			
0-14 10YR	3/2 10	<u> </u>					loam	charco	al through	out layer
14-18 545	12 8	5 INY	R 5/6	15	<u> </u>		1 1			. <u></u>
11-10 313	12 0:	101	N 2/ 6	13	<u> </u>	M s	andy day	learn		
		2								
Type: C=Concentrat	ion, D=Depletio	n. RM=Reduc	ed Matrix. CS	=Covered o		Sand Gra	ins ² l c	Pl =	Pore Lining, M=	
ydric Soil Indicator	s: (Applicable	to all LRRs,	unless other	wise noted.	.)				lematic Hydrid	
_ Histosoi (A1)			andy Redox (S					m Muck (A1	-	
Histic Epipedon (/	42)		ripped Matrix	•				d Parent Ma	,	
Black Histic (A3)			amy Mucky M	• •	(except l	MLRA 1)			ark Surface (TF	12)
_ Hydrogen Sulfide	• •		amy Gleyed N	Aatrix (F2)	•	•		ner (Explain l	•	,
_ Depleted Below D		11) De	pleted Matrix	(F3)				• •		
_ Thick Dark Surfac			edox Dark Sur	• •			³ Indicat	tors of hydrop	ohytic vegetatio	n and
_ Sandy Mucky Min			epieted Dark S	• •			weti	and hydrolog	y must be pres	ent,
_ Sandy Gleyed Ma		Re	dox Depressi	ons (F8)		. <u> </u>	unle	ss disturbed	or problematic.	
estrictive Layer (if p	present):									
Туре:										1
Depth (Inches):							Hydric Sol	li Present?	Yes	No 🗾
									÷	
DROLOGY				·	<u></u>				z	
(DROLOGY fetland Hydrology ir					·				*	
IDROLOGY Ietland Hydrology ir rimary Indicators (mir	nimum of one re	equired; check							tors (2 or more	
DROLOGY retiand Hydrology ir <u>rimary Indicators (mir</u> <u>Surface Water (A1</u>)	<u>nimum of one re</u>)	auired; check	_ Water-Stalr	ed Leaves (cept		Nater-Staine	d Leaves (B9) (
DROLOGY etland Hydrology ir imary Indicators (mir Surface Water (A1 High Water Table	<u>nimum of one re</u>)	equired; check	_ Water-Stair MLRA 1	ed Leaves (, 2, 4A, and		cept	`	Water-Staine 4A, and 4	d Leaves (B9) (B)	
DROLOGY Tetland Hydrology Indicators (mir Surface Water (A1 High Water Table Saturation (A3)	<u>nimum of one re</u>)	equired; check	Water-Stair MLRA 1 Salt Crust (ied Leaves (, 2, 4A, and B11)	4B)	cept	`	Nater-Staine	d Leaves (B9) (B)	
DROLOGY Tetland Hydrology ir Timary Indicators (mir Surface Water (A1 High Water Table Saturation (A3) Water Marks (B1)	<u>nimum of one re</u>) (A2)	equired; check 	Water-Stalr MLRA 1 Salt Crust (Aquatic inve	ied Leaves (, 2, 4A, and B11) ertebrates (E	1 4 B) B13)	cept	\ (Water-Staine 4A, and 4 Drainage Pat	d Leaves (B9) (B)	MLRA 1, 2,
DROLOGY etiand Hydrology ir <u>imary Indicators (mir</u> _ Surface Water (A1 _ High Water Table _ Saturation (A3) _ Water Marks (B1) _ Sediment Deposits	<u>iimum of one re</u>) (A2) s (B2)	equired; check 	Water-Stair MLRA 1 Salt Crust (Aquatic Inve	ed Leaves (, 2, 4A, and B11) ertebrates (E sulfide Odor	B13) (C1)	2	 [Water-Staine 4A, and 4 Drainage Pat Dry-Season V	d Leaves (B9) (B) tems (B10)	MLRA 1, 2,
DROLOGY etiand Hydrology irr imary Indicators (mir Surface Water (A1 High Water Table Saturation (A3) Water Marks (B1) Sediment Deposits Drift Deposits (B3)	<u>iimum of one re</u>) (A2) s (B2)	equired; check	Water-Stalr MLRA 1 Salt Crust (Aquatic Invo Hydrogen S Oxidized Rh	ed Leaves (, 2, 4A, and B11) ertebrates (B ulfide Odor nizospheres	I 4 B) B13) (C1) along Li	2	(C3)	Water-Staine 4 A, and 4 Drainage Pat Dry-Season V Saturation Vis Geomorphic I	d Leaves (B9) (B) terns (B10) Vater Table (C2 sible on Aerial I Position (D2)	MLRA 1, 2,
DROLOGY etiand Hydrology irr <u>imary Indicators (mir</u> _ Surface Water (A1 _ High Water Table _ Saturation (A3) _ Water Marks (B1) _ Sediment Deposits _ Drift Deposits (B3) _ Algal Mat or Crust	<u>iimum of one re</u>) (A2) s (B2)	equired; check	Water-Stalr MLRA 1 Salt Crust (Aquatic Invo Hydrogen S Oxidized Rł Presence o	ed Leaves (, 2, 4A, and B11) ertebrates (E ulfide Odor hizospheres f Reduced ir	I 4 B) B13) (C1) along Lir ron (C4)	ving Roots	(C3)	Water-Staine 4 A, and 4 Drainage Pat Dry-Season V Saturation Vis Geomorphic I Shallow Aquit	d Leaves (B9) (B) terns (B10) Vater Table (C2 sible on Aerial I Position (D2) ard (D3)	MLRA 1, 2,
DROLOGY retiand Hydrology ir rimary Indicators (mir Surface Water (A1 High Water Table Saturation (A3) Water Marks (B1) Sediment Deposits Drift Deposits (B3) Algal Mat or Crust Iron Deposits (B5)	<u>iimum of one re</u>) (A2) s (B2) (B4)	equired; check	Water-Stalr MLRA 1 Salt Crust (Aquatic Invo Hydrogen S Oxidized Rł Presence o Recent Iron	ed Leaves (, 2, 4A, and B11) ertebrates (E ulfide Odor hizospheres f Reduced ir Reduction i	I 4 B) (C1) along Lir ron (C4) in Tilied S	ving Roots Soils (C6)	(C3)	Water-Staine 4 A, and 4 Drainage Pat Dry-Season V Saturation Vis Geomorphic I Shallow Aquil FAC-Neutral	d Leaves (B9) (B) terns (B10) Vater Table (C2 sible on Aerial I Position (D2) ard (D3) Test (D5)	MLRA 1, 2, 2) magery (C9)
PROLOGY Petiand Hydrology ir rimary Indicators (mir Surface Water (A1 High Water Table Saturation (A3) Water Marks (B1) Sediment Deposits Drift Deposits (B3) Aigal Mat or Crust Iron Deposits (B5) Surface Soil Crack	1imum of one re) (A2) s (B2) (B4) s (B6)		Water-Stalr MLRA 1 Salt Crust (Aquatic Invo Hydrogen S Oxidized Rł Presence o Recent Iron Stunted or S	ed Leaves (, 2, 4A, and B11) ertebrates (E fulfide Odor hizospheres f Reduced ir Reduced ir Reduction i Stressed Pla	I 4 B) (C1) along Liv ron (C4) in Tilled S ants (D1)	ving Roots Soils (C6)	(C3) F	Water-Staine 4 A, and 4 Drainage Pat Dry-Season V Saturation Vis Geomorphic I Shallow Aquit FAC-Neutral Raised Ant M	d Leaves (B9) (B) tems (B10) Vater Table (C2 sible on Aerial II Position (D2) ard (D3) Test (D5) ounds (D6) (LR	MLRA 1, 2, 2) magery (C9) RR A)
DROLOGY etiand Hydrology in <u>rimary Indicators (min</u> _ Surface Water (A1 _ High Water Table _ Saturation (A3) _ Water Marks (B1) _ Sediment Deposits _ Drift Deposits (B3) _ Aigal Mat or Crust _ Iron Deposits (B5) _ Surface Soil Crack _ inundation Visible	timum of one re) (A2) s (B2) (B4) s (B6) on Aerial Image		Water-Stalr MLRA 1 Salt Crust (Aquatic Invo Hydrogen S Oxidized Rł Presence o Recent Iron	ed Leaves (, 2, 4A, and B11) ertebrates (E fulfide Odor hizospheres f Reduced ir Reduced ir Reduction i Stressed Pla	I 4 B) (C1) along Liv ron (C4) in Tilled S ants (D1)	ving Roots Soils (C6)	(C3) F	Water-Staine 4 A, and 4 Drainage Pat Dry-Season V Saturation Vis Geomorphic I Shallow Aquit FAC-Neutral Raised Ant M	d Leaves (B9) (B) terns (B10) Vater Table (C2 sible on Aerial I Position (D2) ard (D3) Test (D5)	MLRA 1, 2, 2) magery (C9) RR A)
DROLOGY etland Hydrology in imary Indicators (min Surface Water (A1 High Water Table Saturation (A3) Water Marks (B1) Sediment Deposits Drift Deposits (B3) Aigal Mat or Crust Iron Deposits (B5) Surface Soil Crack Inundation Visible	timum of one re) (A2) s (B2) (B4) s (B6) on Aerial Image		Water-Stalr MLRA 1 Salt Crust (Aquatic Invo Hydrogen S Oxidized Rł Presence o Recent Iron Stunted or S	ed Leaves (, 2, 4A, and B11) ertebrates (E fulfide Odor hizospheres f Reduced ir Reduced ir Reduction i Stressed Pla	I 4 B) (C1) along Liv ron (C4) in Tilled S ants (D1)	ving Roots Soils (C6)	(C3) F	Water-Staine 4 A, and 4 Drainage Pat Dry-Season V Saturation Vis Geomorphic I Shallow Aquit FAC-Neutral Raised Ant M	d Leaves (B9) (B) tems (B10) Vater Table (C2 sible on Aerial II Position (D2) ard (D3) Test (D5) ounds (D6) (LR	MLRA 1, 2, 2) magery (C9) RR A)
Petiand Hydrology in rimary Indicators (mir Surface Water (A1 High Water Table Saturation (A3) Water Marks (B1) Sediment Deposits Drift Deposits (B3) Aigal Mat or Crust Iron Deposits (B5) Surface Soil Crack Sparsely Vegetated eld Observations:	timum of one re) (A2) (B2) (B4) s (B6) on Aerial Image d Concave Surf		Water-Stalr MLRA 1 Salt Crust (Aquatic Invo Hydrogen S Oxidized Rł Presence o Recent Iron Stunted or S Other (Expl:	ed Leaves (, 2, 4A, and B11) ertebrates (E sulfide Odor nizospheres f Reduced ir Reduction i Stressed Pla ain in Rema	I 4 B) (C1) along Lir ron (C4) in Tilled S ants (D1) rks)	ving Roots Soils (C6)	(C3) F	Water-Staine 4 A, and 4 Drainage Pat Dry-Season V Saturation Vis Geomorphic I Shallow Aquit FAC-Neutral Raised Ant M	d Leaves (B9) (B) tems (B10) Vater Table (C2 sible on Aerial II Position (D2) ard (D3) Test (D5) ounds (D6) (LR	MLRA 1, 2, 2) magery (C9) RR A)
Petiand Hydrology in rimary Indicators (mir Surface Water (A1 High Water Table Saturation (A3) Water Marks (B1) Sediment Deposits Drift Deposits (B3) Aigal Mat or Crust Iron Deposits (B5) Surface Soil Crack Sparsely Vegetated eld Observations:	timum of one re) (A2) (B2) (B4) s (B6) on Aerial Image d Concave Surf	ery (B7)	Water-Stalr MLRA 1 Salt Crust (Aquatic Invo Hydrogen S Oxidized Rf Presence o Recent Iron Stunted or S Other (Expl	ed Leaves (, 2, 4A, and B11) ertebrates (E fulfide Odor hizospheres f Reduced ir Reduction i Stressed Pla ain in Rema	I 4 B) (C1) along Lir ron (C4) in Tilied S ants (D1) rks)	ving Roots Soils (C6) (LRR A)	(C3) F	Water-Staine 4 A, and 4 Drainage Pat Dry-Season V Saturation Vis Geomorphic I Shallow Aquit FAC-Neutral Raised Ant M	d Leaves (B9) (B) tems (B10) Vater Table (C2 sible on Aerial II Position (D2) ard (D3) Test (D5) ounds (D6) (LR	MLRA 1, 2, 2) magery (C9) RR A)
DROLOGY retiand Hydrology in rimary Indicators (min Surface Water (A1 High Water Table Saturation (A3) Water Marks (B1) Sediment Deposits Drift Deposits (B3) Aigal Mat or Crust Iron Deposits (B5) Surface Soil Crack Inundation Visible Sparsely Vegetated eld Observations: Irface Water Present	timum of one re) (A2) (B2) (B4) s (B6) on Aerial Image d Concave Surf		Water-Stalr MLRA 1 Salt Crust (Aquatic Invo Hydrogen S Oxidized Rf Presence o Recent Iron Stunted or S Other (Expl	ed Leaves (, 2, 4A, and B11) ertebrates (E sulfide Odor nizospheres f Reduced ir Reduction i Stressed Pla ain in Rema	I 4 B) (C1) along Lir ron (C4) in Tilied S ants (D1) rks)	ving Roots Soils (C6) (LRR A)	(C3) F	Water-Staine 4 A, and 4 Drainage Pat Dry-Season V Saturation Vis Geomorphic I Shallow Aquit FAC-Neutral Raised Ant M	d Leaves (B9) (B) tems (B10) Vater Table (C2 sible on Aerial II Position (D2) ard (D3) Test (D5) ounds (D6) (LR	MLRA 1, 2, 2) magery (C9) RR A)
Petiand Hydrology ir rimary Indicators (mir Surface Water (A1 High Water Table Saturation (A3) Water Marks (B1) Sediment Deposits Drift Deposits (B3) Aigal Mat or Crust Iron Deposits (B5) Surface Soil Crack inundation Visible Sparsely Vegetated eld Observations: urface Water Present? aturation Present? aturation Present?	timum of one re) (A2) (B4) s (B6) on Aerial Image d Concave Surf ? Yes Yes Yes Pes	ery (B7)	Water-Stalr MLRA 1 Salt Crust (Aquatic Invo Hydrogen S Oxidized Rf Presence o Recent Iron Stunted or S Other (Expl Depth (inch Depth (inch	ed Leaves (, 2 , 4A , and B11) ertebrates (E fulfide Odor hizospheres f Reduced ir Reduction i Stressed Pla ain in Remaines): hes):	I 4 B) (C1) along Lir ron (C4) in Tilied s ants (D1) rks)	ving Roots Soils (C6) (LRR A) Wetland	(C3) F F F F	Water-Staine 4 A, and 4 Drainage Pat Dry-Season V Saturation Vis Geomorphic I Shallow Aquit FAC-Neutral Raised Ant M	d Leaves (B9) (B) tems (B10) Vater Table (C2 sible on Aerial II Position (D2) ard (D3) Test (D5) ounds (D6) (LR Hummocks (D?	MLRA 1, 2, 2) magery (C9) RR A)
Petiand Hydrology ir rimary Indicators (mir Surface Water (A1 High Water Table Saturation (A3) Water Marks (B1) Sediment Deposits Drift Deposits (B3) Aigal Mat or Crust Iron Deposits (B5) Surface Soil Crack inundation Visible Sparsely Vegetated eld Observations: urface Water Present? aturation Present? aturation Present?	timum of one re) (A2) (B4) s (B6) on Aerial Image d Concave Surf ? Yes Yes Yes Pes	ery (B7)	Water-Stalr MLRA 1 Salt Crust (Aquatic Invo Hydrogen S Oxidized Rf Presence o Recent Iron Stunted or S Other (Expl Depth (inch Depth (inch	ed Leaves (, 2 , 4A , and B11) ertebrates (E fulfide Odor hizospheres f Reduced ir Reduction i Stressed Pla ain in Remaines): hes):	I 4 B) (C1) along Lir ron (C4) in Tilied s ants (D1) rks)	ving Roots Soils (C6) (LRR A) Wetland	(C3) F F F F	Water-Staine 4 A, and 4 Drainage Pat Dry-Season V Saturation Vis Geomorphic I Shallow Aquit FAC-Neutral Raised Ant M Frost-Heave I	d Leaves (B9) (B) tems (B10) Vater Table (C2 sible on Aerial II Position (D2) ard (D3) Test (D5) ounds (D6) (LR Hummocks (D?	MLRA 1, 2, 2) magery (C9) RR A))
Provide a constraint of the second decoded decode	timum of one re) (A2) (B4) s (B6) on Aerial Image d Concave Surf ? Yes Yes Yes Pes	ery (B7)	Water-Stalr MLRA 1 Salt Crust (Aquatic Invo Hydrogen S Oxidized Rf Presence o Recent Iron Stunted or S Other (Expl Depth (inch Depth (inch	ed Leaves (, 2 , 4A , and B11) ertebrates (E fulfide Odor hizospheres f Reduced ir Reduction i Stressed Pla ain in Remaines): hes):	I 4 B) (C1) along Lir ron (C4) in Tilied s ants (D1) rks)	ving Roots Soils (C6) (LRR A) Wetland	(C3) F F F F	Water-Staine 4 A, and 4 Drainage Pat Dry-Season V Saturation Vis Geomorphic I Shallow Aquit FAC-Neutral Raised Ant M Frost-Heave I	d Leaves (B9) (B) tems (B10) Vater Table (C2 sible on Aerial II Position (D2) ard (D3) Test (D5) ounds (D6) (LR Hummocks (D?	MLRA 1, 2, 2) magery (C9) RR A))
A Description of the second description	timum of one re) (A2) (B4) s (B6) on Aerial Image d Concave Surf ? Yes Yes Yes Pes	ery (B7)	Water-Stalr MLRA 1 Salt Crust (Aquatic Invo Hydrogen S Oxidized Rf Presence o Recent Iron Stunted or S Other (Expl Depth (inch Depth (inch	ed Leaves (, 2 , 4A , and B11) ertebrates (E fulfide Odor hizospheres f Reduced ir Reduction i Stressed Pla ain in Remaines): hes):	I 4 B) (C1) along Lir ron (C4) in Tilied s ants (D1) rks)	ving Roots Soils (C6) (LRR A) Wetland	(C3) F F F F	Water-Staine 4 A, and 4 Drainage Pat Dry-Season V Saturation Vis Geomorphic I Shallow Aquit FAC-Neutral Raised Ant M Frost-Heave I	d Leaves (B9) (B) tems (B10) Vater Table (C2 sible on Aerial II Position (D2) ard (D3) Test (D5) ounds (D6) (LR Hummocks (D?	MLRA 1, 2, 2) magery (C9) RR A))
	timum of one re) (A2) (B4) s (B6) on Aerial Image d Concave Surf ? Yes Yes Yes Pes	ery (B7)	Water-Stalr MLRA 1 Salt Crust (Aquatic Invo Hydrogen S Oxidized Rf Presence o Recent Iron Stunted or S Other (Expl Depth (inch Depth (inch	ed Leaves (, 2 , 4A , and B11) ertebrates (E fulfide Odor hizospheres f Reduced ir Reduction i Stressed Pla ain in Remaines): hes):	I 4 B) (C1) along Lir ron (C4) in Tilied s ants (D1) rks)	ving Roots Soils (C6) (LRR A) Wetland	(C3) F F F F	Water-Staine 4 A, and 4 Drainage Pat Dry-Season V Saturation Vis Geomorphic I Shallow Aquit FAC-Neutral Raised Ant M Frost-Heave I	d Leaves (B9) (B) tems (B10) Vater Table (C2 sible on Aerial II Position (D2) ard (D3) Test (D5) ounds (D6) (LR Hummocks (D?	MLRA 1, 2, 2) magery (C9) RR A)
High Water Table Saturation (A3) Water Marks (B1) Sediment Deposits Drift Deposits (B3) Algal Mat or Crust Iron Deposits (B5) Surface Soil Crack Inundation Visible	timum of one re) (A2) (B4) s (B6) on Aerial Image d Concave Surf ? Yes Yes Yes Pes	ery (B7)	Water-Stalr MLRA 1 Salt Crust (Aquatic Invo Hydrogen S Oxidized Rf Presence o Recent Iron Stunted or S Other (Expl Depth (inch Depth (inch	ed Leaves (, 2 , 4A , and B11) ertebrates (E fulfide Odor hizospheres f Reduced ir Reduction i Stressed Pla ain in Remaines): hes):	I 4 B) (C1) along Lir ron (C4) in Tilied s ants (D1) rks)	ving Roots Soils (C6) (LRR A) Wetland	(C3) F F F F	Water-Staine 4 A, and 4 Drainage Pat Dry-Season V Saturation Vis Geomorphic I Shallow Aquit FAC-Neutral Raised Ant M Frost-Heave I	d Leaves (B9) (B) tems (B10) Vater Table (C2 sible on Aerial II Position (D2) ard (D3) Test (D5) ounds (D6) (LR Hummocks (D?	MLRA 1, 2, 2) magery (C9) RR A)

and the Million and the second

2. 340

Project/Site: CRVF	City	County: Skast		Sampling Date: 22 Jan 2013
0 11 0/0				Sampling Point: 5P-D15
Investigator(s): Plamidi B Kidder	Sec	tion, Township, Range:	Section 3	1,35N12E
Landform (hillsiope, terrace, etc.):	Loc	al relief (concave, conve	ex, none):	Siope (%): 0-3
Subregion (LRR):	Lat:	Lor	ıg:	Datum: NAD 83
Soli Map Unit Name: Bow Gr. Lo	xam, 0-3	2 slores	NWi classifi	cation:PEM A
Are climatic / hydrologic conditions on the site typical	for this time of year?	Yes 🔟 No	_ (if no, expiain in f	Remarks.)
Are Vegetation, Soil, or Hydrology	significantiy dist	urbed? No Are "Norm	al Circumstances"	present? Yes No
Are Vegetation, Soii, or Hydrology	naturally probler	natic? No (If needed	i, expiain any answ	ers in Remarks.)
SUMMARY OF FINDINGS - Attach site	map showing sa	mpling point locat	ions, transect	s, important features, etc.
Hydrophytic Vegetation Present? Yes	No			
Hydric Soll Present? Yes	No	is the Sampled Area within a Wetland?	a Yes み	No
Wetiand Hydrology Present? Yes	No		Tes	· · · · · · · · · · · · · · · · · · ·

VEGETATION – Use scientific names of plants.

photos 51-54

Remarks:

1

	Absolute Do	minant Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <mark>I0 m</mark>)		ecies? <u>Status</u>	Number of Dominant Species
1			That Are OBL, FACW, or FAC: (A)
2			Total Number of Dominant
3			Species Across All Strata:
4			
· ····································			Percent of Dominant Species
Sapling/Shrub Stratum (Plot size: 5	<u> </u>	otal Cover	That Are OBL, FACW, or FAC: (A/B)
			Prevalence Index worksheet:
1			Total % Cover of: Multiply by:
2			OBL species6 x 1 ≈6
3			FACW species x 2 =
4			FAC species $\underline{, 90} \times 3 = \underline{270}$
5			
	<u> </u>	otal Cover	FACU species $x = 60$
Herb Stratum (Plot size: <u>2</u> m)	Contraction of the		
1. Cynosurus cristatus	15	FACU	Column Totals: (A) (B)
2. Initalium repens	15	FAC	Developed Index - Dia - 2.14
3. Agrostis apillacis		J FAC	Prevalence index = B/A =
4. Festuca acundinacea		FAC	Hydrophytic Vegetation Indicators:
			1 - Rapid Test for Hydrophytic Vegetation
5			✓ 2 - Dominance Test is >50%
6			3 - Prevalence index is ≤3.0 ¹
7			4 - Morphological Adaptations ¹ (Provide supporting
8			data in Remarks or on a separate sheet)
9			5 - Wetland Non-Vascular Plants ¹
			Problematic Hydrophytic Vegetation ¹ (Explain)
10			¹ Indicators of hydric soil and wetland hydrology must
11			be present, unless disturbed or problematic.
Mandu Mine Cheshum (Dist sizes 2	<u>105</u> = To	otal Cover	
Woody Vine Stratum (Plot size: 2 m)			
1			Hydrophytic
2			Vegetation Present? Yes V No
	= To	otal Cover	Present? Yes <u>V</u> No
% Bare Ground in Herb Stratum0			
Remarks:			
grazed			

SOIL								s	ampling Point: 🏒	-015
Profile Des	cription: (Describe	to the dept	h needed to docur	nent the	Indicator	or confirm	the absence	of indicate	ors.)	
Depth	Matrix			x Feature						
(inches)	Color (moist)	%	Color (moist)	%		Loc ²	<u>Texture</u>		Remarks	2
0-10	10 R 3/1.5	<u>-97</u>	10YR4/4	3	٢	MP	loam	l	0 % gravel	
						1				
10-16	545/1.5	90	10YR4/4	10	C	M	coalse sandy	long	5°6 anavel	
10 10				6 <u> </u>			lear	ny sand	x yraxes	
		·			_					<u> </u>
	·			-						
		· <u></u> -				<u></u>				·· <u> </u>
¹ Type: C=C	oncentration, D=Dep	ietion, RM=	Reduced Matrix, CS	S=Covere	d or Coate	ed Sand Gr	ains. ² Loo	cation: PL=	Pore Lining, M=M	atrix.
	Indicators: (Applic							rs for Prot	piematic Hydric S	olis ³ :
Histosol	(A1)	-	Sandy Redox (S	S5)				n Muck (A1	•	
	oipedon (A2)	-	Stripped Matrix						terial (TF2)	
Black Hi		-	Loamy Mucky N			t MLRA 1)			ark Surface (TF12)
	en Sulfide (A4) d Below Dark Surfac	- / 6 4 4 1	Loamy Gleyed I	-	2)			er (Explain	in Remarks)	
	ark Surface (A12)	# (ATT)	Medox Dark Su		3		³ Indicate	ors of hydro	phytic vegetation a	ind
	fucky Mineral (S1)	-	Depleted Dark \$	•	•			-	gy must be present	
	Bieyed Matrix (S4)	-	Redox Depress		•			•	or problematic.	
Restrictive	Layer (if present):									
Туре:	20								1	
Depth (inc	ches):						Hydric Soli	Present?	Yes 🔽 N	o
Remarks:					<u>1</u> 1		- k			
							э.			
HYDROLO	GY						<u>.</u>			
Wetland Hyd	drology Indicators:		12							
Primary Indic	ators (minimum of o	ne required;	check all that apply	y)			Seco	ndary Indica	ators (2 or more re-	<u>quired)</u>
Surface	Water (A1)		Water-Stai	ined Leav	ves (B9) (e	xcept	v	Vater-Staine	ed Leaves (B9) (Mi	LRA 1, 2,
🔀 High Wa	ter Table (A2)		MLRA	1, 2, 4A,	and 4B)			4 А, алd 4	\$B)	
🖌 Saturatio	on (A3)		Salt Crust	(B11)			Drainage Patterns (B10)			
Water M	arks (B1)		Aquatic Inv	vertebrat	es (B13)			•	Water Table (C2)	
	t Deposits (B2)		Hydrogen			9.52			isible on Aerial Ima	agery (C9)
	osits (B3)		X Oxidized F				• • •	-	Position (D2)	
-	t or Crust (B4)				•	•		hailow Aqu		
-	osits (B5)		Recent Iro				•	AC-Neutral		•
	Soil Cracks (B6)		Stunted or			1) (LRR A)			Nounds (D6) (LRR	A)
	on Visible on Aerial In Vegetated Concave				emarks)		r	rost-neave	Hummocks (D?)	
Field Observ		Surface (D								
Surface Wate			lo 🗾 Depth (ind	aboa).						8
					10					
Water Table I			o Depth (ind		R					• -
Saturation Pr (includes cap		es <u>V</u> N	o Depth (inc	cnes):	0		and Hydrolog	y Present?	Yes <u>v</u> r	io
	orded Data (stream	gauge, mor	nitoring well, aerial p	ohotos, p	revious ins	pections),	if available:			
Remarks:	8 K						. <u>.</u>			
Ģ										
- 14			57							

oject/Site: <u>Crude Pail</u> Unlocal plicant/Owner: <u>Shell Bik</u>	3 13	· · · · · · · · · · · · · · · · · · ·	state: <u>WA</u> Sampling D	oint: SP-DI
vestigator(s): _ Brian Flatcher, Paul	Hamid: Ser			
ndform (hillslope, terrace, etc.):			-	
I Map Unit Name: Bow grandly the	Lat:	Let .	_ Long:	
				5 MI
e climatic / hydrologic conditions on the site typical				
Vegetation, Soil, or Hydrology	significantly dist	urbed? Are	"Normal Circumstances" present? Ye	s _X No
Vegetation, Soll, or Hydrology	naturally problem	matic? (If ne	eeded, explain any answers in Remark	s.)
JMMARY OF FINDINGS – Attach site	map showing sa	mpling point l	locations, transects, importa	nt features, etc.
An Anton Present? Yes	(No			
lydric Soil Present? Yes	<u> </u>	is the Sampled within a Wetla		
Vetland Hydrology Present? Yes	<u>No</u>	within a wetla		
Photo 55,56 for 50.15, 57,58 f	w plat			
EGETATION – Use scientific names of	plants.			
ree Stratum (Plot size: 30	Absolute Do <u>% Cover</u> Sp	ominant Indicator	Dominance Test worksheet:	
			Number of Dominant Species That Are OBL, FACW, or FAC:	Z(A)
•	·			(A)
			Total Number of Dominant Species Across All Strata:	2 (B)
·				(2)
151	=1	Fotal Cover	Percent of Dominant Species That Are OBL, FACW, or FAC:	LOO (A/B)
apling/Shrub Stratum (Plot size: 15')		Prevalence Index worksheet:	
·			Total % Cover of:N	ultiply by:
•		<u> </u>	OBL speciesO x 1 =	0
•		<u> </u>	FACW species x 2 =	0
•			FAC species 70 x 3 =	
·	b = 1	Lotal Cover	FACU species x 4 =	<u> 40</u>
erb Stratum (Plot size: _5)			UPL species x 5 =	10.0
Agostis capillaris/stilonfera	60	K FAC	Column Totals:(A)	3.19 (B)
Fernica aundiraces		X FAC	Prevalence Index = B/A =	3.10
Cynosurus Cristatus		- FACU	Hydrophytic Vegetation Indicator	
Tratium ropens	<u> </u>	FAC	1 - Rapid Test for Hydrophytic V	egetation
		·	▲ 2 - Dominance Test is >50%	
•			3 - Prevalence index is ≤3.0 ¹	
•			4 - Morphological Adaptations	Provide supporting
•			data in Remarks or on a sep	
•			5 - Wetland Non-Vascular Plant	
0			Problematic Hydrophytic Vegeta	
			Indicators of hydric soil and wetland be present, unless disturbed or prob	
1		otai Cover		
1				
1				
1			Hydrophytic Vegetation	

SO	11	_
----	----	---

.

Profile Description: (Describe to the de	pth needed to docume	int the indica	tor or contirm	the absence	of indicators.)		
Depth <u>Matrix</u>		Features					
(inches) Color (moist) %	Color (moist)	<u>% Тур</u>		Texture	Remarks		
0-9 10 YK 71.5 9B	7.5 YR 44	<u> </u>	M/PL	loam			
9-16 5 × 5/15 75	16 Ye 5/6	20 C	M	SCL	gavel 52		
	·				.		
		on g	×	1			
~							
				6			
	·						
······································	· ···- ··· ··· ··· ··· ··· ··· ···						
¹ Type: C=Concentration, D=Depletion, RM			ated Sand Gra		ation: PL=Pore Lining, M=Matrix.		
Hydric Soli indicators: (Applicable to a	I LRRs, unless otherw	lse noted.)		indicato	rs for Problematic Hydric Solis ³ :		
Histosol (A1)	Sandy Redox (S5)		2 cm	Muck (A10)		
HIstic Epipedon (A2)	Stripped Matrix (S	•			Parent Material (TF2)		
Black Histic (A3)	Loamy Mucky Mir		ept MLRA 1)		Shallow Dark Surface (TF12)		
Hydrogen Sulfide (A4)	Loamy Gleyed Ma		22. C# I	Othe	r (Explain in Remarks)		
Depleted Below Dark Surface (A11)	Depleted Matrix (I	•		31116_			
Thick Dark Surface (A12) Sandy Mucky Mineral (S1)	Redox Dark Surfa	• •			rs of hydrophytic vegetation and nd hydrology must be present,		
Sandy Rideky Mineral (ST)	Redox Depression	• •			s disturbed or problematic.		
Restrictive Layer (if present):				[
Туре:							
Depth (inches):				Hydric Soli	Present? Yes 🗙 No		
Remarks:				riyane oon			
Remarks.							
					5		
HYDROLOGY							
Wetland Hydrology Indicators:							
Primary Indicators (minimum of one require	d: check all that apply)			Secon	dary Indicators (2 or more required)		
, Surface Water (A1)		d Leaves (B9	(avaant		ater-Stained Leaves (B9) (MLRA 1, 2,		
KHigh Water Table (A2)		2, 4A, and 48		**	4A, and 4B)		
X Saturations(A3)	Salt Crust (B		'	0			
Water Marks (B1)	N2	rtebrates (B13	1000 C	Drainage Patterns (B10)			
-				D	N-Season Water Table (C2)		
Drift Deposits (B3)	Sediment Deposits (B2) Hydrogen Sulfide Odor (C1)						
)	Sa	y-Season Water Table (C2) aturation Visible on Aerial Imagery (C9)		
	🖌 Oxidized Rhi	zospheres alo) ng Living Root	Sa s (C3) G	aturation Visible on Aerial Imagery (C9) eomorphic Position (D2)		
Algal Mat or Crust (B4)	Oxidized Rhi Presence of	zospheres alo Reduced Iron) ng Living Root (C4)	Sa s (C3) Ga Si	aturation Visible on Aerial Imagery (C9) eomorphic Position (D2) nallow Aquitard (D3)		
Algal Mat or Crust (B4) Iron Deposits (B5)	Oxidized Rhi Oxidized Rhi Presence of Recent Iron I	zospheres alo Reduced Iron Reduction in T) ng Living Root (C4) illed Soils (C6)	Sa s (C3) Ga Si F/	aturation Visible on Aerial Imagery (C9) eomorphic Position (D2) nallow Aquitard (D3) AC-Neutral Test (D5)		
 Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) 	Oxidized Rhi Oxidized Rhi Presence of Recent Iron Stunted or S	zospheres alo Reduced Iron Reduction in T tressed Plants) ng Living Root (C4) illed Soils (C6) (D1) (LRR A)	Sa s (C3) G Si F/ R	aturation Visible on Aerial Imagery (C9) eomorphic Position (D2) nallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A)		
 Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B 	Oxidized Rhi Oxidized Rhi Presence of Recent Iron Stunted or S Other (Expla	zospheres alo Reduced Iron Reduction in T) ng Living Root (C4) illed Soils (C6) (D1) (LRR A)	Sa s (C3) G Si F/ R	aturation Visible on Aerial Imagery (C9) eomorphic Position (D2) nallow Aquitard (D3) AC-Neutral Test (D5)		
 Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B Sparsely Vegetated Concave Surface 	Oxidized Rhi Oxidized Rhi Presence of Recent Iron Stunted or S Other (Expla	zospheres alo Reduced Iron Reduction in T tressed Plants) ng Living Root (C4) illed Soils (C6) (D1) (LRR A)	Sa s (C3) G Si F/ R	aturation Visible on Aerial Imagery (C9) eomorphic Position (D2) nallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A)		
 Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (E Sparsely Vegetated Concave Surface Fleid Observations: 	A Oxidized Rhi Presence of Recent Iron Stunted or S Other (Expla (B8)	zospheres alo Reduced iron Reduction in T tressed Plants in in Remarks) ng Living Root (C4) illed Soils (C6) (D1) (LRR A)	Sa s (C3) G Si F/ R	aturation Visible on Aerial Imagery (C9) eomorphic Position (D2) nallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A)		
Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (E Sparsely Vegetated Concave Surface Fleid Observations: Surface Water Present? Yes	A Oxidized Rhi Presence of Recent Iron I Stunted or S Other (Expla B8) No X Depth (inchese)	zospheres alo Reduced iron Reduction in T tressed Plants in in Remarks es):) ng Living Root (C4) illed Soils (C6) (D1) (LRR A)	Sa s (C3) G Si F/ R	aturation Visible on Aerial Imagery (C9) eomorphic Position (D2) nallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A)		
Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B Sparsely Vegetated Concave Surface Fleid Observations: Surface Water Present? Yes Yes Yes	A Oxidized Rhi Presence of Recent Iron I Stunted or S Other (Expla (B8) No Depth (inche	zospheres alo Reduced Iron Reduction in T tressed Plants in in Remarks es): es):) ng Living Root (C4) illed Soils (C6) (D1) (LRR A))	Sa s (C3) G SI F Ra Fr	aturation Visible on Aerial Imagery (C9) eomorphic Position (D2) nallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) ost-Heave Hummocks (D?)		
Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (E Sparsely Vegetated Concave Surface Fleid Observations: Surface Water Present? Yes Water Table Present? Yes Saturation Present? Yes	A Oxidized Rhi Presence of Recent Iron I Stunted or S Other (Expla B8) No X Depth (inchese)	zospheres alo Reduced Iron Reduction in T tressed Plants in in Remarks es): es):) ng Living Root (C4) illed Soils (C6) (D1) (LRR A))	Sa s (C3) G SI F Ra Fr	aturation Visible on Aerial Imagery (C9) eomorphic Position (D2) nallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A)		
Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B Sparsely Vegetated Concave Surface Fleid Observations: Surface Water Present? Yes Yes Yes	A Oxidized Rhi Presence of Recent Iron I Stunted or S Other (Expla B8) No Depth (inche No Depth (inche No Depth (inche	zospheres alo Reduced Iron Reduction in T tressed Plants in in Remarks es):) ng Living Root (C4) illed Soils (C6) (D1) (LRR A)) 	Sa s (C3) Ga Sl F/ Fr Fr 	aturation Visible on Aerial Imagery (C9) eomorphic Position (D2) nallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) ost-Heave Hummocks (D?)		
 Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B Sparsely Vegetated Concave Surface Fleid Observations: Surface Water Present? Yes Water Table Present? Yes Saturation Present? Yes (includes capillary fringe)	A Oxidized Rhi Presence of Recent Iron I Stunted or S Other (Expla B8) No Depth (inche No Depth (inche No Depth (inche	zospheres alo Reduced Iron Reduction in T tressed Plants in in Remarks es):) ng Living Root (C4) illed Soils (C6) (D1) (LRR A)) 	Sa s (C3) Ga Sl F/ Fr Fr 	aturation Visible on Aerial Imagery (C9) eomorphic Position (D2) nallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) ost-Heave Hummocks (D?)		
Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (E Sparsely Vegetated Concave Surface Field Observations: Surface Water Present? Yes Water Table Present? Yes Saturation Present? Yes (includes capillary fringe) Describe Recorded Data (stream gauge, m	A Oxidized Rhi Presence of Recent Iron I Stunted or S Other (Expla B8) No Depth (inche No Depth (inche No Depth (inche	zospheres alo Reduced Iron Reduction in T tressed Plants in in Remarks es):) ng Living Root (C4) illed Soils (C6) (D1) (LRR A)) 	Sa s (C3) Ga Sl F/ Fr Fr 	aturation Visible on Aerial Imagery (C9) eomorphic Position (D2) nallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) ost-Heave Hummocks (D?)		
 Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B Sparsely Vegetated Concave Surface Fleid Observations: Surface Water Present? Yes Water Table Present? Yes Saturation Present? Yes (includes capillary fringe)	A Oxidized Rhi Presence of Recent Iron I Stunted or S Other (Expla B8) No Depth (inche No Depth (inche No Depth (inche	zospheres alo Reduced Iron Reduction in T tressed Plants in in Remarks es):) ng Living Root (C4) illed Soils (C6) (D1) (LRR A)) 	Sa s (C3) Ga Sl F/ Fr Fr 	aturation Visible on Aerial Imagery (C9) eomorphic Position (D2) nallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) ost-Heave Hummocks (D?)		
Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (E Sparsely Vegetated Concave Surface Field Observations: Surface Water Present? Yes Water Table Present? Yes Saturation Present? Yes (includes capillary fringe) Describe Recorded Data (stream gauge, m	A Oxidized Rhi Presence of Recent Iron I Stunted or S Other (Expla B8) No Depth (inche No Depth (inche No Depth (inche	zospheres alo Reduced Iron Reduction in T tressed Plants in in Remarks es):) ng Living Root (C4) illed Soils (C6) (D1) (LRR A)) 	Sa s (C3) Ga Sl F/ Fr Fr 	aturation Visible on Aerial Imagery (C9) eomorphic Position (D2) nallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) ost-Heave Hummocks (D?)		
Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (E Sparsely Vegetated Concave Surface Field Observations: Surface Water Present? Yes Water Table Present? Yes Saturation Present? Yes (includes capillary fringe) Describe Recorded Data (stream gauge, m	A Oxidized Rhi Presence of Recent Iron I Stunted or S Other (Expla B8) No Depth (inche No Depth (inche No Depth (inche	zospheres alo Reduced iron Reduction in T tressed Plants in in Remarks es):) ng Living Root (C4) illed Soils (C6) (D1) (LRR A)) 	Sa s (C3) Ga Si F/ Fr fr f available:	aturation Visible on Aerial Imagery (C9) eomorphic Position (D2) nallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) ost-Heave Hummocks (D?)		

WETLAND DETERMINATION D	DATA FORM -	- Western Mou	ntains, Valleys, and Coast Region
project/site: Crude Rail Unlocaling 1	FACT Lity City	County:	Sampling Date: 1-22-1
Applicant/Owner: Shell PSF			State: WA Sampling Point: SP-D17
vestigator(s): Piltamidi, B. Lidde	<u> </u>	tion, Township, Ra	nge: Section 37, 35N, 26
			convex, none): <u>Conver</u> Slope (%): <u>2</u>
ubregion (LRR): A	Lat:		Long: Datum: NAD 8:
oil Map Unit Name: Bow Gr. Loan	1 0-32	5 slopes	NWI classification: UP land
re climatic / hydrologic conditions on the site typical for t			—
			'Normal Circumstances" present? Yes No
re Vegetation, Soli, or Hydrology			
-			ocations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes <u>+</u>			
Hydric Soil Present? Yes		Is the Sampled	Area
Wetland Hydrology Present? Yes		within a Wetlar	nd? Yes No
Remarks:			
Photo 59- soil 60	-62 - (plot	
EGETATION – Use scientific names of pla		ominant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 30')		becies? Status	Number of Dominant Species
1			That Are OBL, FACW, or FAC: (A)
2	<u> </u>		Total Number of Dominant
3			Species Across Ali Strata: (B)
4			Percent of Dominant Species
Sapling/Shrub Stratum (Plot size: 15')		Fotal Cover	That Are OBL, FACW, or FAC: (A/B)
1. CY+1505 Scoparius		UPL	Prevalence Index worksheet:
2. Mahonia aquifolium		FACU	
3	·····		OBL species Operation x 1 Operation x 2 = Operation Operation
4			FAC species $\underline{90} \times 3 = \underline{270}$
5	<u></u> -		FACU species 11 x 4 = 74
Herb Stratum (Plot size: 51)	<u> </u>	Total Cover	UPL species x 5 =O
1. Festuca avoidingera,	30	✓ FAC	Column Totals: 103 (A) 324 (B)
2. Aquostis stoloniting/cupil	KY15 60	V FAC	Prevalence index = B/A =
3. CYNOCUYUS Cristatus	10	FACU	Hydrophytic Vegetation Indicators:
4			1 - Rapid Test for Hydrophytic Vegetation
5			🗡 2 - Dominance Test is >50%
6			3 - Prevalence index is ≤3.0 ¹
7			4 - Morphological Adaptations ¹ (Provide supporting
8			data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹
9			Problematic Hydrophytic Vegetation ¹ (Explain)
10			¹ Indicators of hydric soil and wetland hydrology must
11	100 = T		be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 💋 🕵)	= I		
1			Hydrophytic
2			Vegetation
	_ <u>О_</u> =т	otal Cover	Present? Yes _ No
% Bare Ground in Herb Stratum			1
grazed			
0, , ,			

.

S	Ο	l	L

Sampling Point: <u>SP-01</u>7

	cription: (Describe	to the depth				or confirm	the absence	of Indicators.)
Depth	Color (moist)	%	Color (moist)	<u>Feature</u> %	s Type1	Loc ²		Remarks
(lnches)	164R 3/2			/0		<u> </u>	Lam	10 g Grade 2)
9-13*			7.54R414					
							Loam	102 cobble, 102 gravel
13-16	2,545/2	90 _	104R5/4	10	<u> </u>		<u>sl</u>	10 % granz 1
_								-
				<u>_</u>				
		·	· · · · · · · · · · · · · · · · · · ·		<u> </u>		6	
	·	, <u></u>	······································					
		, <u> </u>						
	oncentration, D=Dep Indicators: (Applic					d Sand Gra		cation: PL=Pore Lining, M=Matrix. prs for Problematic Hydric Solis ³ :
Histosol					ad.)			-
	bipedon (A2)	_	_ Sandy Redox (S _ Stripped Matrix (•				n Muck (A10) I Parent Material (TF2)
Biack Hi	• • •	_	_ Loamy Mucky M	• •) (except	MLRA 1)		y Shallow Dark Surface (TF12)
	n Suifide (A4)	_	_ Loamy Gleyed N	-		,		er (Explain in Remarks)
Depleted	d Below Dark Surface	∍ (A11) 📃	_ Depleted Matrix	•	•			
	ark Surface (A12)	_	_ Redox Dark Sur	face (F6)			³ indicato	ors of hydrophytic vegetation and
	lucky Mineral (S1)	_	_ Depieted Dark S	•	7)			nd hydrology must be present,
	Bieyed Matrix (S4)		_ Redox Depressi	ons (F8)			unles	s disturbed or problematic.
	Layer (If present):							
Type:			_				Uudele Coll	Brananta Van Na X
Depth (ind Remarks:							Hydric Soll	Present? Yes No <u>*</u>
			<i>с</i>			8	1. 1	· · · · · · · · · · · · · · · · · · ·
	1-13 15	9 60	vn lage	$\vee \omega$	Ked	otic	21270	soils in hait
c	of lager,	with	Charloc		ed co	boxs	are n	soils in half of redox freetures,
L	0 1							
HYDROLO	GY							
Wetland Hyd	irology indicators:							
Primary Indic	ators (minimum of o	ne required; o	check all that apply)			Secor	ndary Indicators (2 or more required)
Surface	Water (A1)		Water-Stair	ned Leave	es (B9) (ex	cept		/ater-Stained Leaves (B9) (MLRA 1, 2,
High Wa	ter Table (A2)		MLRA 1	, 2, 4A, a	nd 4B)			4A, and 4B)
Saturatio	on (A3)		Salt Crust (B11)				rainage Pattems (B10)
Water Ma	arks (B1)		Aquatic Inv	ertebrate	s (B13)		D	ry-Season Water Tabie (C2)
Sedimen	t Deposits (B2)		Hydrogen S	Suifide Oc	lor (C1)		s	aturation Visible on Aerial Imagery (C9)
Drift Dep	osits (B3)		Oxldized RI	hizosphei	es along L	iving Root	ts (C3) G	eomorphic Position (D2)
	t or Crust (B4)		Presence o					hallow Aquitard (D3)
	osits (B5)		Recent Iron					AC-Neutral Test (D5)
	Soil Cracks (B6)		Stunted or Stunted or Stunded Strength Stren) (LRR A)		aised Ant Mounds (D6) (LRR A)
	on Visible on Aerial Ir		Other (Expl	ain in Re	marks)		Fi	rost-Heave Hummocks (D?)
	Vegetated Concave	Surface (B8))					
Field Observ			*					
Surface Wate	er Present? Ye	35 NO	$-\frac{1}{1}$ Depth (include) $-\frac{1}{1}$ Depth (include)	hes):		-		
Water Table I	Present? Ye	s No	Depth (incl	hes):		-		\checkmark
Saturation Pro (includes capital)		sNo	Depth (incl	hes):		_ Wetla	and Hydrolog	y Present? Yes No <u>X</u>
	orded Data (stream	gauge, monit	toring well, aerial p	hotos, pre	evious insp	pections), in	f available:	
Remarks:								
-								
		no and	Hand hyde	alvan	inde	itors a	regent	2
10		,-0 NV	J	- 17		- (-	
	(<u>*</u>)							1 BO

20. . .

WEILAND DETERMINATION DA				•	•	
Project/site: Crude Rail Unloading 1	Facility c	ity/County:	sk	agit	Sampling Date: 22 0	an 2013
Applicant/Owner: Shell PSR U		-		State: WA	Sampling Point:	0118
investigator(s): P Hamidi & Kidder	S	ection, Tov	vnship, Ra	nge: Section 34	35N125	
Landform (hillslope, terrace, etc.):	L	ocal relief	(concave, d	convex, none):	Slope (%)	0-3
Subregion (LRR):	Lat:			Long:	Datum: 📈	AD 83
Subregion (LRR): <u>A</u> Soil Map Unit Name: <u>Bow</u> <u>GY</u> , <u>Logm</u> , <u>G</u>	-385	5 lopes		NWI classifica	ation: <u>PEMA</u>	4 4
Are cilmatic / hydrologic conditions on the site typical for thi	s time of year	? Yes 🗾	No	(If no, explain in Re	emarks.)	
Are Vegetation, Soil, or Hydrology	significantly dl	sturbed?	🖌 Are "	Normai Circumstances" p	resent? Yes 🗾 N	lo
Are Vegetation, Soli, or Hydrology	naturaliy probi	ematic?	N (if ne	eded, explain any answer	s in Remarks.)	
SUMMARY OF FINDINGS - Attach site map	showing s	ampling	g point le	ocations, transects,	important feature	es, etc.
Hydrophytic Vegetation Present? Yes N	lo					
• • • •	lo		a Sampled		No	
	lo	WITH	n a wetiar	ld? Yes_√_	NO	
Remarks: photos 63-64 soils						
65-67 plat						
VEGETATION - Use scientific names of plan	its.					
Tree Stratum (Plot size: 10 m)		Dominant		Dominance Test works	sheet:	
1	<u>% Cover</u>	Species r	Status	Number of Dominant Sp That Are OBL, FACW, o		(A)
2		<u>.</u>		3		
3				Total Number of Domina Species Across All Strat	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	(B)
4				Percent of Dominant Sp		
Sapling/Shrub Stratum (Piot size: 5,,)	0	Total Cov	/er	That Are OBL, FACW, o		(A/B)
1				Prevalence index work		
2				<u> </u>		-
3				FACW species		-
4		<u>.</u>		FAC species		-
5	=	T -1-1 0	.	FACU species	0x4=0	_
Herb Stratum (Plot size:2)	=	Total Cov	er	UPL species	x 5 =	_
1. Holeus lanatus	60		FAC	Column Totals:	(A) <u>300</u>	_ (B)
2. Festuca arundinacea	15		FAC	Prevalence index	= B/A = <u>3.00</u>	_
3. Agrostis capillaris	25		FAC	Hydrophytic Vegetatio		
4		<u> </u>			ydrophytic Vegetation	
5 6	·			2 - Dominance Test 3 - Prevalence Inde		
7					x is ≤3.0 daptations¹ (Provide sur	porting

7		4 - Morphological Adaptations ¹ (Provide supportindata in Remarks or on a separate sheet)
9		5 - Wetland Non-Vascular Plants
10		Problematic Hydrophytic Vegetation ¹ (Explain)
11	/00 = Total Cover	 Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
<u>Woody Vine Stratum</u> (Plot size: <u>5</u> ,) 1		- Hydrophytic
2	= Total Cover	_ Vegetation Present? Yes <u>√</u> No
% Bare Ground in Herb Stratum0		
Remarks: periodically grazed		

so	l	L
----	---	---

Sampling Point: SP-D(8

Profile Desc	cription: (Describe	e to the dept	h needed to docum	nent the	Indicator	or confirm	the absence	of indicators.)
Depth	Matrix			x Feature		<u> </u>	-	Barrata
(iriches)	Color (moist)	%	Color (moist)	%	<u>Type¹</u>	_Loc ²	Texture	Remarks
					·		2.84	
0-8	IOYR3/1	100					loam	10% gravel
· .								
8-16	1045/1	90	IOYRS/6	10	C	M	clay loam	
			1014010	<u> </u>	0		City Tourn	
				<u> </u>	·			
				. <u></u>				
	• • • • • • • • • • • • •							
17 0 0							21	
			Reduced Matrix, CS .RRs, uniess other			d Sand Gr		ation: PL=Pore Lining, M=Matrix. rs for Problematic Hydric Solls ³ :
-					eu.)			•
Histosoi	• •	-	Sandy Redox (S	•				n Muck (A10)
	bipedon (A2)	-	Stripped Matrix	• •	4) / - -			Parent Material (TF2)
Black His	n Suifide (A4)	1	Loamy Mucky M			MLKA 1)		/ Shallow Dark Surface (TF12) er (Explain in Remarks)
	Below Dark Surfac	το (Δ11)	Depleted Matrix	•	,			
	rk Surface (A12)		Redox Dark Sur	• •			³ Indicato	rs of hydrophytic vegetation and
	lucky Mineral (S1)	-	Depieted Dark S	• • •				nd hydrology must be present,
	leyed Matrix (S4)	-	Redox Depressi		• ,			s disturbed or problematic.
	ayer (if present):						1	
Type:		145						
Depth (inc	0						Hydric Soli	Present? Yes 🗸 No
Remarks:								
Remarks.								
1								
HYDROLOG	3Y							1
	21.549							
-	rology Indicators						-	
		one required;	check all that apply					dary Indicators (2 or more required)
	Water (A1)		Water-Stair			xcept	w	ater-Stained Leaves (89) (MLRA 1, 2,
	er Table (A2)			l, 2, 4A, a	and 48)			4A, and 4B)
👔 🚰 Saturatio			Salt Crust (·, ·				rainage Patterns (B10)
Water Ma	arks (B1)		Aquatic Inv	ertebrate	s (B13)		Di	ry-Season Water Table (C2)
Sediment	t Deposits (B2)		Hydrogen S	Sulfide Oc	dor (C1)		Sa	aturation Visible on Aerial Imagery (C9)
Drift Dep	osits (B3)		Oxidized R	hizosphe	res along i	Living Root	ts (C3) 🕂 G	eomorphic Position (D2)
Algal Mat	t or Crust (B4)		Presence of the second seco	of Reduce	d Iron (C4	•)	<u>_</u> si	hallow Aquitard (D3)
Iron Depo	osits (B5)		Recent Iror	n Reductio	on in Tilleo	d Soils (C6) F/	AC-Neutral Test (D5)
Surface S	Soil Cracks (B6)		Stunted or	Stressed	Plants (D	1) (LRR A)) R:	aised Ant Mounds (D6) (LRR A)
Inundatio	n Visible on Aerial	Imagery (B7)	Other (Exp	lain in Re	marks)		Fr	rost-Heave Hummocks (D?)
Sparsely	Vegetated Concav	e Surface (B	8)					
Field Observ	ations:							
Surface Wate	r Present?	'es 🤳 N	o Depth (inc	hes): 0-	1 inch	about	10 feet or	th of soil pit
Water Table F	Present?		o Depth (inc	hes) [,]	4	-		
Saturation Pre			o Depth (inc		2			y Present? Yes <u>√</u> No
(includes capi		es <u> </u>	o Debru (inc	nes):				Presentr res No
		gauge, mon	itoring well, aerial p	hotos, pri	evious ins	pections), i	if available:	
Remarks:								
2								
-3								

.

WEILAND DETE	RMINATION DATA FORM -	- Western Mountains, V	Valleys, and Coast	Region
Project/Site: Crude Rail	Unloading Facility			
Applicant/Owner: Shall P		Sta		
investigator(s): Piltamidi	B. Kidder Sec	tion, Township, Range:	Sector 34, 35%	J. 2.E
Landform (hliisiope, terrace, etc.):				
Subregion (LRR):A	Lat:	Long:		Datum: Datum:
soil Map Unit Name: <u>Bow</u>	Gr. LOam, 0-3	50 Slopes	_ NWi classification:	upland
Are climatic / hydrologic conditions on ti	ne site typical for this time of year?	Yes <u>*</u> No (if r	no, explain in Remarks.)	
Are Vegetation, Soil, or	Hydrology significantly dist	urbed? N Are "Normal Ci	rcumstances" present?	Yes <u>'X</u> No
Are Vegetation, Soil, or	Hydrology naturally probler	natic? N (If needed, exp	iain any answers in Rem	arks.)
SUMMARY OF FINDINGS - A	ttach site map showing sa	mpling point locations	s, transects, impor	tant features, etc.
Hydrophytic Vegetation Present?	Yes <u>'X</u> No			
Hydric Soil Present?	Yes No X	is the Sampled Area		v
Wetland Hydrology Present?	Yes NoX	within a Wetland?	Yes No	<u> </u>
Remarks:				

.

VEGETATION – Use scientific names of plants.

11

Tree Stratum (Plot size: 10 m)	Absolute % Cover	Dominant Indicator Species? Status	Dominance Test worksheet:
<u>1.</u>			Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2			Total Number of Dominant
3			Species Across All Strata: (B)
4	0	= Total Cover	Percent of Dominant Species
Sapling/Shrub Stratum (Plot size: <u>5 ल</u>)			That Are OBL, FACW, or FAC: _/00 (A/B)
1			Prevalence Index worksheet:
2			Total % Cover of: Multiply by:
3			OBL species FACW species O x 1 = x = 0 x 2 = 0
4			
5			
2	0	= Total Cover	
Herb Stratum (Plot size: 2 m)		1	
1. Agrostis capillacis	- 72	V FAC	Column Totals: (30) (A) (30) (B)
2. Festuca arundinacea	- 15	FAC	Prevalence Index = $B/A = 3.13$
3. Vicia ratina americana		FAC	Hydrophytic Vegetation Indicators:
4. <u>Cynosurus cristata</u>	10	FACU	1 - Rapid Test for Hydrophytic Vegetation
5			
6			3 - Prevalence Index is ≤3.0 ¹
7			4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
8			5 - Wetland Non-Vascular Plants ¹
9			Problematic Hydrophytic Vegetation ¹ (Explain)
10			¹ Indicators of hydric soil and wetland hydrology must
11	100	= Total Cover	be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 2 m)	100	= Total Cover	
1			Hydrophytic
2			Vegetation Present? Yes Y No
% Bare Ground in Herb Stratum	0	= Totai Cover	Present? Yes <u>Y</u> No
Created activitiently - rememb	t enn	in back to 8	in 10 in tall before winter storms
Graceo periodically sound	7	··· ···	

Depth	Matrix		oth needed to docu	ox Feature				
(inches)	Coior (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-7		2 100					Lam	102 green (
7-16	7,54R 4/	4 100		-			LOgm	102 greatel, Charcoal
. T	• • • • •		3	_	3			
	- <u></u>		······				·····	
<u></u>		,,	<u> </u>					······································
						<u> </u>		
¹ Type: C=C	oncentration, D=De	epletion, RM	=Reduced Matrix, C	S=Covered	d or Coate	d Sand Gra	ains. ² Loc	ation: PL=Pore Lining, M=Matrix.
			LRRs, unless othe					rs for Problematic Hydric Solis ³ :
Histosoi	(A1)	1	Sandy Redox ((S5)		<u>.</u>	2 cm	n Muck (A10)
Histic E	plpedon (A2)		Stripped Matrix	(S6)				Parent Materiai (TF2)
Biack Hi		h	Loamy Mucky	•		MLRA 1)	- •	Shallow Dark Surface (TF12)
	en Sulfide (A4)		Loamy Gleyed	•)		Othe	er (Explain in Remarks)
	d Below Dark Surfa ark Surface (A12)	ICE (A11)	Depleted Matri	• •			³ Indianta	rs of hydrophytic vegetation and
	lucky Mineral (S1)		Redox Dark Su					nd hydrology must be present,
	Gleyed Matrix (S4)		Redox Depress	•	• ,			s disturbed or problematic.
	Layer (If present):		- <u></u>	<u>```</u>				·····
Туре:								D.4
Depth (in	ches):						Hydric Soll	Present? Yes No
Remarks:							1	
HYDROLO								
-	drology indicators		· · · · · · · ·					
		one require	<u>d; check all that app</u>					dary Indicators (2 or more required)
	Water (A1)			ined Leave	• • •	ccept	w	ater-Stained Leaves (B9) (MLRA 1, 2,
	ter Table (A2)			1, 2, 4A, a	ind 4B)		_	4A, and 4B)
Saturatio			Sait Crust	S				rainage Patterns (B10)
	arks (B1)			vertebrates				ry-Season Water Table (C2)
	t Deposits (B2)		Hydrogen		· · · · · · · · · · · · · · · · · · ·			aturation Visible on Aerial Imagery (C9)
	oosits (B3)			Rhizospher		-		eomorphic Position (D2)
	it or Crust (B4) osits (B5)			of Reduce	•			hallow Aquitard (D3)
	Soil Cracks (B6)		—			• •		AC-Neutral Test (D5)
	on Visible on Aerial	imaganı /P		r Stressed plain in Rei		(LRR A)		aised Ant Mounds (D6) (LRR A) rost-Heave Hummocks (D?)
	Vegetated Concav			piain in Rei	marks)			ost-neave hummocks (D?)
Field Observ								
Surface Wate		Vac	No <u>/-</u> Depth (in	choc);	1. Con 1. C			
Water Table					17	-		
			No Depth (in		16	-		/ Present? Yes No 🔀
Saturation Pr (includes cap		res_/~	No Depth (in	cnes):		_ wetla	ina nyarology	/ Present? Yes No X
		n gauge, mo	onitoring well, aerial	photos, pre	evious insp	pections), i	f available:	
Remarks:	<u> </u>							
Ξ.								
•	1.0		· · · ·					

Project/Site: <u>Crude</u> Rail Applicant/Owner: <u>Shell</u>	RJ		Sta	ite: <u>WA</u> Sam	pling Point: <u>\$-02</u>	12013 0
Investigator(s): J. Walker	B. Fletcher	Sectl	on, Township, Range:	Section 37	35N 20	
Landform (hillslope, terrace, etc.):	terrace	Loca	l rellef (concave, convex, no	ne): Convex	Slope (%): <u>3</u>	
Subregion (LRR):	·	Lat:	Long:		Datum: NAD	33
Soli Map Unit Name:	welly loan, 0+	to 3 percent	t slopes:	_ NWI classification:	Upland	
Are climatic / hydrologic conditions o						
Are Vegetation, Soll,	or Hydrology sig	nificantly distur	bed? Are "Normal Ci	rcumstances" preser	nt? Yes 📈 No _	
Are Vegetation, Soll,	or Hydrology na	turally problem	atic? (If needed, exp	olain any answers in i	Remarks.)	
SUMMARY OF FINDINGS -	Attach site map s	howing san	pling point location	s, transects, im	portant features, et	ic.
Hydrophytic Vegetation Present?	Yes No	<u>_X</u>				
Hydric Soll Present?	Yes No		Is the Sampled Area	Yes		
Wetiand Hydrology Present?	Yes No	<u> </u>	within a Wetland?	res	NO <u>~</u>	
Remarks:						
						1

VEGETATION – Use scientific names of plants.

	Absolute Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 30)	% Cover Species? Status	Number of Dominant Species
1 Bendekuge renziesi	95 X FACU	That Are OBL, FACW, or FAC: (A)
2. Alour 69ra	10 Fac	Total Number of Dominant
3.		Species Across All Strata: (B)
S		
4	IOT = Total Cover	Percent of Dominant Species 46 (A/B)
Septime/Shrub Stratum (Plot size: 15)		That Are OBL, FACW, or FAC:(O (A/B)
Sapling/Shrub Stratum (Plot size: 15) 1. Symphonicano s albus	20 X FACU	Prevalence Index worksheet:
1	30 × FACU	Total % Cover of: Multiply by:
2. Mahania aquitetium		OBL species O x 1 = O
3. Kasa gymnocarpa	5 FACU	FACW species 0 x 2 = 0
4		FAC species $35 \times 3 = 105$
5		
	55 = Total Cover	
Herb Stratum (Plot size:)		
1. Halley lanatus	<u>S X FAC</u>	Column Totals:(A)(A)(B)
2. Polystichum munitum	FACU	Prevalence Index = B/A = <u>3.97</u>
3. Agrostis staldinkera	20 × FAC	Hydrophytic Vegetation indicators:
	T UPLK	1 - Rapid Test for Hydrophytic Vegetation
5		2 - Dominance Test is >50%
		3 - Prevalence Index is ≤3.0 ¹
6		
7		4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
8		5 - Wetland Non-Vascular Plants ¹
9		Problematic Hydrophytlc Vegetation ¹ (Explain)
10		¹ Indicators of hydric soil and wetland hydrology must
11		be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 5)	25 = Total Cover	
1		Hydrophytic
2		Vegetation Present? Yes <u>No X</u>
75	Total Cover	
% Bare Ground in Herb Stratum75		l
Remarks:		

								Sampling Point: 5-010
Profile Desc	ription: (Describe t	o the depth	needed to docum	ent the i	ndicator	or confirm	the absence of	
Depth	Matrix			Feature		<u> </u>	— .	
(Inches)	<u>Color (moist)</u>	%	Color (molst)	%	Type ¹	Loc ²	Texture	Remarks
0-5	107R3/2	100_	······		<u> </u>		_Loam	
5-14	<u>5 YR 3/4</u>	<u>_100</u> _					loan.	
14-18	10 YR Ve	<u>-67</u>	104R416		<u> </u>	<u> </u>	afin.	10 % charcal
	<u> </u>		57R 314	5	<u>د</u>	<u>m</u>		
			· · · · · · · · · · · · · · · · · · ·					· · · · · · · · · · · · · · · · · · ·
							·	
							. 2.	
	ncentration, D=Deple ndicators: (Appiical					d Sand Gra		tion: PL=Pore Lining, M≃Matrix. s for Problematic Hydric Solls ³ :
Histosol		5.0 to all 2.	_ Sandy Redox (St		., .,			Muck (A10)
	ipedon (A2)	_	Stripped Matrix (•				Parent Material (TF2)
Black His		_	_ Loamy Mucky MI	•) (except	MLRA 1)		Shallow Dark Surface (TF12)
	n Sulfide (A4)	–	_ Loamy Gleyed M)		Other	(Explain In Remarks)
	Below Dark Surface rk Surface (A12)	(A11) _	_ Depleted Matrix (31	
	ucky Mineral (S1)	_	_ Redox Dark Surface _ Depleted Dark St		7)			s of hydrophytic vegetation and d hydrology must be present,
	leyed Matrix (S4)		_ Redox Depressio	•	• /			disturbed or problematic.
	ayer (if present):		ĸ				<u> </u>	
Туре:								
Depth (incl	hes):	 .					Hydric Soli F	Present? Yes No <u>X</u>
Remarks:	·			51			A	
	m	. hydric	suil katur	_S p/2	Xn			
HYDROLOG	ΞY							
Wetland Hyd	rology Indicators:							
-		e required; o	check all that apply)				<u>Second</u>	ary indicators (2 or more required)
Primary Indica	rology Indicators: ators (minimum of one Vater (A1)	a required; o	check all that apply) Water-Stain		es (B9) (ex	cept		lary Indicators (2 or more required) Iter-Stained Leaves (B9) (MLRA 1, 2,
Primary Indica Surface V High Wate	rology Indicators: ators (minimum of one Vater (A1) er Table (A2)	<u>e required; (</u>	Water-Stain MLRA 1,	ed Leave 2, 4 A , a		cept	Wa	
Primary Indica Surface V High Wate Saturation	rology Indicators: ators (minimum of one Vater (A1) er Table (A2) n (A3)	a required; o	Water-Stain MLRA 1, Sait Crust (E	ed Leave 2, 4A, a 311)	nd 4B)	cept	Wa	ter-Stained Leaves (B9) (MLRA 1, 2, 4 A, and 4B) ainage Patterns (B10)
Primary Indica Surface V High Wate Saturation Water Ma	rology Indicators: ators (minimum of one Vater (A1) er Table (A2) n (A3) ırks (B1)	<u>ə required; (</u>	Water-Stain MLRA 1, Salt Crust (E Aquatic Inve	ed Leave 2, 4A, a 311) rtebrates	nd 4B) ; (B13)	cept	Wa Dra Drg	ter-Stained Leaves (B9) (MLRA 1, 2, 4 A, and 4B) ainage Patterns (B10) ⁄-Season Water Table (C2)
Primary Indica Surface V High Wate Saturation Water Ma Sediment	rology Indicators: ators (minImum of one Vater (A1) er Table (A2) n (A3) rks (B1) Deposits (B2)	<u>ə required; (</u>	Water-Stain MLRA 1, Salt Crust (E Aquatic Inve	ed Leave 2, 4A, a 311) rtebrates ulfide Od	nd 4B) s (B13) or (C1)		Wa Dra Drg Sa	ter-Stained Leaves (B9) (MLRA 1, 2, 4 A, and 4B) ainage Patterns (B10) A-Season Water Table (C2) turation Visible on Aerial Imagery (C9)
Primary Indica Surface V High Wate Saturation Water Ma Sediment Drift Depo	rology Indicators: ators (minimum of one Vater (A1) er Table (A2) n (A3) rks (B1) Deposits (B2) osits (B3)	a required; c	Water-Stain MLRA 1, Salt Crust (E Aquatic Inve Hydrogen Si Oxidized Rh	ed Leave 2, 4A, a 311) rtebrates ulfide Od izospher	nd 4B) s (B13) or (C1) es along L	iving Root	Wa Dra Sa as (C3) Ge	ter-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) ainage Patterns (B10) 7-Season Water Table (C2) turation Visible on Aerial Imagery (C9) omorphic Position (D2)
Primary Indica Surface V High Wate Saturation Water Ma Sediment Drift Depo Algal Mat	rology Indicators: ators (minimum of one Vater (A1) er Table (A2) n (A3) rks (B1) Deposits (B2) osits (B3) or Crust (B4)	a required; d	Water-Stain MLRA 1, Salt Crust (E Aquatic Inve Hydrogen St Oxidized Rh Presence of	ed Leave 2, 4A, a 311) Intebrates ulfide Od izospher Reduced	nd 4B) s (B13) or (C1) es along L d Iron (C4)	iving Root	Wa Dra Sa (C3) Ge Sh	ter-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) ainage Patterns (B10) A-Season Water Table (C2) turation Visible on Aerial Imagery (C9) omorphic Position (D2) allow Aquitard (D3)
Primary Indica Surface V High Wate Saturation Water Ma Sediment Drift Depo Alga! Mat Iron Depo	rology Indicators: ators (minimum of one Vater (A1) er Table (A2) n (A3) rks (B1) Deposits (B2) osits (B3) or Crust (B4)	<u>a required; (</u>	Water-Stain MLRA 1, Salt Crust (E Aquatic Inve Hydrogen Si Oxidized Rh Presence of Recent Iron	ed Leave 2, 4A, a 311) rtebrates ulfide Od izospher Reduced Reductio	nd 4B) s (B13) or (C1) es along L d Iron (C4) on in Tilled	iving Root) Soils (C6)	Wa Dra Sa Sa (C3) Ge Sh) FA	ter-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) ainage Patterns (B10) <i>r</i> -Season Water Table (C2) turation Visible on Aerial Imagery (C9) omorphic Position (D2) allow Aquitard (D3) C-Neutral Test (D5)
Primary Indica Surface V High Wate Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Surface S	rology Indicators: ators (minimum of one Vater (A1) er Table (A2) n (A3) rks (B1) Deposits (B2) osits (B3) or Crust (B4) esits (B5)		Water-Stain MLRA 1, Salt Crust (E Aquatic Inve Hydrogen St Oxidized Rh Presence of	ed Leave 2, 4A, a 311) Intebrates Intebrates Intebrates Intebrates Intebrates Intebrates Intebrates Internationalistinto International International International Interna	nd 4B) or (C1) es along L d Iron (C4) n in Tilled Plants (D1	iving Root) Soils (C6)	Wa Dra Sa (C3) Ge Sh FA Ra	ter-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) ainage Patterns (B10) A-Season Water Table (C2) turation Visible on Aerial Imagery (C9) omorphic Position (D2) allow Aquitard (D3)
Primary Indica Surface V High Wate Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Surface S Inundation	rology Indicators: ators (minimum of one Vater (A1) er Table (A2) n (A3) rks (B1) Deposits (B2) osits (B3) or Crust (B4) esits (B5) coil Cracks (B6)	agery (B7)	Water-Stain MLRA 1, Salt Crust (E Aquatic Inve Hydrogen Si Oxidized Rh Presence of Recent Iron Stunted or S Other (Expla	ed Leave 2, 4A, a 311) Intebrates Intebrates Intebrates Intebrates Intebrates Intebrates Intebrates Internationalistinto International International International Interna	nd 4B) or (C1) es along L d Iron (C4) n in Tilled Plants (D1	iving Root) Soils (C6)	Wa Dra Sa (C3) Ge Sh FA Ra	ter-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) ainage Patterns (B10) A-Season Water Table (C2) turation Visible on Aerial Imagery (C9) omorphic Position (D2) allow Aquitard (D3) C-Neutral Test (D5) ised Ant Mounds (D6) (LRR A)
Primary Indica Surface V High Wate Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Surface S Inundation	rology Indicators: ators (minimum of one Vater (A1) er Table (A2) n (A3) rks (B1) Deposits (B2) posits (B3) or Crust (B4) soits (B5) soil Cracks (B6) n Visible on Aerial Im- Vegetated Concave S	agery (B7)	Water-Stain MLRA 1, Salt Crust (E Aquatic Inve Hydrogen St Oxidized Rh Presence of Recent Iron Stunted or S Other (Expla	ed Leave 2, 4A, a 311) rtebrates ulfide Od izospher Reduced Reductio tressed I in in Rer	nd 4B) or (C1) es along L d Iron (C4) on in Tilled Plants (D1 marks)	iving Root) Soils (C6)) (LRR A)	Wa Dra Sa (C3) Ge Sh FA Ra	ter-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) ainage Patterns (B10) A-Season Water Table (C2) turation Visible on Aerial Imagery (C9) omorphic Position (D2) allow Aquitard (D3) C-Neutral Test (D5) ised Ant Mounds (D6) (LRR A)
Primary Indica Surface V High Wate Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Surface S Inundation Sparsely	rology Indicators: ators (minImum of one Vater (A1) er Table (A2) n (A3) rks (B1) Deposits (B2) osits (B3) or Crust (B4) esits (B5) foil Cracks (B6) n Visible on Aerial Im- Vegetated Concave S atlons:	agery (B7)	Water-Stain MLRA 1, Salt Crust (E Aquatic inve Hydrogen St Oxidized Rh Presence of Recent Iron Stunted or S Other (Expla	ed Leave 2, 4A, a 311) rtebrates ulfide Od izospher Reduced Reductio tressed I in in Rer	nd 4B) or (C1) es along L d Iron (C4) on in Tilled Plants (D1 marks)	iving Root) Soils (C6)) (LRR A)	Wa Dra Sa (C3) Ge Sh FA Ra	ter-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) ainage Patterns (B10) A-Season Water Table (C2) turation Visible on Aerial Imagery (C9) omorphic Position (D2) allow Aquitard (D3) C-Neutral Test (D5) ised Ant Mounds (D6) (LRR A)
Primary Indica Surface V High Water Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Surface S Inundation Sparsely V Field Observa	rology Indicators: ators (minimum of one Vater (A1) er Table (A2) n (A3) rks (B1) Deposits (B2) osits (B3) or Crust (B4) osits (B5) soil Cracks (B6) n Visible on Aerial Im- Vegetated Concave S ations: Present? Yes	agery (B7) Surface (B8	Water-Stain MLRA 1, Salt Crust (E Aquatic Inve Hydrogen Si Oxidized Rh Presence of Recent Iron Stunted or S Other (Expla	ed Leave 2, 4A, a 311) rtebrates ulfide Od izospher Reduced Reductio tressed I ain in Rer es):	nd 4B) or (C1) es along L d Iron (C4) on in Tilled Plants (D1 marks)	iving Root Soils (C6)) (LRR A)	Wa Dra Sa (C3) Ge Sh FA Ra	Atter-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) ainage Patterns (B10) A-Season Water Table (C2) turation Visible on Aerial Imagery (C9) omorphic Position (D2) allow Aquitard (D3) C-Neutral Test (D5) ised Ant Mounds (D6) (LRR A) ast-Heave Hummocks (D?)
Primary Indica Surface V High Water Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Surface S Inundation Sparsely Field Observa Surface Water Water Table P Saturation Pre	rology Indicators: ators (minimum of one Vater (A1) er Table (A2) n (A3) rks (B1) Deposits (B2) posits (B3) or Crust (B4) sits (B5) soil Cracks (B6) n Visible on Aerial Im- Vegetated Concave S ations: Present? Yes sent? Yes	agery (B7) Surface (B8	Water-Stain MLRA 1, Salt Crust (E Aquatic Inve Hydrogen Si Oxidized Rh Presence of Recent Iron Stunted or S Other (Expla) Depth (inch	ed Leave 2, 4A, a 311) rtebrates ulfide Od izospher Reduced Reduced izospher Reduced tizospher es): es):	nd 4B) or (C1) es along L d Iron (C4) n in Tilled Plants (D1 narks)	iving Root) Soils (C6)) (LRR A)	Wa Dra Sa (C3) Ge Sh FA Ra Fro	ter-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) ainage Patterns (B10) A-Season Water Table (C2) turation Visible on Aerial Imagery (C9) omorphic Position (D2) allow Aquitard (D3) C-Neutral Test (D5) ised Ant Mounds (D6) (LRR A)
Primary Indica Surface V High Wate Saturation Vater Ma Sediment Conft Depo Algal Mat Iron Depo Surface S Inundation Field Observa Surface Water Water Table P Saturation Pre (includes capil	rology Indicators: ators (minimum of one Vater (A1) er Table (A2) n (A3) rks (B1) Deposits (B2) osits (B3) or Crust (B4) sits (B5) soil Cracks (B6) n Visible on Aerial Im- Vegetated Concave S ations: Present? Yes sent? Yes lary fringe)	agery (B7) Surface (B8 5 No 5 No 5 No	Water-Stain MLRA 1, Salt Crust (E Aquatic Inve Hydrogen Si Oxidized Rh Presence of Recent Iron Stunted or S Other (Expla) Depth (inch Depth (inch	ed Leave 2, 4A, a 311) rtebrates ulfide Od izospher Reductio tressed I in in Rer es): es):	nd 4B) is (B13) or (C1) es along L d Iron (C4) in in Tilled Plants (D1 marks)	iving Root Soils (C6)) (LRR A)	Wa Dra Sa Sa Sh FA Fa Fro	Atter-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) ainage Patterns (B10) A-Season Water Table (C2) turation Visible on Aerial Imagery (C9) comorphic Position (D2) allow Aquitard (D3) C-Neutral Test (D5) ased Ant Mounds (D6) (LRR A) ast-Heave Hummocks (D?)
Primary Indica Surface V High Wate Saturation Vater Ma Sediment Orift Depo Algal Mat Iron Depo Surface S Inundation Field Observa Surface Water Water Table P Saturation Pre (includes capil	rology Indicators: ators (minimum of one Vater (A1) er Table (A2) n (A3) rks (B1) Deposits (B2) posits (B3) or Crust (B4) sits (B5) soil Cracks (B6) n Visible on Aerial Im- Vegetated Concave S ations: Present? Yes sent? Yes	agery (B7) Surface (B8 5 No 5 No 5 No	Water-Stain MLRA 1, Salt Crust (E Aquatic Inve Hydrogen Si Oxidized Rh Presence of Recent Iron Stunted or S Other (Expla) Depth (inch Depth (inch	ed Leave 2, 4A, a 311) rtebrates ulfide Od izospher Reductio tressed I in in Rer es): es):	nd 4B) is (B13) or (C1) es along L d Iron (C4) in in Tilled Plants (D1 marks)	iving Root Soils (C6)) (LRR A)	Wa Dra Sa Sa Sh FA Fa Fro	Atter-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) ainage Patterns (B10) A-Season Water Table (C2) turation Visible on Aerial Imagery (C9) comorphic Position (D2) allow Aquitard (D3) C-Neutral Test (D5) ased Ant Mounds (D6) (LRR A) ast-Heave Hummocks (D?)
Primary Indica Surface V High Wata Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Surface S Inundation Sparsely V Field Observa Surface Water Water Table P Saturation Pre (includes capil Describe Reco	rology Indicators: ators (minimum of one Vater (A1) er Table (A2) n (A3) rks (B1) Deposits (B2) osits (B3) or Crust (B4) sits (B5) soil Cracks (B6) n Visible on Aerial Im- Vegetated Concave S ations: Present? Yes sent? Yes lary fringe)	agery (B7) Surface (B8 5 No 5 No 5 No	Water-Stain MLRA 1, Salt Crust (E Aquatic Inve Hydrogen Si Oxidized Rh Presence of Recent Iron Stunted or S Other (Expla) Depth (inch Depth (inch	ed Leave 2, 4A, a 311) rtebrates ulfide Od izospher Reductio tressed I in in Rer es): es):	nd 4B) is (B13) or (C1) es along L d Iron (C4) in in Tilled Plants (D1 marks)	iving Root Soils (C6)) (LRR A)	Wa Dra Sa Sa Sh FA Fa Fro	Atter-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) ainage Patterns (B10) A-Season Water Table (C2) turation Visible on Aerial Imagery (C9) comorphic Position (D2) allow Aquitard (D3) C-Neutral Test (D5) ased Ant Mounds (D6) (LRR A) ast-Heave Hummocks (D?)
Primary Indica Surface V High Wate Saturation Vater Ma Sediment Conft Depo Algal Mat Iron Depo Surface S Inundation Field Observa Surface Water Water Table P Saturation Pre (includes capil	rology Indicators: ators (minimum of one Vater (A1) er Table (A2) n (A3) rks (B1) Deposits (B2) osits (B3) or Crust (B4) sits (B5) soil Cracks (B6) n Visible on Aerial Im- Vegetated Concave S ations: Present? Yes sent? Yes lary fringe) orded Data (stream given the second	agery (B7) Surface (B8 5 No 5 No 6 No auge, monit	Water-Stain MLRA 1, Salt Crust (E Aquatic Inve Hydrogen Si Oxidized Rh Presence of Recent Iron Stunted or S Other (Expla) Depth (inch Depth (inch toring well, aerial ph	ed Leave 2, 4A, a 311) rtebrates ulfide Od izospher Reductio tressed I in in Rer es): es): otos, pre	nd 4B) s (B13) or (C1) es along L d Iron (C4) in in Tilled Plants (D1 marks) vious insp	iving Root Soils (C6)) (LRR A) 	Wa Dra Sa Sa Sh FA Fa Fro	Atter-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) ainage Patterns (B10) A-Season Water Table (C2) turation Visible on Aerial Imagery (C9) comorphic Position (D2) allow Aquitard (D3) C-Neutral Test (D5) ased Ant Mounds (D6) (LRR A) ast-Heave Hummocks (D?)
Primary Indica Surface V High Wate Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Surface S Inundation Sparsely V Field Observa Surface Water Water Table P Saturation Pre (includes capil Describe Reco	rology Indicators: ators (minimum of one Vater (A1) er Table (A2) n (A3) rks (B1) Deposits (B2) osits (B3) or Crust (B4) sits (B5) soil Cracks (B6) n Visible on Aerial Im- Vegetated Concave S ations: Present? Yes sent? Yes lary fringe) orded Data (stream given the second	agery (B7) Surface (B8 5 No 5 No 6 No auge, monit	Water-Stain MLRA 1, Salt Crust (E Aquatic Inve Hydrogen Si Oxidized Rh Presence of Recent Iron Stunted or S Other (Expla) Depth (inch Depth (inch toring well, aerial ph	ed Leave 2, 4A, a 311) rtebrates ulfide Od izospher Reductio tressed I in in Rer es): es): otos, pre	nd 4B) s (B13) or (C1) es along L d Iron (C4) in in Tilled Plants (D1 marks) vious insp	iving Root Soils (C6)) (LRR A) 	Wa Dra Sa Sa Sh FA Fa Fro	Atter-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) ainage Patterns (B10) A-Season Water Table (C2) turation Visible on Aerial Imagery (C9) comorphic Position (D2) allow Aquitard (D3) C-Neutral Test (D5) ased Ant Mounds (D6) (LRR A) ast-Heave Hummocks (D?)
Primary Indica Surface V High Wate Saturation Water Ma Sediment Drift Depo Algal Mat Iron Depo Surface S Inundation Sparsely V Field Observa Surface Water Water Table P Saturation Pre (includes capil Describe Reco	rology Indicators: ators (minimum of one Vater (A1) er Table (A2) n (A3) rks (B1) Deposits (B2) osits (B3) or Crust (B4) sits (B5) soil Cracks (B6) n Visible on Aerial Im- Vegetated Concave S ations: Present? Yes sent? Yes lary fringe) orded Data (stream given the second	agery (B7) Surface (B8 5 No 5 No 6 No auge, monit	Water-Stain MLRA 1, Salt Crust (E Aquatic Inve Hydrogen Si Oxidized Rh Presence of Recent Iron Stunted or S Other (Expla) Depth (inch Depth (inch	ed Leave 2, 4A, a 311) rtebrates ulfide Od izospher Reductio tressed I in in Rer es): es): otos, pre	nd 4B) s (B13) or (C1) es along L d Iron (C4) in in Tilled Plants (D1 marks) vious insp	iving Root Soils (C6)) (LRR A) 	Wa Dra Sa Sa Sh FA Fa Frc	Atter-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) ainage Patterns (B10) A-Season Water Table (C2) turation Visible on Aerial Imagery (C9) comorphic Position (D2) allow Aquitard (D3) C-Neutral Test (D5) ased Ant Mounds (D6) (LRR A) ast-Heave Hummocks (D?)

		4	·/					
project/Site: <u>Crule Kal Unloadin</u>	tacility City	/County:	Sampling Date: Jan 22,7					
noticant/Owner. /////			State: V/P Sampling Point: P DL					
vestigator(s): P. Hamidi, B. Kidler								
			convex, none):					
ubregion (LRR): A	Lat:		Long: Datum: <u>NA08</u>					
oil Map Unit Name: Bow gravely loam	, ohus per	reat slopes_	NWI classification:					
re cilmatic / hydrologic conditions on the site typical f	or this time of year?	Yes No	(If no, explain in Remarks.)					
re Vegetation, Soil, or Hydrology	significantiy dist	urbed? Are "	Normal Circumstances" present? Yes 🔜 🗶 No					
re Vegetation, Soil, or Hydroiogy	naturally proble	matic? (If ne	eded, explain any answers in Remarks.)					
UMMARY OF FINDINGS – Attach site n	nap showing sa	mpling point lo	ocations, transects, important features, etc.					
	No	Lo Alto Complete	A					
	No		Is the Sampied Area within a Wetland? Yes X No					
	No							
Remarks: 50% 63-69 plut 70-12								
EGETATION – Use scientific names of	plants.							
Tree Stratum (Plot size: 10m)		ominant Indicator pecies? Status	Dominance Test worksheet:					
1			Number of Dominant Species That Are OBL, FACW, or FAC:(A)					
2								
3			Total Number of Dominant (B)					
4			· · · · · · · · · · · · · · · · · · ·					
_	 = `	Total Cover	Percent of Dominant Species That Are OBL, FACW, or FAC:(A/B)					
Sapling/Shrub Stratum (Plot slze: 5m)			Prevalence index worksheet:					
	2		Total % Cover of: Multiply by:					
2			OBL species x 1 =					
3			FACW species x 2 = 2 Y					
4			FAC species $93 \times 3 = 279$					
J		Total Cover	FACU species x 4 =					
Herb Stratum (Plot size: 2,)			UPL species x 5 =					
1. Parentucolles viscosa	8	FAC	Column Totals: <u>((O</u> (A) <u>323</u> (B)					
2. Caren avalis		PACA	Prevalence Index = B/A = 2.94					
3. Aquatis capillaris	54	X FAC	Hydrophytic Vegetation Indicators:					
4. Juncus ettusus	<u> </u>	FACW	1 - Rapid Test for Hydrophytic Vegetation					
5. Taxaxacun uticiade		FACO	2 - Dominance Test Is >50%					
6. Hulcus lanctus	20	FAC	X 3 - Prevalence Index is ≤3.0 ¹					
7. Juncus tenuis		FAC	4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)					
8. Cyromans cristatus 9. Februar agus dinacon	10	PAC	5 - Wetland Non-Vascular Plants ¹					
		• ML_	Problematic Hydrophytic Vegetation ¹ (Explain)					
11.			¹ Indicators of hydric soil and wetland hydrology must					
		otal Cover	be present, unless disturbed or problematic.					
Woody Vine Stratum (Plot size: 2m)								
1			Hydrophytic					
2			Vegetation					
	() = 1	otal Cover	Present? Yes X No					
% Bare Ground in Herb StratumO			1					

SOIL	
------	--

Depth (inches)	<u>Matrix</u> Color (moist)	%	Color (molst)	x Features		Loc ²	Texture	Remarks
0-9	10 YR3/15	- /10		· <u> </u>			loan	5% gravel
9-16	254 4	85	10XR 4/6	15	C	M	daylam	157. comel
							Congression	Sujac
				•				
-			<u> </u>	•				
vpe: C=Co	centration. D=De		=Reduced Matrix, CS	S=Covered	d or Coate	d Sand Gra	ains. ² Loc	ation: PL=Pore Lining, M=Matrix.
			LRRs, unless other					s for Problematic Hydric Solis ³ :
_ Histosol (Sandy Redox (•				Muck (A10)
	pedon (A2)		Stripped Matrix	• •				Parent Material (TF2)
Black His			Loamy Mucky N			MLRA 1)		Shallow Dark Surface (TF12)
	Sulfide (A4)		Loamy Gleyed	•)		Othe	r (Explain in Remarks)
	Below Dark Surfa	ce (A11)	Depleted Matrix				31114	
	k Surface (A12)		Redox Dark Su	• •				s of hydrophytic vegetation and
	icky Mineral (S1) eyed Matrix (S4)		Depleted Dark : Redox Depress		()			id hydrology must be present, i disturbed or problematic.
	iyer (if present):					· · ·		
Туре:	······							V
Depth (Inch	ies):						Hydric Soii	Present? Yes <u>X</u> No
 DROLOG	Y		de					
	Y ology Indicators		de					
etiand Hydr	ology Indicators		d; check all that appl				<u>Secon</u>	dary Indicators (2 or more required)
/etiand Hydr rimary Indica X Surface W	ology Indicators tors (minimum of ater (A1)		d; check all that appl Water-Sta		es (B9) (e	xcept		
/etiand Hydr rimary Indica X Surface W X High Wate	ology Indicators tors (minimum of dater (A1) rr Table (A2)		Water-Stai			xcept		
etiand Hydr rimary Indica Surface W High Wate Saturation	ology Indicators tors (minimum of dater (A1) r Table (A2) (A3)		Water-Stai MLRA Salt Crust	ined Leave 1, 2, 4 A, a (B11)	ind 4B)	xcept	W Dr	ater-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B) ainage Patterns (B10)
Yetiand Hydr rimary Indica Surface W High Wate Saturation Water Mar	ology Indicators tors (minimum of later (A1) r Table (A2) (A3) ks (B1)		Water-Stai MLRA Salt Crust Aquatic Inv	ined Leave 1, 2, 4 A, a (B11) vertebrates	und 4B) s (B13)	xcept	W Dr Dr	ater-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2)
Yetiand Hydr rimary Indica Surface W High Wate Saturation Water Mar Sediment	ology Indicators tors (minimum of later (A1) r Table (A2) (A3) (A3) ks (B1) Deposits (B2)		Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen	ined Leave 1, 2, 4 A, a (B11) vertebrate: Sulfide Od	ind 4B) s (B13) dor (C1)		W Dr Sa	ater-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2) Ituration Visible on Aerial Imagery (CS
Vetland Hydr rimary Indica Surface W High Wate Saturation Water Mar Sediment Drift Depo	ology Indicators tors (minimum of later (A1) r Table (A2) (A3) (A3) ks (B1) Deposits (B2) sits (B3)		Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F	ined Leave 1, 2, 4A, a (B11) vertebrates Sulfide Od Rhizospher	s (B13) dor (C1) res along	Living Root	W Dr Dr Sa s (C3) Sa	ater-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2) aturation Visible on Aerial Imagery (CS comorphic Position (D2)
Vetiand Hydr rimary Indica Surface W High Wate Saturation Water Mar Sediment Drift Depo	ology Indicators tors (minimum of dater (A1) or Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4)		Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence	ined Leave 1, 2, 4A, a (B11) vertebrate: Sulfide Od Rhizospher of Reduce	s (B13) dor (C1) res along d Iron (C4	Living Root	W Dr Dr Sa Sa St St	ater-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2) atturation Visible on Aerial Imagery (C8 comorphic Position (D2) nallow Aquitard (D3)
Vetland Hydr rimary Indica Surface W High Wate Saturation Water Mar Sediment Drift Depo Algal Mate Iron Depos	ology Indicators tors (minimum of later (A1) ir Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5)		Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence Recent Iro	ined Leave 1, 2, 4A, a (B11) vertebrates Sulfide Od Rhizospher of Reduces n Reduction	nd 4B) s (B13) dor (C1) res along d Iron (C4 on in Tiller	Living Root) d Soils (C6)	W Dr Sa ss (C3) Sd St FA	ater-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2) aturation Visible on Aerial Imagery (C9 comorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5)
rimary Indica Surface W High Wate Saturation Water Mar Sediment Drift Depo Algal Mat Iron Depos Surface So	ology Indicators tors (minimum of later (A1) ir Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6)	<u>one require</u>	Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence Recent Iro Stunted or	ined Leave 1, 2, 4A, a (B11) vertebrates Sulfide Od Rhizospher of Reduces n Reductio Stressed	s (B13) dor (C1) res along d Iron (C4 on in Tilled Plants (D	Living Root	W Dr Sa ss (C3) Sd Sf FA Ra	ater-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2) aturation Visible on Aerial Imagery (C9 comorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A)
Vetland Hydr rimary Indica Surface W High Water Saturation Water Mar Sediment Drift Depo Algal Mat Iron Depos Surface Se Inundation	ology Indicators tors (minimum of later (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) bil Cracks (B6) Visible on Aerial	one require	Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iro Stunted or 7) Other (Exp	ined Leave 1, 2, 4A, a (B11) vertebrates Sulfide Od Rhizospher of Reduces n Reductio Stressed	s (B13) dor (C1) res along d Iron (C4 on in Tilled Plants (D	Living Root) d Soils (C6)	W Dr Sa ss (C3) Sd Sf FA Ra	ater-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2) aturation Visible on Aerial Imagery (C9 comorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5)
Vetland Hydr rimary Indica Surface W High Wate Saturation Water Mar Sediment Drift Depo Algal Mat Iron Depos Surface So Surface So Sparsely V	ology Indicators tors (minimum of later (A1) or Table (A2) (A3) iks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) Visible on Aerial legetated Concav	one require	Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iro Stunted or 7) Other (Exp	ined Leave 1, 2, 4A, a (B11) vertebrates Sulfide Od Rhizospher of Reduces n Reductio Stressed	s (B13) dor (C1) res along d Iron (C4 on in Tilled Plants (D	Living Root) d Soils (C6)	W Dr Sa ss (C3) Sd Sf FA Ra	ater-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2) aturation Visible on Aerial Imagery (C9 comorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A)
Vetland Hydr rimary Indica Surface W High Wate Saturation Water Mar Sediment Drift Depo Algal Mat Iron Depos Surface So Surface So Sparsely W Neid Observa	ology Indicators tors (minimum of later (A1) or Table (A2) (A3) iks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) Visible on Aerial legetated Concav tions:	one require Imagery (B re Surface (Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence Recent Iro Stunted or 7) Other (Exp B8)	ined Leave 1, 2, 4A, a (B11) vertebrate: Sulfide Od Rhizospher of Reduce n Reductio Stressed olain in Re	and 4B) s (B13) dor (C1) res along d Iron (C4 on in Tilled Plants (D marks)	Living Root) d Soils (C6) 1) (LRR A)	W Dr Dr Sa Sa Sa Fr Fr	ater-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2) atturation Visible on Aerial Imagery (C8 comorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) ost-Heave Hummocks (D7)
Vetland Hydr rimary Indica Surface W High Wate Saturation Water Mar Sediment Drift Depo Algal Mat Iron Depos Surface So Inundation Sparsely V ield Observa	ology Indicators tors (minimum of later (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) Visible on Aerial legetated Concav tions: Present?	Imagery (B re Surface (Yes X	Water-Stail MLRA Salt Crust Aquatic Inv Aquatic Inv Oxidized F Presence Recent Iro Stunted or 7) Other (Exp B8) No Depth (inv	ined Leave 1, 2, 4A, a (B11) vertebrates Sulfide Od Rhizospher of Reduces n Reduction Stressed plain in Res ches):	and 4B) s (B13) dor (C1) res along d Iron (C4 on in Tilled Plants (D marks)	Living Root) d Soils (C6) 1) (LRR A)	W Dr Dr Sa Sa Sa Fr Fr	ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2) atturation Visible on Aerial Imagery (C9 comorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) ost-Heave Hummocks (D?)
Vetland Hydr rimary Indica Surface W High Water Saturation Water Mar Sediment Drift Depo Algal Mat Iron Depos Surface Se Inundation Sparsely V ieid Observa Vater Table Pr	ology Indicators tors (minimum of later (A1) or Table (A2) (A3) iks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) bil Cracks (B6) Visible on Aerial 'egetated Concav tions: Present?	Imagery (B re Surface (Yes Yes	Water-Stail MLRA Salt Crust Aquatic Inv Aquatic Inv Oxidized F Presence Recent Iro Stunted or 7) Other (Exp B8) No Depth (inc	ined Leave 1, 2, 4A, a (B11) vertebrates Sulfide Od Rhizospher of Reduces n Reduction Stressed plain in Res ches): ches):	and 4B) s (B13) dor (C1) res along d Iron (C4 on in Tiller Plants (D marks)	Living Root) d Soils (C6) 1) (LRR A)	W Dr Sa ss (C3) Sd St Fr Fr Fr	ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2) nuturation Visible on Aerial Imagery (C9 comorphic Position (D2) nallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) ost-Heave Hummocks (D?)
Vetland Hydr rimary Indica Surface W High Water Saturation Water Mar Sediment Drift Depo Algal Mat Iron Depos Surface Se Inundation Sparsely V leid Observa urface Water /ater Table Pr aturation Pres	ology Indicators tors (minimum of later (A1) r Table (A2) (A3) iks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) Visible on Aerial 'egetated Concav tions: Present? sent?	Imagery (B re Surface (Yes Yes	Water-Stail MLRA Salt Crust Aquatic Inv Aquatic Inv Oxidized F Presence Recent Iro Stunted or 7) Other (Exp B8) No Depth (inv	ined Leave 1, 2, 4A, a (B11) vertebrates Sulfide Od Rhizospher of Reduces n Reduction Stressed plain in Res ches): ches):	and 4B) s (B13) dor (C1) res along d Iron (C4 on in Tilled Plants (D marks)	Living Root) d Soils (C6) 1) (LRR A)	W Dr Sa ss (C3) Sd St Fr Fr Fr	ater-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2) atturation Visible on Aerial Imagery (C8 comorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) ost-Heave Hummocks (D7)
Vetland Hydr rimary Indica Surface W High Water Saturation Water Mar Sediment Drift Depo Algal Mat Iron Depos Iron Depos Surface So Jundation Sparsely V Sed Observa Urface Water Vater Table Pre aturation Pres	ology Indicators tors (minimum of later (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) Visible on Aerial legetated Concav tions: Present? sent? sent? ary fringe)	Imagery (B ve Surface (Yes <u>4</u> Yes <u>4</u>	Water-Stail MLRA Salt Crust Aquatic Inv Aquatic Inv Oxidized F Presence Recent Iro Stunted or 7) Other (Exp B8) No Depth (inc	ined Leave 1, 2, 4A, a (B11) vertebrate: Sulfide Od Rhizospher of Reducer n Reduction Stressed olain in Res ches): ches):	and 4B) s (B13) dor (C1) res along d Iron (C4 on in Tiller Plants (D marks)	Living Root) d Soils (C6) 1) (LRR A)	W Dr Sa ss (C3) Sf Sf Fr Ra Fr fr fr fr	ater-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2) aturation Visible on Aerial Imagery (C9 comorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) ost-Heave Hummocks (D?)
Vetiand Hydr rimary Indica Surface W High Water Saturation Orift Depo Algal Mater Iron Depose Inundation Sparsely V Ieid Observa urface Water Vater Table Pre aturation Pres ncludes capili	ology Indicators tors (minimum of later (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) Visible on Aerial legetated Concav tions: Present? sent? sent? ary fringe)	Imagery (B ve Surface (Yes <u>4</u> Yes <u>4</u>	Water-Stail MLRA Salt Crust Aquatic Inv Oxidized F Presence Recent Iro Stunted or 7) Other (Exp B8) No Depth (inv No Depth (inv	ined Leave 1, 2, 4A, a (B11) vertebrate: Sulfide Od Rhizospher of Reducer n Reduction Stressed olain in Res ches): ches):	and 4B) s (B13) dor (C1) res along d Iron (C4 on in Tiller Plants (D marks)	Living Root) d Soils (C6) 1) (LRR A)	W Dr Sa ss (C3) Sf Sf Fr Ra Fr fr fr fr	ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2) nuturation Visible on Aerial Imagery (C9 comorphic Position (D2) nallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) ost-Heave Hummocks (D?)
Vetland Hydr rimary Indica Surface W High Water Saturation Water Mar Sediment Drift Depo Algal Mater Iron Depos Surface So Inundation Sparsely V Vield Observa urface Water Vater Table Presenctudes capill escribe Reco	ology Indicators tors (minimum of later (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) Visible on Aerial legetated Concav tions: Present? sent? sent? ary fringe)	Imagery (B ve Surface (Yes <u>4</u> Yes <u>4</u>	Water-Stail MLRA Salt Crust Aquatic Inv Oxidized F Presence Recent Iro Stunted or 7) Other (Exp B8) No Depth (inv No Depth (inv	ined Leave 1, 2, 4A, a (B11) vertebrate: Sulfide Od Rhizospher of Reducer n Reduction Stressed olain in Res ches): ches):	and 4B) s (B13) dor (C1) res along d Iron (C4 on in Tiller Plants (D marks)	Living Root) d Soils (C6) 1) (LRR A)	W Dr Sa ss (C3) Sf Sf Fr Ra Fr fr fr fr	ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2) nuturation Visible on Aerial Imagery (C9 comorphic Position (D2) nallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) ost-Heave Hummocks (D?)
Vetland Hydr rimary Indica Surface W High Wate Saturation Water Mar Sediment Drift Depo Algal Mat Iron Depos Surface So Inundation Sparsely V Veld Observa Vater Table Presencted Scapill escribe Reco	ology Indicators tors (minimum of later (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) Visible on Aerial legetated Concav tions: Present? sent? sent? ary fringe)	Imagery (B ve Surface (Yes <u>4</u> Yes <u>4</u>	Water-Stail MLRA Salt Crust Aquatic Inv Oxidized F Presence Recent Iro Stunted or 7) Other (Exp B8) No Depth (inv No Depth (inv	ined Leave 1, 2, 4A, a (B11) vertebrate: Sulfide Od Rhizospher of Reducer n Reduction Stressed olain in Res ches): ches):	and 4B) s (B13) dor (C1) res along d Iron (C4 on in Tiller Plants (D marks)	Living Root) d Soils (C6) 1) (LRR A)	W Dr Sa ss (C3) Sf Sf Fr Ra Fr fr fr fr	ater-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B) ainage Patterns (B10) y-Season Water Table (C2) aturation Visible on Aerial Imagery (C9 comorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) ost-Heave Hummocks (D?)

Project/Site: Crude Rail Unlading F	icility.	City/County	: <u>Sk</u>	Agit Sampling Date: Jan 23, 201
Applicant/Owner: Sull BR	1			State: Sampling Point: SP-022
Investigator(s): J. Walker, B. Killer		Section, To		
Landform (hillslope, terrace, etc.):		Local relief	(concave, o	convex, none): Slope (%):
Subregion (LRR):	Lat:			Long: Datum: NAD83
Soil Map Unit Name: Brw grudly Loan		3 000	ent sta	NWI classification: PFOA
Are climatic / hydrologic conditions on the site typical for th				
Are Vegetation, Soil, or Hydrology				Normal Circumstances" present? Yes X No
Are Vegetation, Soll, or Hydrology SUMMARY OF FINDINGS – Attach site map			·	eeded, explain any answers in Remarks.)
Hydrophytic Vegetation Present? Yes X			9 00000	
	No	is th	e Sampied	Area ,
Wetland Hydrology Present? Yes		with	in a Wetlar	nd? Yes <u>×</u> No
Remarks:	· · · ·			
forested wetland ne	ar sulp	hur ta	nl=s	
VEGETATION – Use scientific names of plan	nts.			
a,'	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 26)		Species?	1276.00	Number of Dominant Specles
1. Alrus rubra	30	<u> </u>	FAC	That Are OBL, FACW, or FAC: (A)
2. Malas fusca	50	<u>X</u>	FACW	Total Number of Dominant
3. Populas tremislardes	20	X	FACU	Species Across All Strata: (B)
4				Percent of Dominant Species
Sapling/Shrub Stratum (Plot size: 15		= Total Co	ver	That Are OBL, FACW, or FAC: (A/B)
1. Symphonicar pas allus	20	X	FACU	Prevalence index worksheet:
2. Rubus spectabilis	30		FAC	Total % Cover of: Multiply by:
3. Mahania quitolium	5		FACU	OBL species <u>39</u> x 1 = <u>39</u>
4. Salix hoskerian	5		FACW	FACW species x 2 =(0
5				FAC species 477 x 3 = 180
	60	= Total Co	ver	FACU species <u>477</u> x 4 = <u>188</u>
Herb Stratum (Plot size:)			. .	UPL species $0 \times 5 = 0$
1. Carex obsupta	<u> </u>	<u> </u>	OBL	Column Totals: (A) (B)
2. Ocaanthe samentosa	21			Prevalence Index = B/A =7
3				Hydrophytic Vegetation indicators:
4				1 - Rapid Test for Hydrophytic Vegetation
5				2 - Dominance Test is >50%
6				X 3 - Prevalence Index is ≤3.0'
7				4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
8				5 - Wetland Non-Vascular Plants ¹
9				Problematic Hydrophytic Vegetation ¹ (Explain)
10			<u> </u>	'Indicators of hydric soil and wetland hydrology must
11	29	= Total Cov		be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 5)				
1. Rubus arsinus		<u> </u>	FAct	Hydrophytic
2				Vegetation
	2	= Total Cov	/er	Present? Yes <u>X</u> No
% Bare Ground in Herb Stratum6 0				
Remarks:				

s	0	ŧ	L

Sampling Point: _	9-022
-------------------	-------

					1.1		the absence of	
Depth	Matrix			Features	<u> </u>			
(inches)	Color (molst)	%	Color (moist)	%	Type ¹	Loc ²		Remarks
<u> </u>	104R41						<u>sarlyloan</u>	
9-18	10 YR5/	80	104R5/6	20	<u> </u>	<u>m</u>	- Saulida	lam
	•••••						/ /	
	8			92				
						<u> </u>		
	1						<u> </u>	
l								
	centration D=De	nietion RM=	Reduced Matrix, CS=		or Coate	ad Sand Gr		ion: PL=Pore Lining, M=Matrix.
			LRRs, unless otherv					for Problematic Hydric Solis ³ :
Histosol (A			Sandy Redox (Si		,			Auck (A10)
Histosof			Stripped Matrix (arent Material (TF2)
Black Hist			Loamy Mucky Mi) (except	t MLRA 1)		hallow Dark Surface (TF12)
	Sulfide (A4)		 Loamy Gleyed M	•		•		(Explain in Remarks)
Depleted I	Below Dark Surfa	ce (A11)	_Xepleted Matrix	(F3)				
Thick Dark	k Surface (A12)		Redox Dark Surf	ace (F6)				of hydrophytic vegetation and
	cky Mineral (S1)		Depleted Dark S	•	7)			hydrology must be present,
	eyed Matrix (S4)		Redox Depressio	ons (F8)			unless	disturbed or problematic.
63	yer (if present):							*. ²
Type:			- 5.5	Be			1	
Depth (inch	es):						Hydric Soil P	resent? Yes <u>X</u> No
Remarks:								
]								
						2		
			đi - 10					
			है। 	<u>.</u>				· · · · ·
HYDROLOG				8			Let	
Wetiand Hydro	ology indicators			8				
Wetiand Hydro Primary Indicat	ology indicators		; check all that apply)				ary Indicators (2 or more required)
Wetland Hydro Primary Indicat Surface W	ology indicator's tors (minimum of ater (A1)		Water-Stain	ed Leave		except	Wa	er-Stained Leaves (B9) (MLRA 1, 2,
Wetland Hydro Primary Indicat Surface W	ology indicators tors (minimum of ater (A1) r Table (A2)		Water-Stain MLRA 1	ied Leave , 2, 4A, a		xcept	Wa	er-Stained Leaves (B9) (MLRA 1, 2, IA, and 4B)
Wetiand Hydr Primary Indicat Surface W High Wate Saturation	ology indicators tors (minimum of ater (A1) r Table (A2) (A3)		Water-Stain MLRA 1 Salt Crust (I	ed Leave , 2, 4A, a B11)	nd 4B)	ña -	Wa Dra	er-Stained Leaves (B9) (MLRA 1, 2, IA, and 4B) inage Patterns (B10)
Wetiand Hydr Primary Indicat Surface W High Wate Saturation Water Mar	ology indicators tors (minimum of later (A1) r Table (A2) (A3) ks (B1)		Water-Stain MLRA 1 Salt Crust (I Aquatic Inve	ed Leave , 2, 4A, a B11) ertebrates	nd 4B) s (B13)	ña -	Wa Dra Dry	er-Stained Leaves (B9) (MLRA 1, 2, IA, and 4B) inage Patterns (B10) -Season Water Table (C2)
Wetland Hydr Primary Indicat	ology indicators tors (minimum of ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2)		Water-Stain MLRA 1 Salt Crust (I Aquatic Inve	ied Leave , 2, 4A, a B11) ertebrates sulfide Od	nd 4B) s (B13) lor (C1)	*	Wa Dra Dry Sat	er-Stained Leaves (B9) (MLRA 1, 2, A, and 4B) inage Patterns (B10) -Season Water Table (C2) uration Visible on Aerial Imagery (C9)
Wetland Hydr Primary Indicat Surface W High Wate Saturation Water Mar Sediment I Drift Deposition	ology indicators tors (minimum of ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3)		Water-Stain MLRA 1 Salt Crust (I Aquatic Inve Hydrogen S Oxldized Rh	ed Leave , 2, 4A, a B11) ertebrates sulfide Od nizospher	nd 4B) s (B13) lor (C1) res along	Living Roo	Wa Dra Dry Sat ots (C3) Geo	er-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) inage Patterns (B10) -Season Water Table (C2) uration Visible on Aerial Imagery (C9) omorphic Position (D2)
Wetiand Hydr Primary Indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat o	ology indicators tors (minimum of ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4)		Water-Stain MLRA 1 Salt Crust (I Aquatic Inve Hydrogen S Oxldized Rh Presence of	ed Leave , 2, 4A, a B11) ertebrates sulfide Od hizospher f Reduced	nd 4B) s (B13) lor (C1) res along d Iron (C4	Living Roo 4)	Wa Dra Dry Sat ots (C3) Geo Sha	ver-Stained Leaves (B9) (MLRA 1, 2, IA, and 4B) inage Patterns (B10) Season Water Table (C2) uration Visible on Aerial Imagery (C9) omorphic Position (D2) illow Aquitard (D3)
Wetiand Hydr Primary Indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat c Iron Depos	ology indicators tors (minimum of ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5)		Water-Stain MLRA 1 Salt Crust (I Aquatic Inve Hydrogen S OxIdized Rh Presence of Recent Iron	ed Leave , 2, 4A, a B11) ertebrates sulfide Od hizospher f Reduced Reductio	nd 4B) s (B13) lor (C1) res along d Iron (C4 on in Tille	Living Roo 4) d Soils (C6	— Wa — Dra — Dry — Sat ots (C3) — Geo — Sha 5) — FAG	ter-Stained Leaves (B9) (MLRA 1, 2, IA, and 4B) inage Patterns (B10) Season Water Table (C2) uration Visible on Aerial Imagery (C9) omorphic Position (D2) Ilow Aquitard (D3) C-Neutral Test (D5)
Wetiand Hydr Primary Indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat o Iron Depos Surface So	ology indicators tors (minimum of later (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oll Cracks (B6)	one required	Water-Stain MLRA 1 Salt Crust (I Aquatic Inve Hydrogen S Oxldized Rh Presence of Recent Iron Stunted or S	ed Leave , 2, 4A, a B11) ertebrates sulfide Od hizospher f Reduced Reductio Stressed i	nd 4B) s (B13) lor (C1) res along d Iron (C4 on in Tille Plants (D	Living Roo 4) d Soils (C6		ter-Stained Leaves (B9) (MLRA 1, 2, IA, and 4B) inage Patterns (B10) -Season Water Table (C2) uration Visible on Aerial Imagery (C9) omorphic Position (D2) Illow Aquitard (D3) C-Neutral Test (D5) sed Ant Mounds (D6) (LRR A)
Wetiand Hydr Primary Indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat o Iron Depos Surface So Inundation	ology indicators tors (minimum of later (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oll Cracks (B6) Visible on Aerial	one required	Water-Stain MLRA 1 Sait Crust (I Aquatic Inve Hydrogen S Oxldized Rh Presence of Recent Iron Stunted or S Other (Explain	ed Leave , 2, 4A, a B11) ertebrates sulfide Od hizospher f Reduced Reductio Stressed i	nd 4B) s (B13) lor (C1) res along d Iron (C4 on in Tille Plants (D	Living Roo 4) d Soils (C6		ter-Stained Leaves (B9) (MLRA 1, 2, IA, and 4B) inage Patterns (B10) Season Water Table (C2) uration Visible on Aerial Imagery (C9) omorphic Position (D2) Ilow Aquitard (D3) C-Neutral Test (D5)
Wetiand Hydr Primary Indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat of Iron Depos Surface So Inundation Sparsely V	ology indicators tors (minimum of later (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oll Cracks (B6) Visible on Aerial Vegetated Concav	one required	Water-Stain MLRA 1 Sait Crust (I Aquatic Inve Hydrogen S Oxldized Rh Presence of Recent Iron Stunted or S Other (Explain	ed Leave , 2, 4A, a B11) ertebrates sulfide Od hizospher f Reduced Reductio Stressed i	nd 4B) s (B13) lor (C1) res along d Iron (C4 on in Tille Plants (D	Living Roo 4) d Soils (C6		ter-Stained Leaves (B9) (MLRA 1, 2, IA, and 4B) inage Patterns (B10) -Season Water Table (C2) uration Visible on Aerial Imagery (C9) omorphic Position (D2) Illow Aquitard (D3) C-Neutral Test (D5) sed Ant Mounds (D6) (LRR A)
Wetiand Hydr Primary Indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat of Iron Depos Surface So Inundation Sparsely V Field Observat	ology indicators tors (minimum of later (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oll Cracks (B6) Visible on Aerial regetated Concav tions:	one required lmagery (B7 re Surface (E	Water-Stain MLRA 1 Salt Crust (I Aquatic Inve Hydrogen S Oxldized Rh Presence of Recent Iron Stunted or S Other (Explain 18)	ed Leave , 2, 4A, a B11) ertebrates sulfide Od nizospher f Reduced Reductio Stressed I ain In Rer	nd 4B) s (B13) lor (C1) res along d Iron (C4 on in Tille Plants (D	Living Roo 4) d Soils (C6		ter-Stained Leaves (B9) (MLRA 1, 2, IA, and 4B) inage Patterns (B10) -Season Water Table (C2) uration Visible on Aerial Imagery (C9) omorphic Position (D2) Illow Aquitard (D3) C-Neutral Test (D5) sed Ant Mounds (D6) (LRR A)
Wetiand Hydr Primary Indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat o Iron Depos Surface So Inundation Sparsely V Field Observat	ology indicators tors (minimum of later (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oll Cracks (B6) Visible on Aerial Vegetated Concav tions: Present?	one required Imagery (B7 ve Surface (E Yes N	Water-Stain MLRA 1 Salt Crust (I Aquatic Inve Hydrogen S OxIdized Rh Presence of Recent Iron Stunted or S Other (Expla- 8)	ed Leave , 2, 4A, a B11) ertebrates sulfide Od hizospher f Reduced Reductio Stressed I ain In Rer 	nd 4B) s (B13) lor (C1) res along d Iron (C4 on in Tille Plants (D	Living Roo 4) d Soils (C6		ter-Stained Leaves (B9) (MLRA 1, 2, IA, and 4B) inage Patterns (B10) -Season Water Table (C2) uration Visible on Aerial Imagery (C9) omorphic Position (D2) Illow Aquitard (D3) C-Neutral Test (D5) sed Ant Mounds (D6) (LRR A)
Wetiand Hydr Primary Indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat of Iron Depos Surface So Inundation Sparsely V Field Observat	ology indicators tors (minimum of later (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oll Cracks (B6) Visible on Aerial Vegetated Concav tions: Present?	one required Imagery (B7 ve Surface (E Yes N Yes N	Water-Stain MLRA 1 Salt Crust (I Aquatic Inve Hydrogen S Oxldized Rł Presence of Recent Iron Stunted or S Other (Explain 8) X Depth (inch	ed Leave , 2, 4A, a B11) ertebrates sulfide Od hizospher f Reduced Reductio Stressed I ain In Rer nes):	nd 4B) s (B13) lor (C1) res along d Iron (C4 on in Tille Plants (D	Living Roo 4) d Soils (C6 11) (LRR A		ter-Stained Leaves (B9) (MLRA 1, 2, IA, and 4B) inage Patterns (B10) -Season Water Table (C2) uration Visible on Aerial Imagery (C9) omorphic Position (D2) illow Aquitard (D3) C-Neutral Test (D5) sed Ant Mounds (D6) (LRR A) st-Heave Hummocks (D?)
Wetland Hydr Primary Indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat of Iron Depos Surface So Inundation Sparsely V Field Observa Surface Water Water Table Pr Saturation Pres	ology indicators tors (minimum of later (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oll Cracks (B6) Visible on Aerial regetated Concav tions: Present? sent?	one required Imagery (B7 ve Surface (E Yes N Yes N	Water-Stain MLRA 1 Salt Crust (I Aquatic Inve Hydrogen S OxIdized Rh Presence of Recent Iron Stunted or S Other (Expla- 8)	ed Leave , 2, 4A, a B11) ertebrates sulfide Od hizospher f Reduced Reductio Stressed I ain In Rer nes):	nd 4B) s (B13) lor (C1) res along d Iron (C4 on in Tille Plants (D	Living Roo 4) d Soils (C6 11) (LRR A		ter-Stained Leaves (B9) (MLRA 1, 2, IA, and 4B) inage Patterns (B10) -Season Water Table (C2) uration Visible on Aerial Imagery (C9) omorphic Position (D2) Illow Aquitard (D3) C-Neutral Test (D5) sed Ant Mounds (D6) (LRR A)
Wetland Hydr Primary Indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat o Iron Depos Surface So Inundation Sparsely V Field Observa Surface Water Water Table Pr Saturation Press (includes capilla	ology indicators tors (minimum of later (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oll Cracks (B6) Visible on Aerial /egetated Concav tions: Present? esent? ary fringe)	one required Imagery (B7 ve Surface (E Yes N Yes N	Water-Stain MLRA 1 MLRA 1 Salt Crust (I Aquatic Inve Hydrogen S OxIdized Rh Presence of Recent Iron Stunted or S Other (Explain No Cher (Explain No Depth (inch No Cher (Inch No Depth (inch No Cher (Inch No	ed Leave , 2, 4A, a B11) ertebrates sulfide Od hizospher f Reduced Reductio Stressed I ain In Rer nes): nes):	nd 4B) s (B13) lor (C1) res along d Iron (C4 on in Tille Plants (D marks)	Living Roo 4) d Soils (CB 11) (LRR A	Wa Dra Dry Sat ots (C3) Geo Sha FAC) Rai Fro	ter-Stained Leaves (B9) (MLRA 1, 2, IA, and 4B) inage Patterns (B10) -Season Water Table (C2) uration Visible on Aerial Imagery (C9) omorphic Position (D2) illow Aquitard (D3) C-Neutral Test (D5) sed Ant Mounds (D6) (LRR A) st-Heave Hummocks (D?)
Wetland Hydr Primary Indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat o Iron Depos Surface So Inundation Sparsely V Field Observa Surface Water Water Table Pr Saturation Press (includes capilla	ology indicators tors (minimum of later (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oll Cracks (B6) Visible on Aerial /egetated Concav tions: Present? esent? ary fringe)	one required Imagery (B7 ve Surface (E Yes N Yes N	Water-Stain MLRA 1 Salt Crust (I Aquatic Inve Hydrogen S Oxldized Rł Presence of Recent Iron Stunted or S Other (Explain 8) X Depth (inch	ed Leave , 2, 4A, a B11) ertebrates sulfide Od hizospher f Reduced Reductio Stressed I ain In Rer nes): nes):	nd 4B) s (B13) lor (C1) res along d Iron (C4 on in Tille Plants (D marks)	Living Roo 4) d Soils (CB 11) (LRR A	Wa Dra Dry Sat ots (C3) Geo Sha FAC) Rai Fro	ter-Stained Leaves (B9) (MLRA 1, 2, IA, and 4B) inage Patterns (B10) -Season Water Table (C2) uration Visible on Aerial Imagery (C9) omorphic Position (D2) illow Aquitard (D3) C-Neutral Test (D5) sed Ant Mounds (D6) (LRR A) st-Heave Hummocks (D?)
Wetland Hydr Primary Indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat of Iron Depos Surface So Inundation Sparsely V Field Observa Surface Water Water Table Pr Saturation Press (includes capility Describe Record	ology indicators tors (minimum of later (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oll Cracks (B6) Visible on Aerial /egetated Concav tions: Present? esent? ary fringe)	one required Imagery (B7 ve Surface (E Yes N Yes N	Water-Stain MLRA 1 MLRA 1 Salt Crust (I Aquatic Inve Hydrogen S OxIdized Rh Presence of Recent Iron Stunted or S Other (Explain No Cher (Explain No Depth (inch No Cher (Explain No Depth (inch No Cher (Explain No Cher (Inch No Cher (In	ed Leave , 2, 4A, a B11) ertebrates sulfide Od hizospher f Reduced Reductio Stressed I ain In Rer nes): nes):	nd 4B) s (B13) lor (C1) res along d Iron (C4 on in Tille Plants (D marks)	Living Roo 4) d Soils (CB 11) (LRR A	Wa Dra Dry Sat ots (C3) Geo Sha FAC) Rai Fro	ter-Stained Leaves (B9) (MLRA 1, 2, IA, and 4B) inage Patterns (B10) -Season Water Table (C2) uration Visible on Aerial Imagery (C9) omorphic Position (D2) illow Aquitard (D3) C-Neutral Test (D5) sed Ant Mounds (D6) (LRR A) st-Heave Hummocks (D?)
Wetland Hydr Primary Indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat o Iron Depos Surface So Inundation Sparsely V Field Observa Surface Water Water Table Pr Saturation Press (includes capilit	ology indicators tors (minimum of later (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oll Cracks (B6) Visible on Aerial /egetated Concav tions: Present? esent? ary fringe)	one required Imagery (B7 ve Surface (E Yes N Yes N	Water-Stain MLRA 1 MLRA 1 Salt Crust (I Aquatic Inve Hydrogen S OxIdized Rh Presence of Recent Iron Stunted or S Other (Explain No Cher (Explain No Depth (inch No Cher (Explain No Depth (inch No Cher (Explain No Cher (Inch No Cher (In	ed Leave , 2, 4A, a B11) ertebrates sulfide Od hizospher f Reduced Reductio Stressed I ain In Rer nes): nes):	nd 4B) s (B13) lor (C1) res along d Iron (C4 on in Tille Plants (D marks)	Living Roo 4) d Soils (CB 11) (LRR A	Wa Dra Dry Sat ots (C3) Geo Sha FAC) Rai Fro	ter-Stained Leaves (B9) (MLRA 1, 2, IA, and 4B) inage Patterns (B10) -Season Water Table (C2) uration Visible on Aerial Imagery (C9) omorphic Position (D2) illow Aquitard (D3) C-Neutral Test (D5) sed Ant Mounds (D6) (LRR A) st-Heave Hummocks (D?)
Wetland Hydr Primary Indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat of Iron Depos Surface So Inundation Sparsely V Field Observa Surface Water Water Table Pr Saturation Press (includes capilit Describe Record	ology indicators tors (minimum of later (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oll Cracks (B6) Visible on Aerial /egetated Concav tions: Present? esent? ary fringe)	one required Imagery (B7 ve Surface (E Yes N Yes N	Water-Stain MLRA 1 MLRA 1 Salt Crust (I Aquatic Inve Hydrogen S OxIdized Rh Presence of Recent Iron Stunted or S Other (Explain No Cher (Explain No Depth (inch No Cher (Explain No Depth (inch No Cher (Explain No Cher (Inch No Cher (In	ed Leave , 2, 4A, a B11) ertebrates sulfide Od hizospher f Reduced Reductio Stressed I ain In Rer nes): nes):	nd 4B) s (B13) lor (C1) res along d Iron (C4 on in Tille Plants (D marks)	Living Roo 4) d Soils (CB 11) (LRR A	Wa Dra Dry Sat ots (C3) Geo Sha FAC) Rai Fro	ter-Stained Leaves (B9) (MLRA 1, 2, IA, and 4B) inage Patterns (B10) -Season Water Table (C2) uration Visible on Aerial Imagery (C9) omorphic Position (D2) illow Aquitard (D3) C-Neutral Test (D5) sed Ant Mounds (D6) (LRR A) st-Heave Hummocks (D?)
Wetland Hydr Primary Indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat of Iron Depos Surface So Inundation Sparsely V Field Observa Surface Water Water Table Pr Saturation Press (includes capilit Describe Record	ology indicators tors (minimum of later (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oll Cracks (B6) Visible on Aerial /egetated Concav tions: Present? esent? ary fringe)	one required Imagery (B7 ve Surface (E Yes N Yes N	Water-Stain MLRA 1 MLRA 1 Salt Crust (I Aquatic Inve Hydrogen S OxIdized Rh Presence of Recent Iron Stunted or S Other (Explain No Cher (Explain No Depth (inch No Cher (Explain No Depth (inch No Cher (Explain No Cher (Inch No Cher (In	ed Leave , 2, 4A, a B11) ertebrates sulfide Od hizospher f Reduced Reductio Stressed I ain In Rer nes): nes):	nd 4B) s (B13) lor (C1) res along d Iron (C4 on in Tille Plants (D marks)	Living Roo 4) d Soils (CB 11) (LRR A	Wa Dra Dry Sat ots (C3) Geo Sha FAC) Rai Fro	ter-Stained Leaves (B9) (MLRA 1, 2, IA, and 4B) inage Patterns (B10) -Season Water Table (C2) uration Visible on Aerial Imagery (C9) omorphic Position (D2) illow Aquitard (D3) C-Neutral Test (D5) sed Ant Mounds (D6) (LRR A) st-Heave Hummocks (D?)
Wetland Hydr Primary Indicat Surface W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat of Iron Depos Surface So Inundation Sparsely V Field Observa Surface Water Water Table Pr Saturation Press (includes capilit Describe Record	ology indicators tors (minimum of later (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oll Cracks (B6) Visible on Aerial /egetated Concav tions: Present? esent? ary fringe)	one required Imagery (B7 ve Surface (E Yes N Yes N	Water-Stain MLRA 1 MLRA 1 Salt Crust (I Aquatic Inve Hydrogen S OxIdized Rh Presence of Recent Iron Stunted or S Other (Explain No Cher (Explain No Depth (inch No Cher (Explain No Depth (inch No Cher (Explain No Cher (Inch No Cher (In	ed Leave , 2, 4A, a B11) ertebrates sulfide Od hizospher f Reduced Reductio Stressed I ain In Rer nes): nes):	nd 4B) s (B13) lor (C1) res along d Iron (C4 on in Tille Plants (D marks)	Living Roo 4) d Soils (CB 11) (LRR A	Wa Dra Dry Sat ots (C3) Geo Sha FAC) Rai Fro	ter-Stained Leaves (B9) (MLRA 1, 2, IA, and 4B) inage Patterns (B10) -Season Water Table (C2) uration Visible on Aerial Imagery (C9) omorphic Position (D2) illow Aquitard (D3) C-Neutral Test (D5) sed Ant Mounds (D6) (LRR A) st-Heave Hummocks (D?)

Project/Site: Crude Port Underling Facilit	Y Clt	y/County: Stag	Sampling Date:	Jan 23,2013
Appilcant/Owner: Shell KR	222		State: WA Sampling Point:	
Investigator(s): J. Wulker, B. Kidder	Se	ction, Township, Ran	ge: Sichin 33, 35N, 20	5
Landform (hillslope, terrace, etc.): terrace				
			Long: Datu	
Soll Map Unit Name: Bow gravelly Lang.				
Are climatic / hydrologic conditions on the site typical for thi	1	1		
Are Vegetation, Soli, or Hydrology			Normal Circumstances" present? Yes	No
-				
Are Vegetation, Soll, or Hydrology r	naturally proble		eded, explain any answers in Remarks.)	
SUMMARY OF FINDINGS – Attach site map	showing sa	ampling point lo	ocations, transects, important fe	eatures, etc.
Hydric Soil Present? Yes N	lo lo lo	is the Sampied within a Wetian	· · · ·	_
Remarks: plot on slope next to road	to sulphus	- tanks	5	
VEGETATION – Use scientific names of plan	its.			
24		Dominant Indicator	Dominance Test worksheet:	
Tree Stratum (Plot size: 30) 1. Alaus rubr	<u>% Cover S</u> /ひ	<u>ipecies?</u> <u>Status</u> <u> </u>	Number of Dominant Species That Are OBL, FACW, or FAC:	(A)
23			Total Number of Dominant Specles Across All Strata:	(B)
4	100 =	Total Cover	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>З (А/В)</u>
Sapling/Shrub Stratum (Plot size: 15/)	I da	X Paral	Prevaience Index worksheet:	
1. <u>Symphoricarpes albus</u> 2. Rusa nut Kana	- <u>40</u>	Y EAC	Total % Cover of: Multip	ly by:
3.			OBL species x 1 =	<u> </u>
				28

1. Alaus VUSVa	100	$-\Delta$	TAC	That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant Specles Across All Strata:(B)
4	100	= Total Co	ver	Percent of Dominant Specles That Are OBL, FACW, or FAC: (A/B)
1. Symphoricarpes albus	HD	X	FACU	Prevalence Index worksheet:
			FAC	Total % Cover of: Multiply by:
2. Kusa nut Kana			•••	OBL species x 1 =
3				FACW species cs x 2 =O
4				FAC species X 3 = 39 O
5				FACU species 50 x 4 = 200
Herb Stratum (Plot size:)	_50	_ = Total Co	ver	UPL species \bigcirc x 5 = \bigcirc
1. Lictica dioca	20	χ	FAC	Column Totals: <u>180</u> (A) <u>570</u> (B)
2. Polyetichum munitum	<u> </u>		FACU	Prevalence Index = $B/A = 3.28$
3				Hydrophytic Vegetation Indicators:
4				1 - Rapid Test for Hydrophytic Vegetation
5			<u> </u>	∠_2 - Dominance Test is >50%
6				3 - Prevalence Index is ≤3.0 ¹
7				4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
				5 - Wetland Non-Vascular Plants ¹
9				Problematic Hydrophytic Vegetation ¹ (Explain)
10			<u> </u>	Indicators of hydric soil and wetland hydrology must
11	20			be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size:)	00	= Total Co	ver	
1 Kubes ursi nus	/0	\times	FALU	Hydrophytic
2				Vegetation Present? Yes <u> </u>
% Bare Ground in Herb Stratum80	10	_≃ Total Co	ver	
Remarks:				

1.18

SOIL

Sampling Point: <u>5P-D23</u>

.

. 6

MA

	iption: (Describe	to the depth				or confirm	the absence	of indicato	rs.)	
Depth . (inches)	<u>Matrix</u> Color (moist)	%	Color (molst)	<u>x Featur</u> %	esType1	Loc ²	Texture		Remarks	
0 - 10	10 4R 3/1	1/10		,			loam	11.9	g.ml	
	167R 3/1	<u> 92</u>	104R43	8		m			gravel	
<u>10-16</u>		92	101275				_ oam	<u> </u>	Avane .	
							<u> </u>	<u> </u>		
					<u> </u>					2
			5							
							3			
				·			2			
	dicators: (Application)					d Sand Gra			^p ore Lining, M iematic Hydr	
Histosol (A								n Muck (A10	•	10 00113 .
· ·	bedon (A2)		_ Sandy Redox (Stripped Matrix	•				Parent Mat	-	
Black Hist			Loamy Mucky N		-1) (except	MLRA 1)			ark Surface (1	F12)
	Sulfide (A4)	_	Loamy Gleyed			,		, er (Explain ir		
Depleted I	Below Dark Surface	e (A11)	_ Depleted Matrix	(F3)			_			
	k Surface (A12)	_	_ Redox Dark Su	•				• ·	hytic vegetati	
	cky Mineral (S1)	_	_ Depleted Dark	•	•			• •	y must be pre	
	eyed Matrix (S4) eyer (if present):		_ Redox Depress	ions (ro)			Unies		or problemation	<u>ت</u>
Type:	iyer (il present).									
Depth (inch	es): •						Hydric Soii	Present?	Yes	No X
Remarks:				20						
Kernarka.					r i		1			
		n	hydriz soil	1 rnd	icaturs	presen	JF			× - 2
			0			•				
L										
HYDROLOG	Y									
-	ology indicators:									
	tors (minimum of o	ne required; c							tors (2 or mor	10
Surface W	• •				ves (B9) (e)	kcept	W		-) (MLRA 1, 2,
	r Table (A2)				and 4B)		_	4 A , and 4	•	
Saturation			Salt Crust					rainage Pat		
Water Mar			Aquatic Inv						Vater Table (
Sediment i	Deposits (B2)		Hydrogen			living Reel	S ts (C3) G			I Imagery (C9)
	or Crust (B4)				ed Iron (C4			hallow Aquit		
Iron Depos					tion in Tillec			AC-Neutral		
	oil Cracks (B6)		—		d Plants (D'				ounds (D6) (I	LRR A)
	Visible on Aerial Ir	nagery (B7)	Other (Exp		•	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			Hummocks (E	•
	egetated Concave				•				·	ŕ
Field Observa	tions:									
Surface Water	Present? Ye	es No	<u>X</u> Depth (ind	ches):		_				
Water Table Pr	resent? Ye	es <u>X</u> No	Depth (ind	:hes):	12	_				
Saturation Pres	sent? Ye	es <u>X</u> No	Depth (ind	ches):	9	Wetia	and Hydrolog	y Present?	Yes	No
(includes capill		nauna maait		hataa a			if availables			
Describe Recoi	rded Data (stream	gauge, monit	oring well, aerial p	photos, p	revious insp	pecuons), I	ir avaliable:			-
Demedia	·									
Remarks:	expandel	to =	5U stain	لي ع	-than c	1 he	rdrolog	14 10	ong er	10-10h
1,00	cra cord						, = 1	v v .	١	4.,
dur	ne u	0		а Са а						
	ing the	you	ng sca	>0/)	,	57			25	2
19			v							

WEILAND DETERMINATION I	DATA FORM - 1	Western Mour	ntains, Valleys, and Coast Region
Project/Site: <u>Crede Rail Un(valim</u> Applicant/Owner: <u>Shell PSR</u> nvestigator(s): <u>J.(Walker</u> , B. Kiddler andform (hillslope, terrace, etc.): <u>terrace</u> Subregion (LRR): <u>A</u> Soil Map Unit Name: <u>Bow gradelly to amo</u> Are climatic / hydrologic conditions on the site typical for Are Vegetation <u>, Soil</u> , or Hydrology <u>, Are Vegetation</u> , Soil <u>, or Hydrology</u> SUMMARY OF FINDINGS – Attach site ma Hydrophytic Vegetation Present? <u>Yes</u> <u>Yes</u>	Facility City/C Sector Loca Loca Lat: significantiy distur naturally problem p showing san No No	county:	g.f Sampling Date: Jan 24, 20
	No	within a Wetlar	1d? Yes <u>/ No</u>
VEGETATION – Use scientific names of pl		ninant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 30')	% Cover Spe	cies? Status	Number of Dominant Species
1. Thuja plicatz	<u> 40 </u>	X FAC	That Are OBL, FACW, or FAC: (A)
2. Pupillis tremulailes	60	X FACU	Total Number of Dominant
3			Species Across All Strata: (B)
4/	/ (OD_ = T		Percent of Dominant Species (66 (A/B)
Sapling/Shrub Stratum (Plot size: 15)			Prevalence index worksheet:
1. Rusa nutkana 2. Lonicen involucrate		FAC	, Total % Cover of: Multiply by:
2. Voncen involuente		A FACW	OBL species <u>(က</u> x 1 = <u>(က</u>
3. Symphonicarpisa albus		X FACU	FACW species X2 = ZO
4			FAC species $55 \times 3 = 65$
5		otal Cover	FACU species 20 x4 = 320
Herb Stratum (Plot size:)			UPL species 247 x 5 = 0 Column Totals: 247 (A) 607 (B)
1. Caret Jony etc.	100	X DBL	
2. Polystich un munitur	10	FACU	Prevalence Index = B/A = <u>2.47</u>
3			Hydrophytic Vegetation indicators:
4			1 - Rapid Test for Hydrophytic Vegetation
5			$\cancel{1}$ 2 - Dominance Test is >50% $\cancel{1}$ 3 - Prevalence Index is $\leq 3.0^{\circ}$
6 7			4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
8			5 - Wetland Non-Vascular Plants ¹
9			Problematic Hydrophytic Vegetation ¹ (Explain)
10			¹ Indicators of hydric soil and wetland hydrology must
11/	/(0 = T		be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 5/)	<u>_no_</u> =10		
1			Hydrophytic
			Vegetation
2			
	2	otal Cover	Present? Yes <u>No</u>

SOI	L
-----	---

/Inchas}	<u>Matrix</u>			<u>ox Features</u>			_				
<u>(Inches)</u>	$\frac{Color (moist)}{10 \sqrt{R^{2/1}}}$	<u>%</u> [<i>U</i> 0	Color (moist)	%	_Type ¹ _	Loc ²	<u>Textu</u>			narks	19
0.9	the second s		0 5.10 41								
	IUYRY,	93	7.5YR 4/1		<u> </u>	M	_CC				
9-16	2545/07	85	10YR4(6	<u>""</u>	BC	M	Sel	-			
•	10 YR3/15		•								
							<u> </u>				
	<u> </u>		· · · · · · · · · · · · · · · · · · ·			••••••	<u> </u>				
			· · · · · · · · · · · · · · · · · · ·			<u> </u>	<u> </u>			<u></u>	
lype:_C=Conci lydric Soli Indi	cators: (Applicat	tion, RM=	Reduced Matrix, CS LRRs, unless other	S=Covered	or Coated	Sand Gr		² Location:	PL=Pore Lin	Ing, M=Matrix.	
Histosoi (A1			Sandy Redox (u.,					Hydric Solls ³ :	
Histic Epipe			Stripped Matrix					2 cm Muck Red Parant	(A10) Material (TF	2)	
Black Histic		•	Loamy Mucky N		(except l	MLRA 1)			w Dark Surfa	•	
Hydrogen Si		-	Loamy Gleyed						ain in Remai		
	low Dark Surface ((A11) _	Depleted Matrix								
	Surface (A12)	-	Redox Dark Su				³ Indi	cators of hy	drophytic ve	getation and	
	y Mineral (S1) ed Matrix (S4)	-	Depleted Dark)			-	ology must b	•	
Sandy Gleye			Redox Depress	ions (F8)			<u>u</u>	niess distur	ed or proble	ematic.	
Type:	in (in present).										
Depth (inches)·							Soii Presen		¥	
Bobar (monou	/·								t? Yes	∧ No	
							Tryunc				
remarks:					<u>n</u>		Tyure				
Remarks: YDROLOGY Vetland Hydrold							·				
Permarks: YDROLOGY Vetland Hydroid Irimary Indicator	s (minimum of one	required;	check all that apply		<u>.</u>		·	econdary Inc	icators (2 or	more regulred)	-
Permarks: YDROLOGY Vetland Hydroid Irimary Indicators Surface Wate	<u>s (minimum of one</u> er (A1)	required;	Water-Stal	ned Leaves		sept	·	condary Inc	icators (2 or		-
Permarks: YDROLOGY Vetiand Hydroid rimary Indicator Surface Wate X High Water T	<u>s (minimum of one</u> er (A1) able (A2)	required;	Water-Stal	ned Leaves I, 2, 4A, and		ept	·	econdary Inc Water-Sta 4A, an	icators (2 or ined Leaves d 4B)	more required) (B9) (MLRA 1,	-
YDROLOGY Yetiand Hydroid Trimary Indicators Surface Wate Y High Water T Saturation (A	<u>s (minimum of one</u> er (A1) able (A2) 3)	required;	Water-Stal	ned Leaves , 2, 4A, and 811)	d 4B)	ept	<u>Se</u>	econdary Inc Water-Sta 4A, an Drainage	icators (2 or ined Leaves d 4B) Patterns (B1	<u>more regulred</u>) (B9) (MLRA 1 ,	-
Remarks: YDROLOGY Vetiand Hydroid Primary Indicators Surface Wate X High Water T X Saturation (A Water Marks	<u>s (minimum of one</u> er (A1) able (A2) 3) (B1)	required;	Water-Stall MLRA 1 Salt Crust (Aquatic Inv	ned Leaves , 2, 4A, an B11) ertebrates (d 4B) (B13)	ept	<u>Se</u>	condary Inc Water-Sta 4A, an Drainage Dry-Seaso	icators (2 or ined Leaves d 4B) Patterns (B1 n Water Tai	<u>more required</u>) (B9) (MLRA 1 , 0) ble (C2)	, 2,
YDROLOGY YDROLOGY Vetland Hydroid Primary Indicators	<u>s (minimum of one</u> ar (A1) able (A2) 3) (B1) posits (B2)	required;	Water-Stali MLRA 1 Salt Crust (Aquatic Inv Hydrogen 5	ned Leaves I , 2, 4A, an (B11) ertebrates (Sulfide Odol	d 4B) (B13) r (C1)		<u>Se</u>	Condary Inc. Water-Sta 4A, an Drainage Dry-Sease Saturation	icators (2 or ined Leaves d 4B) Patterns (B1 Vislble on A	more required) (B9) (MLRA 1, 0) ble (C2) Aerial Imagery (, 2,
YDROLOGY Yetland Hydroid Yetland Hydroid Yrimary Indicators Surface Wate X High Water T X Saturation (A Water Marks Sediment De	<u>s (minimum of one</u> ar (A1) able (A2) 3) (B1) posits (B2) 5 (B3)	required;	Water-Stali MLRA 1 Salt Crust (Aquatic Inv Hydrogen 5 Oxidized R	ned Leaves I, 2, 4A, an B11) ertebrates (Sulfide Odor hizospheres	d 4B) (B13) r (C1) s along Liv		<u>Se</u>	econdary Inc Water-Sta 4A, an Drainage Dry-Seaso Saturatior Geomorph	icators (2 or ined Leaves d 4B) Patterns (B1 visible on A visible on A ic Position (more reguired) (B9) (MLRA 1, 0) ble (C2) Aerial Imagery (D2)	, 2,
YDROLOGY Yetland Hydroid Yetland Hydroid Yrimary Indicators Surface Wate X High Water T X Saturation (A Water Marks Sediment De Drift Deposits	<u>s (minimum of one</u> rable (A2) 3) (B1) posits (B2) 6 (B3) Crust (B4)	required;	Water-Stali MLRA 1 Salt Crust (Aquatic Inv Hydrogen S Oxidized R Presence o	ned Leaves I, 2, 4A, an B11) ertebrates (Sulfide Odor hizospheres f Reduced	d 4B) (B13) r (C1) s along Liv Iron (C4)	ving Roots	<u>Se</u> 	econdary Inc Water-Sta 4A, an Drainage Dry-Seaso Saturatior Geomorph Shallow A	icators (2 or ined Leaves d 4B) Patterns (B1 on Water Tal Visible on A ic Position (quitard (D3)	0) (E9) (MLRA 1, 0) ble (C2) Aerial Imagery (D2)	, 2,
YDROLOGY Yetland Hydroid Yetland Hydroid	<u>s (minimum of one</u> r (A1) Table (A2) 3) (B1) posits (B2) 5 (B3) Crust (B4) (B5)	reguired;	Water-Stali MLRA 1 Salt Crust (Aquatic Inv Hydrogen 5 Oxidized R	ned Leaves I, 2, 4A, an B11) ertebrates (Sulfide Odor hizospheres f Reduced I Reduction	d 4B) (B13) r (C1) s along Liv Iron (C4) in Tilled S	ving Roots Soils (C6)	<u>Se</u> 	Condary Inc Water-Sta 4A, an Drainage Dry-Seaso Saturatior Geomorph Shallow A FAC-Neut	icators (2 or ined Leaves d 4B) Patterns (B1 on Water Tai Visible on A ic Position (quitard (D3) ral Test (D5)	0) (E9) (MLRA 1, 0) ble (C2) Verial Imagery (D2)	, 2,
Permarks: YDROLOGY Vetiand Hydroid rimary Indicators Surface Water K High Water T Saturation (A Water Marks SedIment De Drift Deposits Algal Mat or (C Iron Deposits Surface Soil (C Inundation Vision)	s (minimum of one ar (A1) able (A2) 3) (B1) posits (B2) 5 (B3) Crust (B4) (B5) Cracks (B6) sible on Aerial Imag	gery (B7)	Water-Stall MLRA 1 Salt Crust (Aquatic Inv Hydrogen S Oxidized R Presence o Recent Iror Stunted or Other (Expl	ned Leaves I, 2, 4A, an B11) ertebrates (Sulfide Odoi hizospheres f Reduced I a Reduction Stressed Pl	d 4B) (B13) r (C1) s along Liv Iron (C4) in Tilled S ants (D1)	ving Roots Soils (C6)	<u>Se</u> 	Condary Inc Water-Sta 4A, an Drainage Dry-Seaso Saturatior Geomorph Shallow A FAC-Neut Raised Ar	icators (2 or ined Leaves d 4B) Patterns (B1 on Water Tal Visible on A ic Position (quitard (D3)	more required) (B9) (MLRA 1, 0) ble (C2) Aerial Imagery (D2) (D2)	, 2,
YDROLOGY Yetland Hydroid Yetland Hydroid	s (minimum of one r (A1) fable (A2) 3) (B1) posits (B2) 6 (B3) Crust (B4) (B5) Cracks (B6) sible on Aerial Image	gery (B7)	Water-Stall MLRA 1 Salt Crust (Aquatic Inv Hydrogen S Oxidized R Presence o Recent Iror Stunted or Other (Expl	ned Leaves I, 2, 4A, an B11) ertebrates (Sulfide Odoi hizospheres f Reduced I a Reduction Stressed Pl	d 4B) (B13) r (C1) s along Liv Iron (C4) in Tilled S ants (D1)	ving Roots Soils (C6)	<u>Se</u> 	Condary Inc Water-Sta 4A, an Drainage Dry-Seaso Saturatior Geomorph Shallow A FAC-Neut Raised Ar	icators (2 or ined Leaves d 4B) Patterns (B1 on Water Tai Visible on A ic Position (quitard (D3) ral Test (D5) t Mounds (D	more required) (B9) (MLRA 1, 0) ble (C2) Aerial Imagery (D2) (D2)	, 2,
Remarks: YDROLOGY Vetiand Hydroid Primary Indicators	s (minimum of one ar (A1) Table (A2) 3) (B1) posits (B2) 6 (B3) Crust (B4) (B5) Cracks (B6) Sible on Aerial Image etated Concave Su ns:	gery (B7) urface (B8	Water-Stall MLRA 1 Salt Crust (Aquatic Inv Hydrogen S Oxidized R Presence o Recent Iron Stunted or 1 Other (Expl	ned Leaves I, 2, 4A, and B11) ertebrates (Gulfide Odor hizospheres f Reduced I Reduction Stressed PI ain in Rema	d 4B) (B13) r (C1) s along Liv lron (C4) in Tilled S ants (D1) arks)	ving Roots Soils (C6)	<u>Se</u> 	Condary Inc Water-Sta 4A, an Drainage Dry-Seaso Saturatior Geomorph Shallow A FAC-Neut Raised Ar	icators (2 or ined Leaves d 4B) Patterns (B1 on Water Tai Visible on A ic Position (quitard (D3) ral Test (D5) t Mounds (D	more required) (B9) (MLRA 1, 0) ble (C2) Aerial Imagery (D2) (D2)	, 2,
Remarks: YDROLOGY Vetiand Hydroid Primary Indicators Surface Wate X High Water T Saturation (A Water Marks SedIment De Drift Deposits Algal Mat or (C Iron Deposits Surface Soil (C Inundation Vis Sparsely Veg leid Observatio	s (minimum of one ar (A1) Table (A2) 3) (B1) posits (B2) 6 (B3) Crust (B4) (B5) Cracks (B6) Sible on Aerial Image etated Concave Su ns:	gery (B7) urface (B8	Water-Stall MLRA 1 Salt Crust (Aquatic Inv Hydrogen S Oxidized R Presence o Recent Iror Stunted or Other (Expl	ned Leaves I, 2, 4A, and B11) ertebrates (Gulfide Odor hizospheres f Reduced I Reduction Stressed PI ain in Rema	d 4B) (B13) r (C1) s along Liv lron (C4) in Tilled S ants (D1) arks)	ving Roots Soils (C6)	<u>Se</u> 	Condary Inc Water-Sta 4A, an Drainage Dry-Seaso Saturatior Geomorph Shallow A FAC-Neut Raised Ar	icators (2 or ined Leaves d 4B) Patterns (B1 on Water Tai Visible on A ic Position (quitard (D3) ral Test (D5) t Mounds (D	more required) (B9) (MLRA 1, 0) ble (C2) Aerial Imagery (D2) (D2)	, 2,
YDROLOGY YDROLOGY Vetiand Hydroid Yrimary Indicators Surface Water Y High Water Y Algal Water Y Water Marks Sediment Deposits Drift Deposits Algal Mat or C Iron Deposits Surface Soil C Inundation Vis Sparsely Veg Ieid Observation	s (minimum of one ar (A1) able (A2) 3) (B1) posits (B2) 6 (B3) Crust (B4) (B5) Cracks (B6) sible on Aerial Imagetated Concave Su etated Concave Su ns: esent? Yes	gery (B7) urface (B8	Water-Stall MLRA 1 Salt Crust (Aquatic Inv Hydrogen S Oxidized R Presence o Recent Iror Stunted or Other (Expl) Depth (incl	ned Leaves I, 2, 4A, and B11) ertebrates (Gulfide Odor hizospheres f Reduced I Reduction Stressed PI ain in Rema	d 4B) (B13) r (C1) s along Liv Iron (C4) in Tilled S ants (D1) arks)	ving Roots Soils (C6)	<u>Se</u> 	Condary Inc Water-Sta 4A, an Drainage Dry-Seaso Saturatior Geomorph Shallow A FAC-Neut Raised Ar	icators (2 or ined Leaves d 4B) Patterns (B1 on Water Tai Visible on A ic Position (quitard (D3) ral Test (D5) t Mounds (D	more required) (B9) (MLRA 1, 0) ble (C2) Aerial Imagery (D2) (D2)	, 2,
Remarks: YDROLOGY Vetiand Hydroid Primary Indicators Surface Water K High Water T Saturation (A Water Marks SedIment De Drift Deposits Algal Mat or (C Iron Deposits Surface Soil (C Inundation Vis Sparsely Veg ieid Observation urface Water Pre- /ater Table Presen aturation Presen	s (minimum of one er (A1) able (A2) 3) (B1) posits (B2) 6 (B3) Crust (B4) (B5) Cracks (B6) sible on Aerial Image etated Concave Su ns: esent? Yes ent? Yes	gery (B7) urface (B8	Water-Stall MLRA 1 Salt Crust (Aquatic Inv Hydrogen S Oxidized R Presence o Recent Iror Stunted or Other (Expl) Depth (incl	hed Leaves I, 2, 4A, and B11) ertebrates (Sulfide Odol hizospheres f Reduced I a Reduction Stressed PI ain in Remain hes): hes):	d 4B) (B13) r (C1) s along Liv lron (C4) in Tilled S lants (D1) arks)	ving Roots Soils (C6) (LRR A)	<u></u> <u>S</u> (C3) 	Condary Inc Water-Sta 4A, an Drainage Dry-Seaso Saturatior Geomorph Shallow A FAC-Neut Raised Ar	icators (2 or ined Leaves d 4B) Patterns (B1 on Water Tal Visible on A ic Position (quitard (D3) ral Test (D5) t Mounds (D ve Hummoc	more required) (B9) (MLRA 1, 0) ble (C2) Aerial Imagery (D2) (D2)	, 2,
Remarks: YDROLOGY Vetland Hydroic Primary Indicators Surface Wate High Water T Saturation (A Water Marks SedIment De Drift Deposits Algal Mat or (Iron Deposits Surface Soil (Inundation Vis Sparsely Veg ield Observation urface Water Present Autor Table Present Inucludes capillary	s (minimum of one ar (A1) (able (A2) (B1) posits (B2) (B3) Crust (B4) (B5) Cracks (B6) sible on Aerial Imaget etated Concave Su ns: esent? Yes ent? Yes fringe)	gery (B7) urface (B8 No No	Water-Stall MLRA 1 MLRA 1 Salt Crust (Aquatic Inv Hydrogen S Oxidized R Presence o Recent Iror Stunted or 3 Other (Expl) Depth (incl De	ned Leaves I, 2, 4A, and B11) ertebrates (Sulfide Odor hizospheres f Reduced I Reduction Stressed P! ain in Remain hes): hes):	d 4B) (B13) r (C1) s along Liv lron (C4) in Tilled S ants (D1) arks)	ving Roots Soils (C6) (LRR A) Wetiar	<u>Se</u> s (C3) 	Condary Inc Water-Sta 4A, an Drainage Dry-Seaso Saturatior Geomorph Shallow A FAC-Neut Raised Ar Frost-Hea	icators (2 or ined Leaves d 4B) Patterns (B1 on Water Tal Visible on A ic Position (quitard (D3) ral Test (D5) t Mounds (D ve Hummoc	more required) (B9) (MLRA 1, (0) (D2) (D2) (D2) (C2) (C2) (C2) (C2) (C2) (C2) (C2) (C	, 2,
Remarks: YDROLOGY Vetland Hydroic Primary Indicators Surface Wate High Water T Saturation (A Water Marks SedIment De Drift Deposits Algal Mat or (Iron Deposits Surface Soil (Inundation Vis Sparsely Veg ield Observation urface Water Present Autor Table Present Inucludes capillary	s (minimum of one ar (A1) (able (A2) (B1) posits (B2) (B3) Crust (B4) (B5) Cracks (B6) sible on Aerial Imaget etated Concave Su ns: esent? Yes ent? Yes fringe)	gery (B7) urface (B8 No No	Water-Stall MLRA 1 Salt Crust (Aquatic Inv Hydrogen S Oxidized R Presence o Recent Iror Stunted or S Other (Expl) Depth (incl Depth (incl	ned Leaves I, 2, 4A, and B11) ertebrates (Sulfide Odor hizospheres f Reduced I Reduction Stressed P! ain in Remain hes): hes):	d 4B) (B13) r (C1) s along Liv lron (C4) in Tilled S ants (D1) arks)	ving Roots Soils (C6) (LRR A) Wetiar	<u>Se</u> s (C3) 	Condary Inc Water-Sta 4A, an Drainage Dry-Seaso Saturatior Geomorph Shallow A FAC-Neut Raised Ar Frost-Hea	icators (2 or ined Leaves d 4B) Patterns (B1 on Water Tal Visible on A ic Position (quitard (D3) ral Test (D5) t Mounds (D ve Hummoc	more required) (B9) (MLRA 1, (0) (D2) (D2) (D2) (C2) (C2) (C2) (C2) (C2) (C2) (C2) (C	, 2,

ų

Project/Site: Crude Pril Unloading Fac	ility.	City/County:	Sampling Date: Jan 25,2013
Applicant/Owner: SLEQ PSR			State: WA Sampling Point: 5P - D25
Investigator(s): P. Hamidi, B. Flether	. <u> </u>	Section, Township, Ra	
Landform (hillslope, terrace, etc.):			
			_ Long: Datum:
Soli Map Unit Name: Bow gravelly liem			NWI classification: Unland
Are climatic / hydrologic conditions on the site typical for this	s time of ve	ar? Yes X No	(if no, explain in Remarks)
Are Vegetation, Soil, or Hydroiogy s			"Normal Circumstances" present? Yes X No
Are Vegetation, Soli, or Hydrology n			eeded, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map			· · · · · · · · · · · · · · · · · · ·
Hydrophytic Vegetation Present? Yes No			
Hydric Soil Present? Yes No		is the Sampled	
Wetland Hydrology Present? Yes No	• <u>×</u>	within a Wetlar	nd? Yes NoX
Remarks: phylos: 131,140 sol 141,142 plat			
VEGETATION – Use scientific names of plan	ts.		
Troe Stratum (Plot size: 30)	Absolute		Dominance Test worksheet:
		Species? Status	Number of Dominant Species
2		X FACU	That Are OBL, FACW, or FAC: (A)
3.	·		Total Number of Dominant
4.			Species Across All Strata: (B)
	ŝo	= Total Cover	Percent of Dominant Species That Are OBL, FACW, or FAC: 20 (A/B)
Sapling/Shrub Stratum (Plot size: 15)	_		Prevalence index worksheet:
1. Rubus armeniacus	_2	FACU	Total % Cover of: Multiply by:
2. Rosa Antlana 3. Symphacica pos albus	- <u>-></u> 6	X FALU	OBL species x 1 = 0
4. Holdiscus discher	-15	X FACU X FACU	FACW species x 2 =
5. Mahonin aqui blium	2	FALU	FAC species $67 \times 3 = 201$
Malus Fusia	5	= Total Cover FACW	FACU species x 4 =
Herb Stratum (Plot size:)	ন্য		
1. <u>Clinopedium (Satureja) douglas in</u>	<u> </u>	NOL	Column Totals: <u>193</u> (A) <u>705</u> (B)
2. <u>Circium arvenk</u> 3. <u>Azartí carilaris</u>	60	X FAC	Prevalence Index = B/A = 3.65
4. Sanicula consignation	_60	X FAC	Hydrophytic Vegetation Indicators:
5		NO CO	1 - Rapid Test for Hydrophytic Vegetation
6			2 - Dominance Test is >50% 3 - Prevalence index is ≤3.01
7			4 - Morphological Adaptations ¹ (Provide supporting
8			data in Remarks or on a separate sheet)
9		<u> </u>	5 - Wetland Non-Vascular Plants'
10		<u> </u>	Problematic Hydrophytic Vegetation (Explain)
11			Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 5')	72	≓ Total Cover	
1. Rubus ursinus	2	* FACU	
2			Hydrophytic Vegetation
% Bare Ground in Herb Stratum	2.	= Total Cover	Present? Yes No X
Remarks: NOL - not a indicator list, assu-	<u>. 1</u>		
	,		
remaining grow-heaver is leaf li	tter an	M MOSS	

US Army Corps of Engineers

Profile Descripti	ioni (Decotino i					•
Depth	Matrix		Redox Features	<u> </u>	Ter-free	Bamarka
(Inches)	Color (moist)	%	Color (moist) % Type		Texture	Remarks
0-5	7.5YR 3/2	100			Se Lo	
5-12	57R4/4	100			Sala	Los f charcoal, Why ravel
12-18 -	7.57644	100	_		Sah	15% grown
				· · · ·		
		<u> </u>	·			
						-14
						<u> </u>
	ntration D=Deni	etion RM=R	educed Matrix, CS=Covered or Coate	d Sand Grai	ns. ² Lo	cation: PL=Pore Lining, M=Matrix.
Hydric Soli Indic	ators: (Applica	bie to all LR	Rs, unless otherwise noted.)			ors for Problematic Hydric Solis ³ :
Histosol (A1)			Sandy Redox (S5)		2 ci	m Muck (A10)
Histic Epiped			Stripped Matrix (S6)			d Parent Material (TF2)
Black Histic (_	Loamy Mucky Minerai (F1) (except	MLRA 1)		y Shallow Dark Surface (TF12)
Hydrogen Su	lifide (A4)		_ Loamy Gleyed Matrix (F2)		Oth	ner (Explain in Remarks)
	ow Dark Surface	(A11) _	_ Depleted Matrix (F3)		3	
Thick Dark Si	•		_ Redox Dark Surface (F6)			ors of hydrophytic vegetation and and hydrology must be present,
Sandy Mucky			_ Depleted Dark Surface (F7) _ Redox Depressions (F8)			ss disturbed or problematic.
Sandy Gleyed Restrictive Layer				- · T		
	r (ii present)i					
Depth (inches)					Hvdric Sol	li Present? Yes No
Remarks:	//	• • • •				
Remarks.						
		hudric	suil infantors absent			
		leg.				
		<u> </u>				
HYDROLOGY			-			
HYDROLOGY Wetland Hydrolo						
Wetland Hydrolo	gy indicators:		check all that apply)		Secc	ondary Indicators (2 or more required)
Wetland Hydrolo	gy Indicators: s (minimum of or			xcept		ondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2,
Wetland Hydrolo Primary Indicators	gy indicators: a (minimum of or er (A1)		check all that apply)	xcept	'	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
Wetiand Hydrolo Primary Indicators Surface Wate	gy Indicators: s (minimum of or er (A1) able (A2)		<u>check all that apply)</u> Water-Stained Leaves (B9) (e MLRA 1, 2, 4A, and 4B) Salt Crust (B11)	xcept	`	Water-Stained Leaves (B9) (MLRA 1, 2, 4 A, and 4B) Drainage Patterns (B10)
Wetland Hydrolo Primary Indicators Surface Wate High Water Ta	ogy Indicators: a (minimum of or er (A1) able (A2) 3)		check all that apply) Water-Stained Leaves (B9) (e MLRA 1, 2, 4A, and 4B)	xcept	×	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2)
Wetland Hydrolo Primary Indicators Surface Wate High Water Ta	egy Indicators: (minimum of or er (A1) able (A2) 3) (B1)		<u>check all that apply)</u> <u>Water-Stained Leaves (B9) (e</u> <u>MLRA 1, 2, 4A, and 4B)</u> <u>Salt Crust (B11)</u> <u>Aquatic Invertebrates (B13)</u> <u>Hydrogen Sulfide Odor (C1)</u>		· _ `	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9)
Wetland Hydrolo Primary Indicators Surface Wate High Water Ta Saturation (A2 Water Marks Sediment Dep Drift Deposits	gy indicators: a (minimum of or er (A1) able (A2) 3) (B1) posits (B2) 5 (B3)		<u>heck all that apply)</u> <u>Water-Stained Leaves (B9) (e</u> <u>MLRA 1, 2, 4A, and 4B)</u> <u>Salt Crust (B11)</u> <u>Aquatic Invertebrates (B13)</u> <u>Hydrogen Sulfide Odor (C1)</u> <u>Oxidized Rhizospheres along</u>	Living Roots		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)
Wetland Hydrolo Primary Indicators Surface Wate High Water Ta Saturation (A2 Water Marks Sediment Dep Drift Deposits Algal Mat or C	egy Indicators: (minimum of or (A1) able (A2) (B1) posits (B2) (B3) Crust (B4)		<u>check all that apply)</u> <u>Water-Stained Leaves (B9) (e</u> <u>MLRA 1, 2, 4A, and 4B)</u> <u>Salt Crust (B11)</u> <u>Aquatic Invertebrates (B13)</u> <u>Hydrogen Sulfide Odor (C1)</u> <u>Oxidized Rhizospheres along</u> <u>Presence of Reduced Iron (C4</u>)	Living Roots		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)
Wetland Hydrolo Primary Indicators Surface Wate High Water Ta Saturation (A3 Water Marks Sediment Dep Drift Deposits Algal Mat or C Iron Deposits	gy Indicators: (minimum of or er (A1) able (A2) 3) (B1) posits (B2) (B3) Crust (B4) (B5)		<u>check all that apply)</u> <u>Water-Stalned Leaves (B9) (e</u> <u>MLRA 1, 2, 4A, and 4B)</u> <u>Salt Crust (B11)</u> <u>Aquatic Invertebrates (B13)</u> <u>Hydrogen Sulfide Odor (C1)</u> <u>Oxidized Rhizospheres along</u> <u>Presence of Reduced Iron (C4</u> <u>Recent Iron Reduction in Tille</u>	Living Roots }) d Soils (C6)		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)
Wetland Hydrolo Primary Indicators Surface Wate High Water Ta Saturation (A: Water Marks) Sediment Dep Drift Deposits Algal Mat or C Iron Deposits Surface Soil C	egy Indicators: (minimum of or able (A2) 3) (B1) posits (B2) (B3) Crust (B4) (B5) Cracks (B6)	ne required; c	 Check all that apply) Water-Stained Leaves (B9) (e MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Presence of Reduced Iron (C4 Recent Iron Reduction in Tille Stunted or Stressed Plants (D 	Living Roots }) d Soils (C6)		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)
Wetland Hydrolo Primary Indicators	egy Indicators: (minimum of or er (A1) able (A2) 3) (B1) posits (B2) 4 (B3) Crust (B4) (B5) Cracks (B6) sible on Aerial In	ne required; o	 <u>Check all that apply</u> Water-Stained Leaves (B9) (e MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Presence of Reduced Iron (C4 Recent Iron Reduction in Tille Stunted or Stressed Plants (D Other (Explain in Remarks) 	Living Roots }) d Soils (C6)		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)
Wetland Hydrolo Primary Indicators Surface Wate High Water Ta Saturation (A3 Water Marks Sediment Dep Orift Deposits Algal Mat or C Iron Deposits Surface Soil C Inundation Vis Sparsely Vege	egy indicators: a (minimum of or able (A2) 3) (B1) posits (B2) 5 (B3) Crust (B4) (B5) Cracks (B6) sible on Aerial In etated Concave	ne required; o	 <u>Check all that apply</u> Water-Stained Leaves (B9) (e MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Presence of Reduced Iron (C4 Recent Iron Reduction in Tille Stunted or Stressed Plants (D Other (Explain in Remarks) 	Living Roots }) d Soils (C6)		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)
Wetland Hydrolo Primary Indicators Surface Wate High Water Ta Saturation (A3 Water Marks) Sediment Dep Drift Deposits Algal Mat or C Iron Deposits Surface Soil C Inundation Vis Sparsely Vego	gy indicators: a (minimum of or er (A1) able (A2) 3) (B1) posits (B2) 5 (B3) Crust (B4) (B5) Cracks (B6) sible on Aerial In etated Concave ns:	ne required; o nagery (B7) Surface (B8	<u> heck all that apply)</u> Water-Stained Leaves (B9) (e MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Presence of Reduced Iron (C4 Recent Iron Reduction in Tille Stunted or Stressed Plants (D Other (Explain in Remarks))	Living Roots }) d Soils (C6)		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)
Wetland Hydrolo Primary Indicators Surface Wate High Water Ta Saturation (A3 Water Marks Sediment Dep Orift Deposits Algal Mat or C Iron Deposits Surface Soil C Inundation Vis Sparsely Vege	a (minimum of or a (minimum of or er (A1) able (A2) 3) (B1) posits (B2) 6 (B3) Crust (B4) (B5) Cracks (B6) sible on Aerial In etated Concave ns: esent? Ye	nagery (B7) Surface (B8	<u> beck all that apply)</u> Water-Stained Leaves (B9) (e MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Presence of Reduced Iron (C4 Recent Iron Reduction in Tille Stunted or Stressed Plants (D Other (Explain in Remarks)) Depth (inches):	Living Roots }) d Soils (C6)		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)
Wetland Hydrolo Primary Indicators Surface Wate High Water Ta Saturation (A3 Water Marks Sediment Deposits Drift Deposits Algal Mat or O Iron Deposits Surface Soil O Inundation Vis Sparsely Vego	egy Indicators: (minimum of or able (A2) 3) (B1) posits (B2) (B3) Crust (B4) (B5) Cracks (B6) sible on Aerial In etated Concave ns: esent? Ye ent? Ye	nagery (B7) Surface (B8 es No es No	check all that apply)	Living Roots 4) d Soils (C6) 1) (LRR A)		Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D?)
Wetland Hydrolo Primary Indicators	egy Indicators: a (minimum of or a (A1) able (A2) 3) (B1) posits (B2) 4 (B3) Crust (B4) (B5) Cracks (B6) sible on Aerial In etated Concave ns: esent? Ye ent? Ye	nagery (B7) Surface (B8 es No es No	<u> beck all that apply)</u> Water-Stained Leaves (B9) (e MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Presence of Reduced Iron (C4 Recent Iron Reduction in Tille Stunted or Stressed Plants (D Other (Explain in Remarks)) Depth (inches):	Living Roots 4) d Soils (C6) 1) (LRR A)		Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Wetland Hydrolo Primary Indicators Surface Wate High Water Ta Saturation (A: Water Marks) Sediment Dep Drift Deposits Algal Mat or C Iron Deposits Surface Soil C Inundation Vis Sparsely Vege Fleid Observation Surface Water Prese Water Table Prese Saturation Presen (includes capillary	egy Indicators: (minimum of or able (A2) 3) (B1) posits (B2) (B3) Crust (B4) (B5) Crust (B4) (B5) Cracks (B6) sible on Aerial In etated Concave ns: esent? Ye ent? Ye fringe)	nagery (B7) Surface (B8 es No es No	check all that apply)	Living Roots 4) d Soils (C6) 1) (LRR A)		Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D?)
Wetland Hydrolo Primary Indicators Surface Wate High Water Ta Saturation (A: Water Marks) Sediment Dep Drift Deposits Algal Mat or C Iron Deposits Surface Soil C Inundation Vis Sparsely Vege Fleid Observation Surface Water Prese Water Table Prese Saturation Presen (includes capillary	egy Indicators: (minimum of or able (A2) 3) (B1) posits (B2) (B3) Crust (B4) (B5) Crust (B4) (B5) Cracks (B6) sible on Aerial In etated Concave ns: esent? Ye ent? Ye fringe)	nagery (B7) Surface (B8 es No es No	check all that apply)	Living Roots 4) d Soils (C6) 1) (LRR A)		Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D?)
Wetland Hydrolo Primary Indicators Surface Wate High Water Ta Saturation (A2 Water Marks of Sediment Dep Drift Deposits Algal Mat or Co Iron Deposits Surface Soil Co Inundation Vis Sparsely Vego Fleid Observation Surface Water Prese Water Table Prese Saturation Presen (includes capillary Describe Recorded	egy Indicators: (minimum of or able (A2) 3) (B1) posits (B2) (B3) Crust (B4) (B5) Crust (B4) (B5) Cracks (B6) sible on Aerial In etated Concave ns: esent? Ye ent? Ye fringe)	nagery (B7) Surface (B8 es No es No	check all that apply)	Living Roots 4) d Soils (C6) 1) (LRR A)		Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D?)
Wetland Hydrolo Primary Indicators Surface Wate High Water Ta Saturation (A: Water Marks) Sediment Dep Drift Deposits Algal Mat or C Iron Deposits Surface Soil C Inundation Vis Sparsely Vege Fleid Observation Surface Water Prese Water Table Prese Saturation Presen (includes capillary	egy Indicators: (minimum of or able (A2) 3) (B1) posits (B2) (B3) Crust (B4) (B5) Crust (B4) (B5) Cracks (B6) sible on Aerial In etated Concave ns: esent? Ye ent? Ye fringe)	nagery (B7) Surface (B8 es No es No	check all that apply)	Living Roots 4) d Soils (C6) 1) (LRR A)		Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D?)
Wetland Hydrolo Primary Indicators Surface Wate High Water Ta Saturation (A2 Water Marks of Sediment Dep Drift Deposits Algal Mat or Co Iron Deposits Surface Soil Co Inundation Vis Sparsely Vego Fleid Observation Surface Water Prese Water Table Prese Saturation Presen (includes capillary Describe Recorder	agy indicators: a (minimum of or able (A2) 3) (B1) posits (B2) (B3) Crust (B4) (B5) Cracks (B6) sible on Aerial In etated Concave ns: asent? Ye ent? Ye fringe) d Data (stream of the second stream of the	nagery (B7) Surface (B8 ss No ss No gauge, moni	Check all that apply) Water-Stained Leaves (B9) (e MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Presence of Reduced Iron (C4 Recent Iron Reduction in Tille Stunted or Stressed Plants (D Other (Explain in Remarks) Depth (inches): Depth (inches): 1 Loring well, aerial photos, previous instantiation of the standard stressed previous instantiation.	Living Roots 4) d Soils (C6) 1) (LRR A) Uetlan spections), if		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 (D?)
Wetland Hydrolo Primary Indicators Surface Wate High Water Ta Saturation (A2 Water Marks of Sediment Dep Drift Deposits Algal Mat or Co Iron Deposits Surface Soil Co Inundation Vis Sparsely Vego Fleid Observation Surface Water Prese Water Table Prese Saturation Presen (includes capillary Describe Recorder	agy indicators: a (minimum of or able (A2) 3) (B1) posits (B2) (B3) Crust (B4) (B5) Cracks (B6) sible on Aerial In etated Concave ns: asent? Ye ent? Ye fringe) d Data (stream of the second stream of the	nagery (B7) Surface (B8 ss No ss No gauge, moni	check all that apply)	Living Roots 4) d Soils (C6) 1) (LRR A) Uetlan spections), if		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 (D?)

Project/Site: Crule Rail Unlosling Facility City	County: Skagit Sampling Date: 25-Jan-13
Applicant/Owner: Shell KR	State: WA Sampling Point: SP-DJ 6
Investigator(s): P. Hanidi, B. Fletcher Sec	tion, Township, Range: Section 37, 55N, 2E
Landform (hillslope, terrace, etc.): Loc	al relief (concave) convex, none): Slope (%):
Subregion (LRR): Lat:	Long: Datum:
Soil Map Unit Name: Boingravely learn, 6 to 3 pe	cent slips NWI classification: PFO
Are ciimatic / hydrologic conditions on the site typical for this time of year?	
Are Vegetation, Soil, or Hydrology significantly dist	urbed? 🕢 Are "Normal Circumstances" present? Yes X No
Are Vegetation, Soll, or Hydrology naturally problem	natic? 📈 (If needed, expiain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sa	mpling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No	Is the Sampled Area within a Wetland? Yes No
Remarks: photos: 143,144 60:1 145-147 plot	
VEGETATION – Use scientific names of plants.	

Tree Stratum (Plot size: 30)	Absolute	Dominant	Indicator	Dominance Test worksheet:
		Species?		Number of Dominant Species 🛛 🏹 💋
1. Malus fusca	40	<u> </u>	FACW	That Are OBL, FACW, or FAC: (A)
2. Populus trenuloides	30	<u> </u>	FACU	Total Number of Dominant 9
3				Species Across All Strata: (B)
4.				Development Development of the second
	60	= Total Co	ver	Percent of Dominant Species 78 2020 (A/B)
Sapling/Shrub Stratum (Plot size: 1)	5	×	FAC	Prevalence Index worksheet:
1. Ribes divaricadum		<u> </u>	<u> </u>	Total % Cover of: Multiply by:
2. tooluciata Lonicory involverata	10	<u> </u>	FAL	OBL species 10 x 1 = 10
3. Spirnen douglasil	<u></u>	<u>×</u>	FALW	FACW species 35 x 2 = 70
4. Symphonicarpus aldus	<u> </u>	<u>×</u>	FACU	FAC species $27 \times 3 = 8($
5	<u> </u>			FACU species 35 $x4 = 140$
5-	25	= Total Co	ver	1
Herb Stratum (Plot size:)	0	N N	• DI	
1. Denanthe Samentosa	10	<u> </u>	OBL	Column Totals: 107 (A) 30 (B)
2. Ranunculus repens	<u> </u>	<u> </u>	F41 ¥	Prevalence Index = B/A = 2,8(
3. Junius SP. (grazed)(assume FAc)	5	<u>×</u> _	FAL	Hydrophytic Vegetation Indicators:
4. Carex leptopoda	2		FAC	1 - Rapid Test for Hydrophytic Vegetation
5.				2 - Dominance Test is >50%
6				3 - Prevalence Index is ≤3.0 ¹
7				4 - Morphological Adaptations ¹ (Provide supporting
8				data in Remarks or on a separate sheet)
9				5 - Wetland Non-Vascular Plants ¹
10.				Problematic Hydrophytic Vegetation ¹ (Explain)
				Indicators of hydric soil and wetland hydrology must
11	- 77			be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 15)		= Total Co	ver	
1. NA				Hydrophytic
2.				Vegetation
2	2	= Total Co		Present? Yes <u>No</u>
% Bare Ground in Herb Stratum	_0		ver	
Remarks:				
Remaining groundcover is a	De	alor D	onding	and leaf litter and moss
Remaining groundlover is a	Tin a	NTE F	y	

SOIL

The second

-

1

4

Sampling Point:	SA-DO	B
Sampling Point:	7 00	U.

Profile Desc	cription: (Describe	to the dept	th needed to docur	nent the l	ndicator	or confirm	the absence	of indicators.)
Depth	Matrix			x Features				
(Inches)	<u>Color (moist)</u>		Color (molst)	%	Type ¹	Loc ²		Remarks
$\frac{D-6}{2}$	10YR 3/1	100		·			>160	
6-16	1/2 401	<u> </u>	IDYRS/6	20	C	MPL	Sicilo	Restrictive layer
		• ·	· · · · · · · · · · · · · · · · · · ·			·		
	2					<u> </u>		
			ю 	-				
								0
	•							
		• •					·······	
	oncentration. D=Der		Reduced Matrix, CS	=Covered	or Coate	d Sand Gra	ains. ² Loc	ation: PL=Pore Lining, M=Matrix.
			RRs, unless other					rs for Problematic Hydric Soils ³ :
Histosol			Sandy Redox (S		·			1 Muck (A10)
Histic Ep	pipedon (A2)	-	Stripped Matrix					Parent Material (TF2)
Black His	stic (A3)	-	Loamy Mucky M	Ilneral (F1) (except	MLRA 1)	Very	Shallow Dark Surface (TF12)
	n Sulfide (A4)	,	Loamy Gleyed N)		Othe	er (Explain in Remarks)
	Below Dark Surfac	e (A11) -	Depleted Matrix	• •			3, ., .	•••••••••••••••••••••••••••••••••••••
	urk Surface (A12) lucky Mineral (S1)	-	Redox Dark Sur	• •	7)			rs of hydrophytic vegetation and
	leyed Matrix (S4)	-	Depleted Dark S Redox Depress	•	<i>(</i>)			nd hydrology must be present, s disturbed or problematlc.
Restrictive L	ayer (if present):		•		8			
Type: <u>D</u> e	nse silty c	lay loar	n layer					
Depth (Inc	r 11	5). 2)					Hydric Soli I	Present? Yes <u> </u>
Remarks:	·····							
٨		L						
Area	trampled	07 (atte,					
HYDROLOG	CV C		<u></u>					
	irology indicators:							
	-		check all that apply	a)			Secon	dary Indicators (2 or more required)
1	Water (A1)	no required.	Water-Stali					ater-Stained Leaves (B9) (MLRA 1, 2,
-17	ter Table (A2)			, 2, 4A, ai		cept	vv	
X Saturatio	• •		Salt Crust (nu 46)		Dr	4A, and 4B) ainage Pattems (B10)
Water Ma	• •		Aquatic Inv	1	(B13)			y-Season Water Table (C2)
	t Deposits (B2)		Hydrogen S					ituration Visible on Aerial Imagery (C9)
	osits (B3)		Oxidized R		•••	iving Root		eomorphic Position (D2)
	t or Crust (B4)		Presence o		-	-		allow Aquitard (D3)
Iron Depo	• •		Recent Iron		-	-		C-Neutral Test (D5)
Surface S	Soil Cracks (B6)		Stunted or :					aised Ant Mounds (D6) (LRR A)
Inundatio	n Visible on Aerial I	magery (B7)				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		ost-Heave Hummocks (D?)
	Vegetated Concave				•		_	- -
Field Observ	ations:	. /			3 ''		·	
Surface Wate	r Present? Y	es <u>X</u> N	o Depth (inc	nes):		_		
Water Table F	Present? Y	es <u>X</u> N	o Depth (Inc	hes):	>	_		
Saturation Pre		es <u>X</u> N	o Depth (incl	hes):1	5	_ Wetlai	nd Hydrology	Present? Yes <u>X</u> No
(includes capi Describe Rec		gauge, mon	itoring well, aerial p	hotos pre	VIOUS INC	ections) if	available:	
2000.001.00		guugo, mon		notos, pre	vious insp		available.	
Remarks:								
		12	•					
-5								
			S					
	- • •		245					

Project/Site: Crude by Rail		Citv/Countv	Anaco	rtes/Skagit samp	ling Date: 5/6/13
Applicant/Owner: 5hell PSR				State: <u>WA</u> Samp	10 .
investigator(s): P. Hamidi, B. Fletch.	er	Section. To	wnshin, Ra		-
Landform (hillslope (terrace) etc.):				-	^
			-	_ Long:	
Soil Map Unit Name: 18- Bow gravelly 1					
0 .					
Are climatic / hydrologic conditions on the site typical for					
Are Vegetation, Soil, or Hydrology				"Normal Circumstances" present	
Are Vegetation, Soil, or Hydrology	naturally pro	blematic?	(if ne	eded, explain any answers in Re	emarks.)
SUMMARY OF FINDINGS Attach site ma	ap showing	samplin	g point l	ocations, transects, imp	ortant features, etc.
Hydrophytic Vegetation Present? Yes			_	8	
Hydric Soil Present? Yes			e Sampied in a Wetlai		
Wetland Hydrology Present? Yes	No <u>X</u>			iur 165 r	
Remarks: Grazed					
Photos 1-3	<u>.</u>				
VEGETATION – Use scientific names of pl	ants.				
Tree Stratum (Plot size: 30	Absolute	Dominant Species2		Dominance Test worksheet:	
1. Acer macrophyllum	35	<u>Species?</u>	FACU	Number of Dominant Species That Are OBL, FACW, or FAC	<u> </u>
2. Alnus realiza	<u> </u>	- 7	FAC		
3.				Total Number of Dominant Species Across All Strata:	7 (в)
4.					
	70	= Total Co	ver	Percent of Dominant Species That Are OBL, FACW, or FAC	43 78 (A/B)
Sapling/Shrub Stratum (Plot size: 15)	10	- 	tod en	Prevalence index worksheet	
1. Demlaria cera siformis	<u> </u>	<u> </u>	Free	Total % Cover of:	
2. Robus spectabilis	<u> </u>	$\frac{\gamma}{V}$	FAC		x1=
3 Rubus armeniacus		<u> </u>	FACE	FACW species	x 2 =
4					x3= <u>360</u>
5	25	= Total Co		FACU species 75	x4= <u>300</u>
Herb Stratum (Plot size:				UPL species	
1. Urtica dioila		. <u> </u>	<u>FAC</u>	Column Totals: <u>195</u>	(A) <u>660</u> (B)
2. Tellima grandiflorg	20	<u> </u>	FACU	Prevalence Index = B/A	- 3.38
3. Agrostis capillaris	70	<u> Y </u>	FAC	Hydrophytic Vegetation India	
4				1 - Rapid Test for Hydroph	ytic Vegetation
5				2 - Dominance Test is >50	1%
6				3 - Prevalence Index is ≤3	.0 ¹
7				4 - Morphological Adaptati	ions ¹ (Provide supporting
8				data in Remarks or on 5 - Wetland Non-Vascular	
9				Problematic Hydrophytic V	
10				¹ Indicators of hydric soil and w	
11		= Total Cov	er	be present, unless disturbed of	
Woody Vine Stratum (Plot size: 15-)		- 10121004	CI		
1. <u>N/A</u>				Hydrophytic	
2				Vegetation	No X
		= Total Cov	er	Present? Yes	
% Bare Ground in Herb Stratum				L	

Profile Description: (Describe to	the depth ne	eded to docum	nent the i	ndicator	or confirm	the absence	e of indicators.)
Depth <u>Matrix</u>			x Features				
(inches) Color (moist)	<u>%</u> _C	olor (moist)		Type ¹	Loc ²	Texture	Remarks
0-7 104R 3/3	() +		·			Loam	· · · · · · · · · · · · · · · · · · ·
7-18 LOYR 4/4	100					Loam	10% gravel
							0
			·				
			·				
·					<u></u>	· · · · · · · · · · · · · · · · · · ·	·
······						·	
¹ Type: C=Concentration, D=Deple	tion, RM=Red	uced Matrix, CS	S=Covered	or Coate	d Sand Gra	ains. ² Lo	ocation: PL=Pore Lining, M=Matrix.
Hydric Soli indicators: (Applica							ors for Problematic Hydric Solis ³ :
Histosol (A1)	/	Sandy Redox (S	S5)			2 c	m Muck (A10)
Histic Epipedon (A2)		Stripped Matrix	• •				d Parent Material (TF2)
Black Histic (A3)		Loamy Mucky M		• • •	MLRA 1)		ry Shallow Dark Surface (TF12)
Hydrogen Sulfide (A4)		Loamy Gleyed I)		Oth	ner (Explain in Remarks)
Depleted Below Dark Surface		Depleted Matrix Redox Dark Su				³ Indicat	ors of hydrophytic vegetation and
Thick Dark Surface (A12) Sandy Mucky Mineral (S1)		Depleted Dark Su	• •	7)			and hydrology must be present,
Sandy Gleyed Matrix (S4)		Redox Depress		')			ss disturbed or problematic.
Restrictive Layer (if present):						1	
Type:							
Depth (inches):						Hydric Sol	ii Present? Yes No $\underline{\times}$
Remarks:							
i tomanto.							
HYDROLOGY	3					11 	
Wetland Hydrology indicators:						_	
Primary Indicators (minimum of on	e required; che						ondary Indicators (2 or more required)
Surface Water (A1)		Water-Stai			kcept	_ '	Water-Stained Leaves (B9) (MLRA 1, 2,
High Water Table (A2)			1, 2, 4A, a	n d 4B)			4A, and 4B)
Saturation (A3)		Salt Crust	• •				Drainage Patterns (B10)
Water Marks (B1)		Aquatic Inv					Dry-Season Water Table (C2)
Sediment Deposits (B2)		Hydrogen		• •			Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3)		Oxidized R					Geomorphic Position (D2)
Algal Mat or Crust (B4)		Presence of		•	-		Shallow Aquitard (D3)
Iron Deposits (B5)		Recent Iro			• •	, —	FAC-Neutral Test (D5)
Surface Soil Cracks (B6)		Stunted or		•	1) (LRR A)		Raised Ant Mounds (D6) (LRR A)
Inundation Visible on Aerial Im		Other (Exp	olain in Rei	marks)	2.8	I	Frost-Heave Hummocks (D7)
Sparsely Vegetated Concave	Surface (B8)					0	
Field Observations:							
		X Depth (ind					
		X Depth (ind			_		
Saturation Present? Ye (includes capillary fringe)	s No	X Depth (ind	ches):		_ Wetla	and Hydrolog	gy Present? Yes No <u>X</u>
Describe Recorded Data (stream g	jauge, monitor	ing well, aerial p	ohotos, pre	evious ins	pections), i	if available:	
Remarks:							

Project/Site: Crude by Rail	c	City/County:	Anac	ostes /SKag; Tsampling Date: 5/6/13
Applicant/Owner: Shell PSR			•	State: <u>w</u> A Sampling Point: <u>0</u> 2 P
Investigator(s): P. Hamidi, B. Fletch	er s	Section, Town	ship, Ran	
Landform (hillslope terrace) etc.):				
				Long: Datum:
Soil Map Unit Name: 18-Bon gravelly 1	oq m	11		NWI classification: PEMB
Are climatic / hydrologic conditions on the site typical for t				
Are Vegetation, Soil, or Hydrology	•		- 853	/
Are Vegetation, Soil, or Hydrology				
			-	ocations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes X	No			
	No	,	Sampled /	
Wetland Hydrology Present? Yes X	No	within a	a Wetland	17 Yes No
Remarks: Grazed				
Photos 4-7				
VEGETATION – Use scientific names of pla	ints.			
Tree Stratum (Plot size: 30		Dominant Inc		Dominance Test worksheet:
1A		<u>Species?</u> S		Number of Dominant Species 2 That Are OBL, FACW, or FAC: (A)
2				
3				Total Number of Dominant Species Across All Strata:
4				
10-		= Total Cover		Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
Sapling/Shrub Stratum (Plot size: 15-)			ŀ	Prevalence index worksheet:
1. <u></u>				Total % Cover of: Multiply by:
2				OBL species x 1 =
Δ	<u> </u>			FACW species x 2 =
5				FAC species 128 x 3 = 384
·		= Total Cover		FACU species x 4 =
Herb Stratum (Plot size:)	•		4.	UPL species x 5 =
1. Agrostis Capillaris	- 50	<u> </u>	AC	Column Totals: <u>128</u> (A) <u>384</u> (B)
2. Trifolium répens	50	Ę	AC	Prevalence Index = B/A = 3,00
3. Cirsium arvense		<u> </u>	AC I	Hydrophytic Vegetation Indicators:
A CYNDSOLUS Cristal os		<u>r</u>	Ar	1 - Rapid Test for Hydrophytic Vegetation
5. Alopecurus pratensis 6. Ranunculus acris	10		AC	2 - Dominance Test is >50%
				X 3 - Prevalence Index is ≤3.0 ¹
7 8				4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
9				5 - Wetland Non-Vascular Plants ¹
10				Problematic Hydrophytic Vegetation ¹ (Explain)
11			2	¹ Indicators of hydric soil and wetland hydrology must
	128 =	Total Cover		be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size:)				
1. <u>N/H</u>				Hydrophytic
2	·			Vegetation Present? Yes No
% Bare Ground in Herb Stratum ${\cal O}$	=	Total Cover		
Remarks:		<u> </u>		
				1

OIL										ampling Point:
Profile Des	cription: (Describe	to the dep	oth needed				or confin	m the absence	of indicato	ors.)
Depth	Matrix				K Features			• <u> </u>		
(inches)	Color (moist)	%	Color (m	noist)	%	Type ¹	_Loc ²	<u>Texture</u>		Remarks
2-9	IDYR 3/1	100						Loan	10%	gravel
-15	2.54 4/2	89	10YR	4/4	8	C	M	Loam		
FAR			1DY	6/1	3	0	~			
5-18	5 7 5/1	77	IDYR	4/6	20	1	M	Loan		
<u> </u>			104	6/1	3	5	M			
		·	101	077						
	<u> </u>		<u> </u>							
			<u> </u>			<u> </u>			<u> </u>	
	oncentration, D=Dep						ed Sand G			Pore Lining, M=Matrix.
ydric Soil	Indicators: (Applic	able to all	LRRs, unle	ss other	wise not	ed.)				lematic Hydric Soils ³ :
_ Histoso	· ·			Redox (S	-				m Muck (A10	-
	pipedon (A2)			d Matrix					Parent Mat	
_	istic (A3) Sulfido (A4)			Gieyed N	•		t MLRA 1	·	er (Explain i	ark Surface (TF12)
	en Sulfide (A4) d Below Dark Surfac	e (A11)		ed Matrix	•)		O		a romans,
	ark Surface (A12)	0 (/// /)		Dark Sur				³ Indicate	ors of hydror	phytic vegetation and
_	Mucky Mineral (S1)			ed Dark S	• •	7)				y must be present,
_ Sandy (Gleyed Matrix (S4)		Redox	Depressi	ions (F8)			unles	ss disturbed	or problematic.
	Layer (if present);		u .							
Туре:	none w/i	n 18	, 							
Depth (in	ches):							Hydric Soil	Present?	Yes <u> </u>
emarks:						_				
YDROLC								11 a ba		
	drology Indicators:									·
•			المرامحات ال	that analy	٨			Saaa	ndon/Indiaa	tors (2 or more required
	cators (minimum of o	ne require			-					
	Water (A1)		. <u> </u>	/ater-Stai			xcept	v		d Leaves (B9) (MLRA 1
	ater Table (A2)		6		1, 2, 4A, a	ina 48)		-	4A, and 4 Drainage Pat	•
	ion (A3) Aarte (B1)			alt Crust (quatic Inv	• •	e (B13)			_	Water Table (C2)
	Aarks (B1)			ydrogen S						sible on Aerial Imagery (
	nt Deposits (B2)						Living Ro	oots (C3) <u> </u>		
	posits (B3) at or Crust (B4)			resence o				-	Shallow Aqui	
	posits (B5)						d Soils (C		AC-Neutral	
	Soil Cracks (B6)						1) (LRR /			lounds (D6) (LRR A)
_	ion Visible on Aerial I	lmagery (P		ther (Exp						Hummocks (D7)
	y Vegetated Concave					,,				
ield Obse							T T			
Surface Wa	ter Present? Y	'es	No <u>X</u> [Depth (inc	hes):					
Vater Table			No X [
Saturation F			No X I					tiand Hydrolog	v Present?	Yes <u>X</u> No
includes ca	pillary fringe)		'							····
	corded Data (stream			-						
W2ll	date a	vaila	ble +	or	new	lay	well:	#6		
							A 1			
Aron	, was c	o65er	vel to	o he	- 54	tura	fed	dur'n	9 tra	werses
1780	n was c March a	nd h	vel to	o be 701	- 54 2	tura	ted	<i>durin</i>	g tra	werses
Area m	i was c March a	nd /	vel to tpr:1	o be 201	- Sr 3,	tura	fed	aurin	g tra	werses

Project/Site: Crude by Rail		City/County	Anaco	rtes / 5kep + Sampling Date: 5/6/13
Applicant/Owner: Shell PSR			•	State: WA Sampling Point: 279
Investigator(s): P. Hamidi , B. Fletch	ler.	Section, To	wnship, Ra	inge: 34,35N, 2E
Landform (hillslope (terrace) etc.):				-
			· · · ·	Datum:
Soil Map Unit Name: 1P-Bow gravelly 104				
Are climatic / hydrologic conditions on the site typical for t				t t
Are Vegetation, Soil, or Hydrology				"Normal Circumstances" present? Yes X_ No
Are Vegetation, Soil, or Hydrology				eeded, explain any answers in Remarks.)
•			-	ocations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes	No			
Hydric Soil Present? Yes			e Sampled	X
Wetland Hydrology Present? Yes	No <u>X</u>	With	in a Wetla	
Remarks: Grazed.				
Photos P-10				
VEGETATION – Use scientific names of pla	nts.			
Tree Stratum (Plot size: 30-)	Absolute			Dominance Test worksheet:
1. Thuja Plicata	<u>% Cover</u>	<u>Species?</u>	<u>+</u> A-C	Number of Dominant Species 3 (A)
2			1-1	
3				Species Across All Strata:
4				
		_ = Total Co	ver	Percent of Dominant Species That Are OBL, FACW, or FAC:
Sapling/Shrub Stratum (Plot size: 15) 1. Rubus armeniacus	5	У	EAco	Prevalence index worksheet:
2. Symphonicarpos albus	5	·⁄	FACU	Total % Cover of:Multiply by:
3		·(1 -1	OBL species x 1 =
4.	<u> </u>			FACW species x 2 =
5				FAC species $105 \times 3 = 315$
	10	_ = Total Co	ver	FACU species 10 x 4 = 40
Herb Stratum (Plot size:)	45	V	FAC	UPL species $x 5 =$ Column Totals: <u>//S</u> (A) <u>355</u> (B)
1. Agrostis capillaris		$-\frac{l}{}$	FAC	
2. Trifolium repens 3. Cirsium arvense	$-\frac{\pi v}{\zeta}$		FAC	Prevalence Index = $B/A = 3.09$
4. Alopecurus pratensis	10		FAC	Hydrophytic Vegetation Indicators:
5		·		1 - Rapid Test for Hydrophytic Vegetation ✓ 2 - Dominance Test is >50%
6				2 - Dominance Test is >50% 3 - Prevalence Index is $\leq 3.0^1$
7				4 - Morphological Adaptations ¹ (Provide supporting
8				data in Remarks or on a separate sheet)
9				5 - Wetland Non-Vascular Plants ¹
10		·		Problematic Hydrophytic Vegetation ¹ (Explain)
11		·		¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 15)	[00	_= Total Cov	/er	
1A				
2				Hydrophytic Vegetation V
_		= Total Cov	/er	Vegetation Present? Yes <u>No</u> No
% Bare Ground in Herb Stratum				
Remarks:				

Sampling Point: 129

Profile Description: (Describe to the dep	th needed to document the indicator or confirm	i the absence of indicators.)
DepthMatrix	Redox Features	
(inches) Color (moist) %	Color (moist) % Type ¹ Loc ²	Texture Remarks
0-6 10YR 3/2 100		Loam 25% gravel
8-14 104R4/3 100		Salo 30% gravel
14-18 10YR4/3 100		Salo 50% gravel
		·
		·
		······
1Type: C-Concentration D-Depletion PM	=Reduced Matrix, CS=Covered or Coated Sand Gr	rains. ² Location: PL=Pore Lining, M=Matrix.
Hydric Soil indicators: (Applicable to ali		indicators for Problematic Hydric Soils ³ :
Histosol (A1)	Sandy Redox (S5)	2 cm Muck (A10)
Line Historic Epipedon (A2)	Stripped Matrix (S6)	Red Parent Material (TF2)
Black Histic (A3)	Loamy Mucky Mineral (F1) (except MLRA 1)	
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)	³ Indicators of hydrophytic vegetation and
Sandy Mucky Mineral (S1)	Depleted Dark Surface (F7)	wetland hydrology must be present,
Sandy Gleyed Matrix (S4)	Redox Depressions (F8)	unless disturbed or problematic.
Restrictive Layer (if present):		
Туре:		r v
Depth (inches):		Hydric Soli Present? Yes No 🖄
Remarks:		
		•
HYDROLOGY		·
	*	·
Wetland Hydroiogy Indicators:	t: check all that apply)	Secondary Indicators (2 or more required)
Wetland Hydrology Indicators: Primary Indicators (minimum of one required		Secondary Indicators (2 or more required)
Wetland Hydrology Indicators: Primary Indicators (minimum of one required Surface Water (A1)	Water-Stained Leaves (B9) (except	Water-Stained Leaves (B9) (MLRA 1, 2,
Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one required</u> Surface Water (A1) High Water Table (A2)	Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
Wetland Hydrology Indicators: Primary Indicators (minimum of one required Surface Water (A1) High Water Table (A2) Saturation (A3)	Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) Salt Crust (B11)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10)
Wetland Hydrology Indicators: Primary Indicators (minimum of one required Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1)	Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13)	 Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2)
Wetland Hydrology Indicators: Primary Indicators (minimum of one required Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2)	 Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) 	 Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9)
Primary Indicators (minimum of one required Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3)	Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Roo	 Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) ots (C3) Geomorphic Position (D2)
Wetland Hydrology Indicators: Primary Indicators (minimum of one required Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Algal Mat or Crust (B4)	Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Roo Presence of Reduced Iron (C4)	 Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Ots (C3) Geomorphic Position (D2) Shallow Aquitard (D3)
Wetland Hydrology Indicators: Primary Indicators (minimum of one required Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5)	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 Roo Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6)	 Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) ots (C3) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5)
Wetland Hydrology Indicators: Primary Indicators (minimum of one required Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6)	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 Roo Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6 Stunted or Stressed Plants (D1) (LRR A)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) ots (C3) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Wetland Hydrology Indicators: Primary Indicators (minimum of one required	Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Roo Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6 Stunted or Stressed Plants (D1) (LRR A) Other (Explain in Remarks)	 Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) ots (C3) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5)
Wetland Hydrology Indicators: Primary Indicators (minimum of one required Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6)	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 Roo Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6 Stunted or Stressed Plants (D1) (LRR A) Other (Explain in Remarks)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) ots (C3) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Wetland Hydrology Indicators: Primary Indicators (minimum of one required	Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Roo Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6 Stunted or Stressed Plants (D1) (LRR A) Other (Explain in Remarks) S8)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) ots (C3) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Wetland Hydrology Indicators: Primary Indicators (minimum of one required	Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Roo Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6 Stunted or Stressed Plants (D1) (LRR A) 7) Other (Explain in Remarks) 88) No X Depth (inches):	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) ots (C3) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Wetland Hydrology Indicators: Primary Indicators (minimum of one required	Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Roo Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6 Stunted or Stressed Plants (D1) (LRR A) Other (Explain in Remarks) 88) No Depth (inches): No Depth (inches):	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Sts (C3) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Wetland Hydrology Indicators: Primary Indicators (minimum of one required	Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Roo Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6 Stunted or Stressed Plants (D1) (LRR A) Other (Explain in Remarks) 88) No Depth (inches): No Depth (inches):	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) ots (C3) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Wetland Hydrology Indicators: Primary Indicators (minimum of one required	Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Roo Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6 Stunted or Stressed Plants (D1) (LRR A) Other (Explain in Remarks) 88) No Depth (inches): No Depth (inches):	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Sts (C3) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7) and Hydrology Present? Yes No
Wetland Hydrology Indicators: Primary Indicators (minimum of one required	Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Roo Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6 Stunted or Stressed Plants (D1) (LRR A) Other (Explain in Remarks) Salt No X Depth (inches):	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Sts (C3) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7) and Hydrology Present? Yes No
Wetland Hydrology Indicators: Primary Indicators (minimum of one required	Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Roo Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6 Stunted or Stressed Plants (D1) (LRR A) Other (Explain in Remarks) Salt No X Depth (inches):	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Sts (C3) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7) and Hydrology Present? Yes No
Wetland Hydrology Indicators: Primary Indicators (minimum of one required	Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Roo Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6 Stunted or Stressed Plants (D1) (LRR A) Other (Explain in Remarks) Salt No X Depth (inches):	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Sts (C3) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7) and Hydrology Present? Yes No
Wetland Hydrology Indicators: Primary Indicators (minimum of one required	Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Roo Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6 Stunted or Stressed Plants (D1) (LRR A) Other (Explain in Remarks) Salt No X Depth (inches):	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9) Sts (C3) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7) and Hydrology Present? Yes No

Project/Site: Crude by Rail		City/County	Anaco	rtes/skag. + Sampling Date: 5/6/13
Applicant/Owner: Shell 'PS R				State: WA Sampling Point: 330
Investigator(s): P. Hamidi, B. Fletcher	~	Section, To		
Landform (hillslope, terrace, etc.):			-	
Subregion (LRR): 4				
Soil Map Unit Name: 18-Bow gravely loa	tm			NWI classification: PEMC
Are climatic / hydrologic conditions on the site typical for this	s time of ye	ar?Yes 🗋		
Are Vegetation, Soil, or Hydrology s	ignificantly	disturbed?	N Are "	"Normal Circumstances" present? Yes No
Are Vegetation, Soil, or Hydrology n				eeded, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map	showing	samplin	g point l	ocations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes X No	o			
	D 0		e Sampied in a Wetlar	X
Wetland Hydrology Present? Yes X No	0	Wich		
Remarks: Grazed. Tranpled.				
Photos 11-13				
VEGETATION – Use scientific names of plan	ts.			
Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?		Dominance Test worksheet:
1. Alnus rubig	25	Y	FAC	Number of Dominant Species That Are OBL, FACW, or FAC:
2				
3	36			Total Number of Dominant 7 Species Across All Strata: (B)
4				
	25	= Total Co	ver	Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)
Sapling/Shrub Stratum (Plot size: 15) 1. Rubus armeniacus	10	Y	FACU	Prevalence index worksheet:
				Total % Cover of: Multiply by:
2				OBL species x 1 =
3				FACW species x 2 =
5.				FAC species <u>/30</u> x 3 = <u>390</u>
	10	= Total Co	ver	FACU species /O x 4 = YO
Herb Stratum (Plot size:)	<u>(</u>		• 1 •	UPL species x 5 =
1. Agrostis capillaris	60	<u> </u>	FAC	Column Totals: <u>150</u> (A) <u>450</u> (B)
2. Trifolium repens	25		FAC	Prevalence index = B/A = 3.00
3. <u>Ranunculus repens</u> 4. Junius effusus	10		FA(W	Hydrophytic Vegetation indicators:
5. Alopecurus pratensis	15		FAC	1 - Rapid Test for Hydrophytic Vegetation
6.			1110	$\frac{1}{2}$ 2 - Dominance Test is >50%
7				\times 3 - Prevalence Index is ≤3.0 ¹
8				4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
9				5 - Wetland Non-Vascular Plants ¹
10				Problematic Hydrophytic Vegetation ¹ (Explain)
11				¹ Indicators of hydric soil and wetland hydrology must
	115	= Total Cov	er	be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 15-)				
1. <u>~~{</u> A				Hydrophytic Vegetation
2		- Total Ori		Present? Yes No
% Bare Ground in Herb Stratum7		= Total Cov	er	
Remarks:			<u> </u>	·
10% moss				

	2	60	2,
Impling	Point:	<u>_</u>	32

SOIL								Sampling Point: 250
Profile Desc	cription: (Describ	be to the dep	oth needed to docum	ent the i	indicator	or confirm	the absence	e of indicators.)
Depth (in choc)	Matrix			x Feature:		Loc ²	Terduce	Demake
<u>(inches)</u>	<u>Color (moist)</u> 10YR 3/1		Color (moist) 10 YR 4/3	<u>~</u> 2	Type ¹	<u>Loc</u>		10 % gravel
	ev sh						Loam	
11-16	37 2/2	85	104R4/4	15	. <u> </u>	<u>~</u>	Loam	15% gravels
							·	
							<u></u>	
					,			
			<u></u> ,		·			
			····-					
			<u> </u>				<u></u>	
			=Reduced Matrix, CS			d Sand Gr	ains. ² Lo	cation: PL=Pore Lining, M=Matrix.
-		licabie to ali	LRRs, unless other		ed.)			ors for Problematic Hydric Soils ³ :
Histosol	• •		Sandy Redox (S					m Muck (A10)
	pipedon (A2)		Stripped Matrix (4) /			d Parent Material (TF2)
Black Hi	istic (A3) en Sulfide (A4)		Loamy Mucky M	-		MLKA 1)		ry Shallow Dark Surface (TF12) ner (Explain in Remarks)
	d Below Dark Surfa	ace (A11)	Depleted Matrix		.)			
	ark Surface (A12)	x00 ()	Redox Dark Sur)		³ Indicate	ors of hydrophytic vegetation and
	/ucky Mineral (S1))	Depleted Dark S					and hydrology must be present,
	Gleyed Matrix (S4)		Redox Depression	ons (F8)			unle	ss disturbed or problematic.
Restrictive I	Layer (if present):	:					T	
Туре:								\times
Depth (ind	ches):						Hydric Soi	il Present? Yes <u>No</u> No
Remarks:	oft soil	Lea	- Not			1		· · · · · · · · · · · · · · · · · · ·
דרישיך -		414	mpi-a.					
HYDROLO	GY							9
Wetland Hyd	drology indicator	s:						
Primary Indic	ators (minimum of	f one required	d; check all that apply	<u>) </u>			<u>Seco</u>	ondary Indicators (2 or more required)
Surface	Water (A1)		Water-Stair	ned Leav	es (B9) (e	xcept	v	Water-Stained Leaves (B9) (MLRA 1, 2,
High Wa	ater Table (A2)		MLRA 1	I, 2, 4A, a	and 4B)			4A, and 4B)
Saturatio	on (A3)		Salt Crust ((B11)				Drainage Patterns (B10)
	larks (B1)		Aquatic Invo				\mathbf{X} [Dry-Season Water Table (C2)
	nt Deposits (B2)		Hydrogen S					Saturation Visible on Aerial Imagery (C9)
	posits (B3)		Oxidized RI		_	_		Geomorphic Position (D2)
	at or Crust (B4)		Presence of		•	•		Shallow Aquitard (D3)
	osits (B5)		Recent Iron			-	·	FAC-Neutral Test (D5)
	Soil Cracks (B6)		Stunted or Stanted or Stanted Street Str		-	1) (LRR A)		Raised Ant Mounds (D6) (LRR A)
	on Visible on Aeria			ain in Re	marks)		۲	Frost-Heave Hummocks (D7)
	Vegetated Conca	ve Surface (B8)					
Field Observ		• •						
Surface Wate			No <u>X</u> Depth (incl		<u> </u>	-		
Water Table			No <u> </u>		17		··· • •	- · · · · · ·
Saturation Pr (includes cap	oillary fringe)		No Depth (incl		<u></u>			gy Present? Yes <u>X</u> No
Describe Rec	corded Data (strea	.m gauge, mo	onitoring well, aerial pl	hotos, pre	evious ins	pections),	if available:	

Remarks:

Project/Site: Crude by Rail		City/County	Anaco	ster / 5keg + Sampling Date: 5/7/13
Applicant/Owner: Shell PSR				State: WA Sampling Point: 5A-031
Investigator(s): P. Hamiti, B. Fletcher		Section, To	wnship, Ra	inge: 34, 35N, 2E
Landform (hillslope terrace, etc.):				
				_ Long: Datum:
Soil Map Unit Name: 18-Bow gravelly 10				NWI classification:
Are climatic / hydrologic conditions on the site typical for thi				
Are Vegetation, Soil, or Hydrology		•	-	"Normal Circumstances" present? Yes χ No
Are Vegetation, Soii, or Hydrology				eeded, explain any answers in Remarks.)
			-	ocations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes X N	lo			
Hydric Soil Present? Yes N	lo <u>X</u>		e Sampiec	
Wetland Hydrology Present? Yes N	<u>lo _X`</u>	with	in a Wetia	nd? Yes No
Remarks: Grazed Pasture				
Photos 14-16.				
VEGETATION – Use scientific names of plan	its.			
Tree Stratum (Plot size:)		Dominant		Dominance Test worksheet:
		<u>Species?</u>		Number of Dominant Species
1. <u>N/A</u> 2.				8. 2.
3				Total Number of Dominant Species Across All Strata:
4				
Sapling/Shrub Stratum (Plot size: 15)		= Total Co	ver	That Are OBL, FACW, or FAC: 100 (A/B)
				Prevalence index worksheet:
1N/A				Total % Cover of:Multiply by:
2				OBL species x 1 =
3				FACW species x 2 =
4			<u> </u>	FAC species 100 x 3 = 300
·····		= Total Co		FACU species x 4 =
Herb Stratum (Plot size:5)		•		UPL species x 5 =
1. Trifolium repens	40	<u> </u>	FAC	Column Totals: <u>100</u> (A) <u>300</u> (B)
2. Agrostis capillaris	40	<u> </u>	FAC	Prevalence index = B/A =
3. Alopecurus pratensis	15	<u> </u>	EAC.	Hydrophytic Vegetation indicators:
4. Cirsium asvense			FAC	1 - Rapid Test for Hydrophytic Vegetation
5				X 2 - Dominance Test is >50%
6				X 3 - Prevalence Index is ≤3.0 ¹
7				4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
8 9				5 - Wetland Non-Vascular Plants ¹
10				Problematic Hydrophytic Vegetation ¹ (Explain)
11				¹ Indicators of hydric soil and wetland hydrology must
	[00	= Total Cov	er	be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 15)				
1/A				Hydrophytic
2				Vegetation Present? Yes X No
% Bare Ground in Herb Stratum \mathcal{O}		= Total Cov	er	
Remarks:			· · · · ·	L

ï

Profile Description: (Descri		-						
Depth <u>Matri</u> (inches) <u>Color (moist</u>)		Color (moist)	<u>x Feature</u> %	Type ¹	Loc ²	Texture		Remarks
D-9 JOYR 3	- 1					LOGM	302 9	Ware (
9-15 1041841	<u>1</u> 2	7,54R 4/3	3	<u> </u>	m	logm	155	911
<u>15-18 2:54 41</u>	2,5 95	104R 4/4	5	<u> </u>	<u></u>	Jogm	202	91,
						<u> </u>		
	00		0					
						······································		
Type: C=Concentration, D=I Hydric Soli Indicators: (Ap					a Sand Gr			e Lining, M=Matrix. natic Hydric Solls ³ :
Histosol (A1)		Sandy Redox (Muck (A10)	iado Hyano oono .
Histic Epipedon (A2)		Stripped Matrix					Parent Materia	al (TF2)
Black Histic (A3)		Loamy Mucky M		1) (except	MLRA 1)			Surface (TF12)
Hydrogen Sulfide (A4)		Loamy Gleyed	Matrix (F2		•		(Explain in R	
Depleted Below Dark Sur		Depleted Matrix				2.		5 m
Thick Dark Surface (A12)		Redox Dark Su						tic vegetation and
Sandy Mucky Mineral (S [*]		Depleted Dark Redox Depress					disturbed or p	nust be present,
Sandy Gleyed Matrix (S4 Restrictive Layer (if present		Redox Depless	10115 (FO)			uniess		
Type: _ NO NE	<i>.</i> ,.							
•••						Hydric Soil P	resent? Y	
Depth (inches):						Hydric Soil P	resent? Y	es No_(X
Depth (inches): Remarks:						Hydric Soli P	resent? Y	es No <u>(X</u>
Depth (inches): Remarks: YDROLOGY						Hydric Soli P	resent? Y	es No <u>(X</u>
Depth (inches): Remarks: YDROLOGY Wetland Hydrology Indicato		ed: check all that appl						
Depth (inches): Remarks: YDROLOGY Wetland Hydrology Indicato Primary Indicators (minimum				ves (B9) (e)		<u>Second</u>	ary Indicators	s (2 or more required)
Depth (inches): Remarks: YDROLOGY Wetland Hydrology Indicato Primary Indicators (minimum Surface Water (A1)		Water-Stai	ined Leav	/es (B9) (e) and 4B)	kcept	<u>Second</u>	ary Indicators	
Depth (inches): Remarks: YDROLOGY Wetiand Hydroiogy Indicato Primary Indicators (minimum Surface Water (A1) High Water Table (A2)		Water-Stai MLRA	ined Leav 1, 2, 4A, a		xcept	<u>Second</u>	ary Indicators ter-Stained L 4A, and 4B)	<u>s (2 or more required)</u> eaves (B9) (MLRA 1, 2,
Depth (inches): Remarks: YDROLOGY Wetland Hydrology Indicato Primary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3)		Water-Stai MLRA Salt Crust	ined Leav 1, 2, 4A, ; (B11)	and 4B)	kcept	<u>Second</u> Wa Dra	ary Indicators ter-Stained L 4A, and 4B) iinage Patterr	<u>s (2 or more required)</u> eaves (B9) (MLRA 1, 2, ns (B10)
Depth (inches): Remarks: YDROLOGY Wetiand Hydroiogy Indicato Primary Indicators (minimum Surface Water (A1) High Water Table (A2)		Water-Stai MLRA	ined Leav 1, 2, 4A, a (B11) vertebrate	and 4B) es (B13)	kcept	<u>Second</u> Wa Dra Dry	ary Indicators ter-Stained L 4 A, and 4B) iinage Patterr -Season Wat	<u>s (2 or more required)</u> eaves (B9) (MLRA 1, 2,
Depth (inches): Remarks: YDROLOGY Wetland Hydrology Indicato Primary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1)		Uvater-Stai MLRA Salt Crust Aquatic Inv Hydrogen	ined Leav 1, 2, 4A, a (B11) vertebrate Sulfide O	and 4B) es (B13)	-	<u>Second</u> Wa Dra Dry Sat	ary Indicators ter-Stained L 4 A, and 4B) iinage Patterr -Season Wat	s (2 or more required) eaves (B9) (MLRA 1, 2, ns (B10) ter Table (C2) e on Aerial Imagery (C9)
Depth (inches): Remarks: YDROLOGY Wetland Hydrology Indicator Primary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2)		Uvater-Stai MLRA Salt Crust Aquatic Inv Hydrogen	ined Leav 1, 2, 4A , a (B11) vertebrate Sulfide O Rhizosphe	and 4B) es (B13) edor (C1) eres along l	Living Roo	<u>Second</u> Wa Dra Dry Sat ts (C3) Ge	ary Indicators ter-Stained L 4 A, and 4B) iinage Patterr -Season Wat uration Visibl	s (2 or more required) eaves (B9) (MLRA 1, 2, ns (B10) ter Table (C2) ie on Aerial Imagery (C9) sition (D2)
Depth (inches): Remarks: YDROLOGY Wetiand Hydrology indicator Primary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3)		Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F	ined Leav 1, 2, 4A, i (B11) vertebrate Sulfide O Rhizosphe of Reduce	and 4B) es (B13) edor (C1) eres along l ed Iron (C4	Living Roo	<u>Second</u> Wa Dra Dry Sat ts (C3) Ge Sha	ary Indicators ter-Stained L 4 A, and 4B) inage Patterr -Season Wat ruration Visibl omorphic Pos	s (2 or more required) eaves (B9) (MLRA 1, 2, ns (B10) ter Table (C2) e on Aerial Imagery (C9) sition (D2) d (D3)
Depth (inches): Remarks: YDROLOGY Wetiand Hydroiogy indicator Primary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4)		Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence	ined Leav 1, 2, 4A, a (B11) vertebrate Sulfide O Rhizosphe of Reduce n Reduct	and 4B) es (B13) edor (C1) eres along I ed Iron (C4 ion in Tilleo	Living Roo) I Soils (C6	<u>Second</u> Wa Dra Dry Sat ts (C3) Ge Sha) FA	ary Indicators ter-Stained L 4 A, and 4B) iinage Patterr -Season Wat curation Visibl omorphic Pos allow Aquitarc C-Neutral Tes	s (2 or more required) eaves (B9) (MLRA 1, 2, ns (B10) ter Table (C2) e on Aerial Imagery (C9) sition (D2) d (D3)
Depth (inches): Remarks: YDROLOGY Wetiand Hydroiogy indicator Primary Indicators (minimum 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)	of one requir	Water-Stain MLRA MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence Recent Iro Stunted or	ined Leav 1, 2, 4A, a (B11) vertebrate Sulfide O Rhizosphe of Reduce n Reduct Stressed	and 4B) es (B13) dor (C1) eres along I ed Iron (C4 ion in Tilleo t Plants (D'	Living Roo) I Soils (C6	<u>Second</u> Wa Dra Dry Sat ts (C3) Ge Sha) FA	ary Indicators ter-Stained L 4 A, and 4B) inage Patterr -Season Wat uration Visibl omorphic Pos allow Aquitaro C-Neutral Tes ised Ant Mou	s (2 or more required) eaves (B9) (MLRA 1, 2, ns (B10) ter Table (C2) ie on Aerial Imagery (C9) sition (D2) d (D3) st (D5)
Depth (inches): Remarks: YDROLOGY Wetiand Hydrology indicator Primary Indicators (minimum 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 Aer Sparsely Vegetated Cond	of one requir	Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence Recent Iro Stunted or B7) Other (Exp	ined Leav 1, 2, 4A, a (B11) vertebrate Sulfide O Rhizosphe of Reduce n Reduct Stressed	and 4B) es (B13) dor (C1) eres along I ed Iron (C4 ion in Tilleo t Plants (D'	Living Roo) I Soils (C6	<u>Second</u> Wa Dra Dry Sat ts (C3) Ge Sha) FA	ary Indicators ter-Stained L 4 A, and 4B) inage Patterr -Season Wat uration Visibl omorphic Pos allow Aquitaro C-Neutral Tes ised Ant Mou	s (2 or more required) eaves (B9) (MLRA 1, 2, ns (B10) ter Table (C2) ie on Aerial Imagery (C9) sition (D2) d (D3) st (D5) nds (D6) (LRR A)
Depth (inches): Remarks: YDROLOGY Wetiand Hydroiogy indicator Primary Indicators (minimum 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 Aer Sparsely Vegetated Cond Field Observations:	of one requir ial Imagery (i ave Surface	Water-Stain MLRA MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence Recent Iro Stunted or Stunted or Other (Exp (B8)	ined Leav 1, 2, 4A, 3 (B11) vertebrate Sulfide O Rhizosphe of Reduce n Reduce Stressed blain in Re	and 4B) es (B13) dor (C1) eres along I ed Iron (C4 ion in Tilleo t Plants (D ⁻ emarks)	Living Roo) I Soils (C6 1) (LRR A)	<u>Second</u> Wa Dra Dry Sat ts (C3) Ge Sha) FA	ary Indicators ter-Stained L 4 A, and 4B) inage Patterr -Season Wat uration Visibl omorphic Pos allow Aquitaro C-Neutral Tes ised Ant Mou	s (2 or more required) eaves (B9) (MLRA 1, 2, ns (B10) ter Table (C2) ie on Aerial Imagery (C9) sition (D2) d (D3) st (D5) nds (D6) (LRR A)
Depth (inches): Remarks: YDROLOGY Wetland Hydrology Indicato Primary Indicators (minimum 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 Aer Sparsely Vegetated Cond Field Observations: Surface Water Present?	of one requir ial Imagery (I ave Surface Yes	Water-Stain MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iro Stunted or B7) Other (Exp (B8) Depth (inc	ined Leav 1, 2, 4A , 3 (B11) vertebrate Sulfide O Rhizosphe of Reduce n Reduct Stressed plain in Re ches):	and 4B) es (B13) dor (C1) eres along I ed Iron (C4 ion in Tilleo d Plants (D' emarks)	Living Roo) I Soils (C6 1) (LRR A)	<u>Second</u> Wa Dra Dry Sat ts (C3) Ge Sha) FA	ary Indicators ter-Stained L 4 A, and 4B) inage Patterr -Season Wat uration Visibl omorphic Pos allow Aquitaro C-Neutral Tes ised Ant Mou	s (2 or more required) eaves (B9) (MLRA 1, 2, ns (B10) ter Table (C2) ie on Aerial Imagery (C9) sition (D2) d (D3) st (D5) nds (D6) (LRR A)
Depth (inches): Remarks: YDROLOGY Wetiand Hydroiogy indicator Primary Indicators (minimum 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 Aer Sparsely Vegetated Cond Field Observations:	of one requir al Imagery (I ave Surface Yes Yes	Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence Recent Iro Stunted or B7) Other (Exp (B8) No	ined Leav 1, 2, 4A , 3 (B11) vertebrate Sulfide O Rhizosphe of Reduca n Reducti Stressed blain in Re ches): ches):	and 4B) es (B13) dor (C1) eres along I ed Iron (C4 ion in Tilleo d Plants (D ² emarks)	Living Roo) I Soils (C6 1) (LRR A) 	<u>Second</u> Wa Dra Dry Sat ts (C3) Ge Sha) FA	ary Indicators ter-Stained L 4 A, and 4B) iinage Patterr -Season Wat uration Visibl omorphic Pos allow Aquitaro C-Neutral Tes ised Ant Mou st-Heave Hur	s (2 or more required) eaves (B9) (MLRA 1, 2, ns (B10) ter Table (C2) e on Aerial Imagery (C9) sition (D2) d (D3) st (D5) nds (D6) (LRR A) mmocks (D7)
Depth (inches): Remarks: YDROLOGY Wetland Hydrology Indicato Primary Indicators (minimum 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 Aer Sparsely Vegetated Cond Field Observations: Surface Water Present? Water Table Present? Saturation Present? Saturation Present?	of one requir ial Imagery (I cave Surface Yes Yes Yes	Water-Stain MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iro Stunted or B7) Other (Exp. (B8) Depth (inv No ✓ Depth (inv No ✓ Depth (inv	ined Leav 1, 2, 4A , 3 (B11) vertebrate Sulfide O Rhizosphe of Reduca n Reducti Stressed blain in Re ches): ches):	and 4B) es (B13) dor (C1) eres along I ed Iron (C4 ion in Tilleo d Plants (D ² emarks)	Living Roo) I Soils (C6 1) (LRR A) Wetla	<u>Second</u> Wa Dra Dry Sat ts (C3) Ge Sha) FAA) Rai Fro Fro	ary Indicators ter-Stained L 4 A, and 4B) iinage Patterr -Season Wat uration Visibl omorphic Pos allow Aquitaro C-Neutral Tes ised Ant Mou st-Heave Hur	s (2 or more required) eaves (B9) (MLRA 1, 2, ns (B10) ter Table (C2) e on Aerial Imagery (C9) sition (D2) d (D3) st (D5) nds (D6) (LRR A) mmocks (D7)
Depth (inches): Remarks: YDROLOGY Wetland Hydrology Indicato Primary Indicators (minimum 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 Aer Sparsely Vegetated Cond Field Observations: Surface Water Present? Water Table Present? Saturation Present?	of one requir ial Imagery (I cave Surface Yes Yes Yes	Water-Stain MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iro Stunted or B7) Other (Exp. (B8) Depth (inv No ✓ Depth (inv No ✓ Depth (inv	ined Leav 1, 2, 4A , 3 (B11) vertebrate Sulfide O Rhizosphe of Reduca n Reducti Stressed blain in Re ches): ches):	and 4B) es (B13) dor (C1) eres along I ed Iron (C4 ion in Tilleo d Plants (D ² emarks)	Living Roo) I Soils (C6 1) (LRR A) Wetla	<u>Second</u> Wa Dra Dry Sat ts (C3) Ge Sha) FAA) Rai Fro Fro	ary Indicators ter-Stained L 4 A, and 4B) iinage Patterr -Season Wat uration Visibl omorphic Pos allow Aquitaro C-Neutral Tes ised Ant Mou st-Heave Hur	s (2 or more required) eaves (B9) (MLRA 1, 2, ns (B10) ter Table (C2) e on Aerial Imagery (C9) sition (D2) d (D3) st (D5) nds (D6) (LRR A) mmocks (D7)

Project/Site: Crude by Rail	City/County: <u>SKeg;</u> + Sampling Date: <u>5-6-13</u>
Applicant/Owner: 3/2/1 FSK	State: WA Sampling Point: SP-D32
Investigator(s): Hamidi	Section, Township, Range: 34, 35N, 2E
Landform (hillslope, terrace, etc.): glacial Torrace	Local relief (concave, convex, none): Corcert Slope (%): 3
Subregion (LRR): Lat:	Long: Datum:
Soil Map Unit Name: Bow gravery 10am	NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of ye	ear? Yes <u>X</u> No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly	y disturbed? Are "Normal Circumstances" present? Yes 🔀 No
Are Vegetation, Soll, or Hydrology naturally provide the second seco	oblematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing	g sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes No Yes No Yes No	is the Sampled Area within a Wetland? Yes	No <u>×</u>
Remarks: Photos 17-20			<u>=</u>

VEGETATION – Use scientific names of plants.

5.1	Absolute Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: <u>30</u>)	<u>% Cover</u> <u>Species?</u> <u>Status</u>	Number of Dominant Species That Are OBL, FACW, or FAC:
1		That Are OBL, FACW, or FAC: (A)
2		Total Number of Dominant
3		Species Across All Strata: (B)
4		Percent of Dominant Species
Sapling/Shrub Stratum (Plot size: 151)	= Total Cover	That Are OBL, FACW, or FAC: (A/B)
		Prevalence index worksheet:
1		Total % Cover of: Multiply by:
2		OBL species x 1 =
3		FACW species x 2 =
4		FAC species 100 x 3 = 300
5		FACU species x 4 =
5'	= Total Cover	
Herb Stratum (Plot size:)	ZO V FAC	UPL species x 5 =
1. Alopewrus Praterisis		Column Totals: _/oo(A) <u>300</u> (B)
2. Trifolium rapons	30 V FAC	Prevalence Index = B/A =
3. Agrostis cupillaris	30 V FAC	Hydrophytic Vegetation Indicators:
4. Poa Prateorsis	20 V FAC	1 - Rapid Test for Hydrophytic Vegetation
5. Forb UNKNOWN	5	✓ 2 - Dominance Test is >50%
6		$\stackrel{\frown}{\simeq}$ 3 - Prevalence Index is $\leq 3.0^{1}$
	2.5	
7 8		4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
9		5 - Wetland Non-Vascular Plants ¹
10		Problematic Hydrophytic Vegetation ¹ (Explain)
11.		¹ Indicators of hydric soil and wetland hydrology must
	105 = Total Cover	be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 15')		
1		Hydrophytic
2.		Vegetation
6 .,	D = Total Cover	Present? Yes <u>*</u> No
% Bare Ground in Herb Stratum		
Remarks:	ff.	·
		<i>a</i>

SOIL					.74			Sampling Point:	032
Profile Des	cription: (Describe	to the dep	th needed to docu	ment the	indicator (or confirm	n the absence of i		
Depth	Matrix			ox Feature					
(inches)	<u>Color (moist)</u>	<u>%</u>	Color (moist)	%	<u>Type'</u>	Loc ²	<u>Texture</u>	Remarks	25
0-5_	104R 3/1.5	100	<u> </u>				lan_	10 20 grand	
5-14	104R3/2	100					loan_	158 grand -	
14.18	546/Z	85	54R 4/6	15	<u> </u>	m	cloy Loan	5% gravel	
				-				2 ₁ 4	
·	<u></u>				·				
	oncentration, D=Dep	letion, RM=		 S=Covere	d or Coate	d Sand Gr	rains. ² Locatio	on: PL=Pore Lining, M=Matrix	
	Indicators: (Applic							or Problematic Hydric Solis	
Histosol	I (A1)		Sandy Redox ((S5)			2 cm M	uck (A10)	
Histic E	pipedon (A2)		Stripped Matrix	(S6)			Red Pa	rent Material (TF2)	
Black H	istic (A3)		Loamy Mucky	Mineral (F	1) (except	MLRA 1)	Very Sh	allow Dark Surface (TF12)	
· · · ·	en Sulfide (A4)		Loamy Gleyed	Matrix (F2	2)		Other (E	Explain in Remarks)	
·	d Below Dark Surface	e (A11)	Depleted Matri				-		
	ark Surface (A12)		Redox Dark Su					of hydrophytic vegetation and	
	Aucky Mineral (S1)		Depleted Dark		-7)			hydrology must be present,	
	Gleyed Matrix (S4)		Redox Depress	sions (F8)		20	unless di	sturbed or problematic.	
	Layer (if present):								-3.6.
Depth (in	ches):						Hydric Soli Pre	esent? Yes No	メ
Remarks:									
	547 - 1 1 4		5						
HYDROLO								11 TAPA	
_	drology indicators:								
	<u>cators (minimum of o</u>	ne required	I: check all that app	<u>ly)</u>			<u>Secondar</u>	y Indicators (2 or more require	<u>ed)</u>
Surface	Water (A1)		Water-Sta	ained Leav	es (B9) (e	xcept	Wate	r-Stained Leaves (B9) (MLRA	. 1, 2,
	ater Table (A2)		MLRA	1, 2, 4A, a	and 4B)		4/	A, and 4B) 🛛 🚸	
Saturatio	• •		Salt Crust	: (B11)			Drain	age Patterns (B10)	
Water M	larks (B1)		Aquatic In	vertebrate	s (B13)			Season Water Table (C2)	
Sedimer	nt Deposits (B2)		Hydrogen	Sulfide O	dor (C1)		Satur	ation Visible on Aerial Imager	y (C9)
Drift Dep	posits (B3)		Oxidized I	Rhizosphe	res along l	Living Roo	ots (C3) Geon	norphic Position (D2)	
Algal Ma	at or Crust (B4)		Presence	of Reduce	d Iron (C4	•)	Shall	ow Aquitard (D3)	

____ Recent Iron Reduction in Tilled Soils (C6)

____ Stunted or Stressed Plants (D1) (LRR A)

- _____

___ Other (Explain in Remarks)

K Depth (inches):

Yes _____ No ___ Depth (inches):

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

Remarks:

Iron Deposits (B5)

Field Observations:

Surface Water Present?

Water Table Present?

Saturation Present? (includes capillary fringe)

____ Surface Soil Cracks (B6)

____ Inundation Visible on Aerial Imagery (B7)

Sparsely Vegetated Concave Surface (B8)

Yes _____ No __

Yes ____ No _

..

FAC-Neutral Test (D5)

Wetland Hydrology Present? Yes

____ Raised Ant Mounds (D6) (LRR A)

No 🗶

____ Frost-Heave Hummocks (D7)

Project/Site: Crude by Rail	City/C	County: <u>Anaco</u>	rtes/skagit Sampling Date: 5/7/13
Applicant/Owner: <u>Shell</u> PSR			State: MA Sampling Point: 50-033
investigator(s): PHamili, B.Fletcher	C Secti	on, Township, Rai	nge: 34, 35N, 2E
Landform (hillslope, terrace, etc.):	Loca	I relief concave	convex, none): Slope (%):
			Long: Datum:
Soil Map Unit Name: \$ 18-Bow gravelly	logm		NWI classification: AEM
Are climatic / hydrologic conditions on the site typical for this	s time of year? Y	′es <u>X</u> No	(If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology s	ignificantly distur	bed? 🗡 🛛 Are "	Normal Circumstances" present? Yes 🔀 No
Are Vegetation, Soil, or Hydrology r	aturally problem	atic? 🔨 (If ne	eded, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map	showing san	n <mark>pling point</mark> le	ocations, transects, important features, etc.
	o	In the Complete	
	0	is the Sampied within a Wetlan	N N
	o		
Remarks: Grazed Pasture			
Photos 25-27.			
VEGETATION – Use scientific names of plan	ts.		
Tree Stratum (Plot size: 30)	Absolute Don % Cover Spe	ninant Indicator	Dominance Test worksheet:
1. N/A	<u></u>		Number of Dominant Species
2			Total Number of Dessingert
3	• <u> </u>		Species Across All Strata:
4			Percent of Dominant Species
Sapling/Shrub Stratum (Plot size: 15~)	= To	tal Cover	That Are OBL, FACW, or FAC: 100 (A/B)
1. <u>N/A</u>			Prevaience index worksheet:
2			Total % Cover of: Multiply by:
3			OBL species x 1 = FACW species 10 x 2 = 20
4	·		FAC species 37 $x_3 = 26$
5			FACU species x4 =
Herb Stratum (Plot size: 5)	= To	tal Cover	UPL species x 5 =
1. Junius effusus	10	FACW	Column Totals: <u>99</u> (A) <u>289</u> (B)
2. Agrostis capillaris	50	Y FAL	Prevalence index = $B/A = 2.92$
3. Festurea acondinacen	90	FAL	Hydrophytic Vegetation indicators:
4. Holcus lanatus		FAC	1 - Rapid Test for Hydrophytic Vegetation
5. Alopecurus pratensis	30	$\frac{1}{FA}$	🕺 2 - Dominance Test is >50%
6. Lotus corniculatus	· _ }	FAC	_x 3 - Prevalence Index is ≤3.0 ¹
7. Hypochaeris radiata	<u> </u>	1 <i>T</i> (U	4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
8		,	5 - Wetland Non-Vascular Plants ¹
9			Problematic Hydrophytic Vegetation ¹ (Explain)
10 11.			¹ Indicators of hydric soil and wetland hydrology must
	99 = Tol	al Cover	be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 15)	-		
1. <u>NA</u>			Hydrophytic
2			Vegetation Present? Yes <u> </u>
% Bare Ground in Herb Stratum	= Tot	al Cover	···· ··· ··· ··· ··· ··· ··· ··· ··· ·
Remarks:		, i i i i i i i i i i i i i i i i i i i	· · · · · · · · · · · · · · · · · · ·
20% moss			
L			

Profile Descr	iption: (Descri	be to the dept	h needed to docun	nent the indicator o	or confirm	the ab senc	e of indicators.)
Depth	Matrix			K Features			
(inches)	Color (moist)	7	Color (moist)	<u>% Type¹</u>	Loc ²	<u>Texture</u>	Remarks
0-9	104R 31	1 100				Loan	->To grave
4-11	104R 31	1 100	5			Loan	10% gravel
11-18	57 51	1 70	7. 5 YR 4/6	30 C	M	Salo	S'lo gravel
·							
·							
·		<u> </u>				<u> </u>	985.
· ·				······································			
						. 2,	
			Reduced Matrix, CS .RRs, uniess other	=Covered or Coated	d Sand Gr		ocation: PL=Pore Lining, M=Matrix.
-							-
Histosol (-	Sandy Redox (S				m Muck (A10)
	pedon (A2)	-	Stripped Matrix	lineral (F1) (except			ed Parent Material (TF2)
Black His	nic (AS) n Sulfide (A4)	-	Loamy Gleyed N		WILKA I)		ry Shallow Dark Surface (TF12) her (Explain in Remarks)
	Below Dark Sur	face (A11)	Depleted Matrix			01	
	k Surface (A12)		Redox Dark Sur	• •		³ Indicat	tors of hydrophytic vegetation and
	ucky Mineral (S1		Depleted Dark S	• •			and hydrology must be present,
	eyed Matrix (S4)		Redox Depress				ess disturbed or problematic.
	ayer (if present					1	
Type:		•					
Depth (incl	hes):					Hydric Sol	ll Present? Yes X No
Remarks:							
Remains.							
HYDROLOG	<u>a</u> Y						л.
	rology indicato						
			check all that apply			ii Coor	
		or one required;					ondary Indicators (2 or more required)
Surface V		ti:		ned Leaves (B9) (ex	cept	\	Water-Stained Leaves (B9) (MLRA 1, 2,
	er Table (A2)			, 2, 4A, and 4B)			4A, and 4B)
Saturation			Salt Crust				Drainage Patterns (B10)
Water Ma	irks (B1)			ertebrates (B13)			Dry-Season Water Table (C2)
Sediment	Deposits (B2)			Sulfide Odor (C1)			Saturation Visible on Aerial Imagery (C9)
Drift Depo	osits (B3)					ts (C3) 🔀 (Geomorphic Position (D2)
Algal Mat	or Crust (B4)		Presence of	of Reduced Iron (C4)	1	\$	Shallow Aquitard (D3)
Iron Depo	osits (B5)		Recent Iror	n Reduction in Tilled	Soils (C6)) F	FAC-Neutral Test (D5)
Surface S	Soil Cracks (B6)		Stunted or	Stressed Plants (D1) (LRR A)	F	Raised Ant Mounds (D6) (LRR A)
Inundation	n Visible on Aeri	al Imagery (B7)) X Other (Exp	lain in Remarks)		F	Frost-Heave Hummocks (D7)
Sparsely	Vegetated Conc	ave Surface (B	8) ´				
Field Observa	ations:						
Surface Water	r Present?	Yes N	o X Depth (inc	hes):			
Water Table P				hes):			
Saturation Pre		Yes N	lo V Dopth (inc	hes):	- Wotia	and Hydroice	gy Present? Yes X No
(includes capil		res iv		(ies).			
		am gauge, mon	nitoring well, aerial p	hotos, previous insp	ections), i	f available:	
							4 011
Remarks:		in ava	ייוטיר דוש	m nearby	men		
5.0 4	face f	Saturat	ion RXD	ected du	ring	early	y Part of Growing on and landscape,
50-0							
1 229501	(migro	n pateri) based	on soils	, Veg	resatio	on and land scape,
						,	,

Project/Site: Crude by Ra. 1		Citv/Countv	: Anaco	Hes/Skeait Sampling Date: 5/7/13
Applicant/Owner: Shell PSR				State: <u>~~</u> Sampling Point: <u>>P^J34</u>
investigator(s): P. Hamidi, B. Fletche				
372				convex, none): Slope (%): _2
Subregion (LRR):	Let	Looarrond		_ Long: Datum:
Soil Map Unit Name: 18. Bon gravelly 10	Ldl			
			./	
Are climatic / hydrologic conditions on the site typical for th				
Are Vegetation, Soil, or Hydrology				"Normal Circumstances" present? Yes X No
Are Vegetation, Soil, or Hydrology	naturally pro	blematic?	✓ (If ne	eeded, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map	showing	samplin	ig point l	ocations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes X	No			
	No		ne Sampled	V I
Wetland Hydrology Present? Yes X	No	Witr	nin a Wetiar	107 Yes No
Remarks: Grazed Pasture,				
Photos 21-24				
VEGETATION – Use scientific names of plan	n ts .			
Tree Stratum (Plot size: 30-)				Dominance Test worksheet:
		<u>Species?</u>		Number of Dominant Species
				That Are OBL, FACW, or FAC:(A)
2				Total Number of Dominant) Species Across All Strata: (B)
4				
		_ = Total Co	ver	Percent of Dominant Species That Are OBL, FACW, or FAC: (00 (A/B)
Sapling/Shrub Stratum (Plot size: 15)				Prevalence index worksheet:
1. <u>N/A</u>				Total % Cover of: Multiply by:
2				OBL species x1 =
3				FACW species x 2 =
4			•	FAC species 100 x 3 = 300
5				FACU species x 4 =
Herb Stratum (Plot size: 5)		= Total Co	over	LIPI species x 5 =
1. Alopecurus pratensis	80	Х	FAL	Column Totals: <u>100</u> (A) <u>300</u> (B)
2. Trifolium repeas	5		FAC	Prevalence Index = B/A =
3. Agrostis stolonifera	15		FAC	Hydrophytic Vegetation indicators:
4. Rumex crispus	<u> </u>		FAL	1 - Rapid Test for Hydrophytic Vegetation
5				$\frac{1}{\sqrt{2}}$ 2 - Dominance Test is >50%
6				∑ 3 - Prevalence Index is ≤3.0 ¹
7				4 - Morphological Adaptations ¹ (Provide supporting
8				data in Remarks or on a separate sheet)
9			. <u> </u>	5 - Wetland Non-Vascular Plants ¹
10			·	Problematic Hydrophytic Vegetation ¹ (Explain)
11			·	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 15)	100	_≂ Total Co	ver	
1. N/A				Hudrophytic
2				Hydrophytic Vegetation
		= Total Co	ver	Present? Yes No
% Bare Ground in Herb Stratum				25
Remarks:				

Profile Description: (Describe to the dep	th needed to document t	he indicator	or confirm	the absence of	f indicators.)
Depth <u>Matrix</u>	Redox Fea				_
(inches) Color (moist) %	<u>Color (moist)</u> %	Type ¹	_Loc ²		Remarks
0-10 104R 3/1 100	<u> </u>			Loam	102 Gravel
10-16 7,545/2 BO	104R 4/6 20	<u> </u>	M	Sandy locu	55 gravel
				5	
	5				
¹ Type: C=Concentration, D=Depletion, RM=	 Reduced Matrix, CS=Cov	ered or Coate	ed Sand Gra	ains. ² Locat	tion: PL=Pore Lining, M=Matrix.
Hydric Soil Indicators: (Applicable to all					for Problematic Hydric Solis ³ :
Histosol (A1)	Sandy Redox (S5)			2 cm M	Muck (A10)
Histic Epipedon (A2)	Stripped Matrix (S6)			Red P	arent Material (TF2)
Black Histic (A3)	Loamy Mucky Minera	l (F1) (excep	t MLRA 1)		Shallow Dark Surface (TF12)
Hydrogen Sulfide (A4)	Loamy Gleyed Matrix	(F2)		Other	(Explain in Remarks)
Depleted Below Dark Surface (A11)	Z Depleted Matrix (F3)			3	
Thick Dark Surface (A12)	Redox Dark Surface (of hydrophytic vegetation and
Sandy Mucky Mineral (S1)	Depleted Dark Surfac	• •			I hydrology must be present,
Sandy Gleyed Matrix (S4)	Redox Depressions (-8)			disturbed or problematic.
Restrictive Layer (if present): Type: DrNSC Swody Lam	kun v				
12 - 11 4	- Marger				
Depth (inches): 1C-16+				Hydric Soli P	resent? Yes <u>/ No</u>
Remarks:					
HYDROLOGY					
Wetland Hydrology Indicators:				· · · · ·	1
Primary Indicators (minimum of one required	I; check all that apply)			<u>Seconda</u>	ary Indicators (2 or more required)
Surface Water (A1)	Water-Stained L	eaves (B9) (e	xcept	Wat	ter-Stained Leaves (B9) (MLRA 1, 2,
High Water Table (A2)	MLRA 1, 2, 4			4A, and 4B)	
Saturation (A3)	Salt Crust (B11)			Drai	inage Patterns (B10)
Water Marks (B1)	Aquatic Inverteb	rates (B13)		D ry -	-Season Water Table (C2)
Sediment Deposits (B2)	Hydrogen Sulfid	e Odor (C1)		Satu	uration Visible on Aerial Imagery (C9)
Drift Deposits (B3)	Oxidized Rhizos		Living Roof		pmorphic Position (D2)
X Algai Mat or Crust (B4)	Presence of Rec	luced Iron (C4	4)	🗡 Sha	Illow Aquitard (D3)
Iron Deposits (B5)	Recent Iron Red	uction in Tille	d Soils (C6)) FAC	C-Neutral Test (D5)

____ Stunted or Stressed Plants (D1) (LRR A)

___ Other (Explain in Remarks)

 Yes
 No
 X
 Depth (inches):

 Yes
 No
 X
 Depth (inches):

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

Remarks:

____ Surface Soil Cracks (B6)

Field Observations:

Saturation Present? (includes capillary fringe)

Surface Water Present? Water Table Present?

_ inundation Visible on Aerial Imagery (B7)

★ Sparsely Vegetated Concave Surface (B8)

____ Raised Ant Mounds (D6) (LRR A)

_ Frost-Heave Hummocks (D7)

Wetiand Hydrology Present? Yes X___ No ___

WETLAND DETERMINATION DATA FORM Western Moun	ntains, Valleys, and Coast Region
--	-----------------------------------

Project/Site: Crude by Rail	and have been strengt and	5/7/13
Applicant/Owner: <u>Shell</u> PSR		
Investigator(s): P. Hamidi, B. Fletcher		
		~
Landform (hillslope) terrace, etc.):	_ Local relief (concave convex) none):	Slope (%):
Subregion (LRR): Lat:	Long:	Datum:
Subregion (LRR): Lat: Soil Map Unit Name: 18 Bon gravely loan	NWI classification:	Upland
Are climatic / hydrologic conditions on the site typical for this time of ye		
Are Vegetation, Soil, or Hydrology significantly		
Are Vegetation, Soil, or Hydrology naturally pr		
SUMMARY OF FINDINGS - Attach site map showing	g sampling point locations, transects, impo	ortant features, etc.
Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes No X Wetland Hydrology Present? Yes No X		• <u> </u>
Remarks: Grazet Pasture. upland ist	end.	
Photos 37-39		
VEGETATION Use scientific names of plants.		

705	Absolute Dominant Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>30^{-}</u>) 1. \mathcal{N}/\mathcal{A}	<u>% Cover Species? Status</u>	Number of Dominant Species
		That Are OBL, FACW, or FAC: (A)
2		Total Number of Dominant
3		Species Across All Strata: (B)
4		Percent of Dominant Species
Sapling/Shrup Stratum (Plot size:)	= Total Cover	That Are OBL, FACW, or FAC: (A/B)
		Prevalence index worksheet:
		Total % Cover of: Multiply by:
2		OBL species x 1 =
3		FACW species x 2 =
4		FAC species 100 x 3 = 300
5		FACU species 1 x4 = 4
Herb Stratum (Plot size:)	= Total Cover	UPL species $5 \times 5 = 25$
1. Tri folium repens	SO Y FAC	Column Totals: /06 (A) 329 (B)
2. Pog pratensis	10 FAC	
3. Cynosetras cristatus	1 FACA	Prevalence Index = B/A =
4. Cirsien acvense	$-\frac{1}{5}$ $+\frac{1}{5}$	Hydrophytic Vegetation indicators:
		1 - Rapid Test for Hydrophytic Vegetation
5. Agrostis capillaris	<u>30 Y FAC</u> 5 UPL	λ_{i} 2 - Dominance Test is >50%
6. Trifolion Subterraneum		3 - Prevalence Index is ≤3.0 ¹
7. Festuca accordinaced 8	5 FAC	4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
9		5 - Wetland Non-Vascular Plants ¹
10		Problematic Hydrophytic Vegetation ¹ (Explain)
11.		¹ Indicators of hydric soil and wetland hydrology must
	106 = Total Cover	be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 15)		
		Hydrophytic
2.		Vegetation
	= = Total Cover	Present? Yes <u>X</u> No
% Bare Ground in Herb Stratum	Total Cover	
Remarks:		

L

Profile Description: (Desc	ribe to the d	epth needed to docu	ment the indicat	or or confirm	the absence of	of indicators.)	
Depth <u>Mat</u>			ox Features	<u></u>			
(in ches) Color (mois		Color (moist)	%Түре		<u>Texture</u>	Rem	arks
0710 104R 3	3/2 100				Loam	102 gre	ببعد
10-16 104R4	4 100	> ~			Logm	152 gu	wel
			········				
					·		
<u></u>					·		
<u></u>							
							······
					. 2.		
¹ Type: C=Concentration, D=				ated Sand Gra		ation: PL=Pore Lin	
Hydric Soli indicators: (Ap	plicable to		-			s for Problematic	Hydric Solis":
Histosol (A1)		Sandy Redox (Muck (A10)	
Histic Epipedon (A2)		Stripped Matrix				Parent Material (TF	-
Black Histic (A3)		· · ·	Mineral (F1) (exc	ept MLRA 1)		Shallow Dark Surfa	
Hydrogen Sulfide (A4)	·	Loamy Gleyed				r (Explain in Remar	KS)
Depleted Below Dark Su Thick Dark Surface (A12	• •	Depleted Matri	•••		³ Indicator	s of hydrophytic ve	actation and
Sandy Mucky Mineral (S	•	Depleted Dark				id hydrology must b	-
Sandy Gleyed Matrix (S	•	Redox Depres	• •			disturbed or proble	
Restrictive Layer (if preser	-						
Type: None							
Depth (inches):		<u>-</u>			Hydric Soli I	Present? Yes	No X
Remarks:							
Remains.							
HYDROLOGY							
Wetland Hydrology indicat					_		
Primary Indicators (minimum	of one requi		-			dary Indicators (2 o	
Surface Water (A1)		Water-Sta	ained Leaves (B9)	(except	W	ater-Stained Leave	s (B9) (MLRA 1, 2,
High Water Table (A2)		MLRA	1, 2, 4A, and 4B)		4A, and 4B)	
Saturation (A3)		Salt Crust	t (B11)		Dr	ainage Patterns (B	10)
Water Marks (B1)		Aquatic Ir	vertebrates (B13))	Dr	y-Season Water Ta	ible (C2)
Sediment Deposits (B2)		Hydrogen	Sulfide Odor (C1)	Sa	turation Visible on	Aerial Imagery (C9)
Drift Deposits (B3)		Oxidized	Rhizospheres alo	ng Living Root	s (C3) Ge	eomorphic Position	(D2)
Algal Mat or Crust (B4)		Presence	of Reduced Iron	(C4)	Sh	allow Aquitard (D3))
Iron Deposits (B5)		Recent In	on Reduction in Ti	illed Soils (C6)) FA	C-Neutral Test (D5	5)
Surface Soil Cracks (B6))	Stunted o	r Stressed Plants	(D1) (LRR A)	Ra	aised Ant Mounds (i	D6) (LRR A)
Inundation Visible on Ae	rial Imagery	(B7) Other (Ex	plain in Remarks)		Fr	ost-Heave Hummod	cks (D7)
Sparsely Vegetated Con					0]		
Field Observations:				1			
Surface Water Present?	Yes	No K Depth (ir	iches):	i i			
Water Table Present?		a.4	iches):				
Saturation Present?		No <u>K</u> Depth (ir			nd Hydrology	Present? Yes _	No_X
(includes capillary fringe)	163		icites).		ina nyarology		
Describe Recorded Data (str	eam gauge,	monitoring well, aerial	photos, previous	inspections), il	f available:		
Remarks:							
							-

			ntains, Valleys, and Coast Region
Project/Site: Crude Rail Unloaling	Facilit forty	County:	sampling Date: 24-Jan-13
Applicant/Owner: Shell PSR			State: WA Sampling Point: 5P-EI
investigator(s): P. Hamidi, B. Fletcher	Secti	ion, Township, Rar	nge: Section 3 3/N, 2E
Landform (hillslope, terrace, etc.): Flats land	Loca	al relief (concave, c	convex, (none)? Slope (%):/
Subregion (LRR):	Lat:		Long: Datum: NA0 83
Soli Map Unit Name: Bow gravelly (gam, 0)	to 3 seron	t stones	NWI classification:
Are climatic / hydrologic conditions on the site typical for th	•	. 1	
Are Vegetation, Soli, or Hydrology			
Are Vegetation, Soli, or Hydroiogy			eded, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map	showing sar	npling point lo	ocations, transects, important features, etc.
	40 40 40	is the Sampled within a Wetian	A 1
Remarks: 122,183 5011 Photos: 124-127 plot			
VEGETATION – Use scientific names of plan			
<u>Tree Stratum</u> (Plot size: <u>30</u>) 1(<u>1</u>)	Absolute Dor <u>% Cover Spe</u>	minant Indicator ecies? <u>Status</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC:
1		//	Total Number of Dominant
4			Species Across All Strata: (B) Percent of Dominant Species
Sapling/Shrub Stratum (Plot size: 15)	O = To	otal Cover	That Are OBL, FACW, or FAC: (A/B)
1/A			Prevalence Index worksheet:
2/V //Ţ			<u>Total % Cover of:</u> <u>Multiply by:</u> OBL species⊘ x 1 =⊘
3			FACW species O x 2 = O
4			FAC species $/00$ x 3 = 300
5			FACU species x 4 =
Herb Stratum (Plot size:)		otal Cover	UPL species x 5 =
1. Agrostis apillaris	85	X FAC	Column Totals: <u>(0)</u> (A) <u>300</u> (B)
2. Festuca arundinacea		FAC	Prevalence Index = B/A = 3:00
3. Alope curus pratensis	5	FAC	Hydrophytic Vegetation Indicators:
4			1 - Rapid Test for Hydrophytic Vegetation
5 6			X 2 - Dominance Test is >50%
7			_X 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting
8			data in Remarks or on a separate sheet)
9			5 - Wetland Non-Vascular Plants ¹
10			Problematic Hydrophytic Vegetation ¹ (Explain)
11		tal Cover	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 15)	=10		
1			Hydrophytic
2			Vegetation Present? Yes X No
% Bare Ground in Herb Stratum	= 10	tal Cover	
Remarks:			
A			

Profile Description: (Describe to the d	epth needed to document the indicato	r or confirm	the absence	of indicators.)
Depth <u>Matrix</u>	Redox Features			
(Inches) Color (moist) %	Color (moist) % Type ¹		Texture	Remarks
0-5 10485/2 100)	-	Loan	5V
5-9 10YR 3/2 100			Loam	15% glavel
9-16 104 5/1 85	7.5 YR 5/6 15 C	\sim	CLO	10% coble 5% gravel
		·		
¹ Type: C=Concentration, D=Depletion, R	M=Reduced Matrix, CS=Covered or Coa	ted Sand Gra	ains. ² Loo	cation: PL=Pore Lining, M=Matrix.
Hydric Soli Indicators: (Applicable to a				ors for Problematic Hydric Solis ³ :
Histosol (A1)	Sandy Redox (S5)		2 cr	n Muck (A10)
Histic Epipedon (A2)	Stripped Matrix (S6)			Parent Material (TF2)
Black Histic (A3)	Loamy Mucky Mineral (F1) (exce	ot MLRA 1)	Ver	y Shallow Dark Surface (TF12)
Hydrogen Sulfide (A4)	Loamy Gleyed Matrix (F2)		Oth	er (Explain in Remarks)
Depleted Beiow Dark Surface (A11)	X Depleted Matrix (F3)			
Thick Dark Surface (A12)	Redox Dark Surface (F6)		³ Indicato	ors of hydrophytic vegetation and
Sandy Mucky Mineral (S1)	Depleted Dark Surface (F7)		wetia	nd hydrology must be present,
Sandy Gleyed Matrix (S4)	Redox Depressions (F8)		unles	s disturbed or problematic.
Restrictive Layer (if present):				
Туре:				
Depth (inches):	<u></u>		Hydric Soii	Present? Yes <u> </u>
Remarks:				
HYDROLOGY				
Wetland Hydrology indicators:	=			
Primary Indicators (minimum of one requir	ed; check all that apply)		Secor	ndary Indicators (2 or more required)
Surface Water (A1)	Water-Stained Leaves (B9) (evcent		Vater-Stained Leaves (B9) (MLRA 1, 2,
K High Water Table (A2)	MLRA 1, 2, 4A, and 4B)	chech		4A, and 4B)
X Saturation (A3)				Prainage Patterns (B10)
	Salt Crust (B11)			NC .
Water Marks (B1)	Aquatic Invertebrates (B13)			ry-Season Water Table (C2)
SedIment Deposits (B2)	Hydrogen Sulfide Odor (C1)			aturation Visible on Aerial Imagery (C9)
Drift Deposits (B3)	Oxidized Rhizospheres along		•••—	eomorphic Position (D2)
Algal Mat or Crust (B4)	Presence of Reduced Iron (C			hallow Aquitard (D3)
Iron Deposits (B5)	Recent Iron Reduction in Till	ed Soils (C6)	F.	AC-Neutral Test (D5)
Surface Soil Cracks (B6)	Stunted or Stressed Plants (I	01) (LRR A)	R	aised Ant Mounds (D6) (LRR A)
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks)		F	rost-Heave Hummocks (D?)
Sparsely Vegetated Concave Surface	(88)			
Field Observations:	[
Surface Water Present? Yes	No Depth (inches):			
Water Table Present? Yes X	No Depth (inches):7			
Saturation Present? Yes X	No Depth (inches):	Wetlai	nd Hydrolog	y Present? Yes 🔨 No
(includes capillary fringe)				
Describe Recorded Data (stream gauge, n	ionitoring weil, aenai photos, previous in	spections), if	availablė:	
Pomorie:				
Remarks:				
•5				

Project/Site: Crude Rail Un	loading Facility Cit	y/county: Skagit	Sampling Date: <u>29-Jan - (3</u>
Applicant/Owner: UNPIL VOK	-		
Investigator(s): P. Hamidli B	Fletcher se	ction, Township, Range: Sect	m 3 34N, 2E
Landform (hilislope, terrace, etc.): Fla	at land Lo	cal relief (concave, convex none):	Slope (%):(
Subregion (LRR): Soll Map Unit Name:Bob	10 La A L.	2 mm falames MAN	plassification: NIA
Are climatic / hydrologic conditions on the	site typical for this time of year?	Yes X No (if no, expl	ain in Remarks.)
Are Vegetation, Soil, or H	ydrology significantly dis	turbed? M Are "Normal Circumsta	ances" present? Yes $X_{}$ No
Are Vegetation, Soll, or H	ydrology naturaliy proble	ematic? N (If needed, explain any	answers in Remarks.)
SUMMARY OF FINDINGS - Att	ach site map showing s	ampling point locations, tran	sects, important features, etc.
Hydrophytic Vegetation Present?	Yes X No		
Hydric Soli Present?	Yes No <u>X</u>	is the Sampled Area	
Watland Hydrology Present?	Yes No X	within a Wetland? Ye	es No

Wetland Hydrology Present?			<u>No X</u>
Remarks: Photos:	128,129	5011	
	()0-()5	PIOT	

VEGETATION – Use scientific names of plants.

5 /	Absolute	Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 30)	% Cover	Species? Status	Number of Dominant Species
			That Are OBL, FACW, or FAC: (A)
"	<u> </u>	<u> </u>	
2			Total Number of Dominant
3			Species Across All Strata: (B)
4			Percent of Dominant Species
	0	= Total Cover	Percent of Dominant Species That Are OBL, FACW, or FAC:
Sapling/Shrub Stratum (Plot size: (5))		•	Prevalence index worksheet:
<u>1.</u> / Λ			
$- \Lambda / / \Lambda$			Total % Cover of:Multiply by:
2		<u> </u>	OBL species x 1 =
3			FACW species x 2 =O
4			FAC species $\frac{1}{2}O \times 3 = 24D$
5			FACU species x4 = 80
	<u> </u>	= Total Cover	· · · · · · · · · · · · · · · · · · ·
Herb Stratum (Plot size:)	c 0		
1. Agrostis capillaris	SP	X	Column Totals:(00(A)320(B)
2 Cirsium arvense	aD	X FRC3	Prevalence Index = B/A = <u>?.20</u>
3. Fettura arundinarea	9	FAC	Hydrophytic Vegetation Indicators:
4. Alopeculus pratensis	20	X FAC	1 - Rapid Test for Hydrophytic Vegetation
5.		¥	\times 2 - Dominance Test is >50%
			3 - Prevalence Index is $\leq 3.0^{1}$
6		· ·	
7 8			4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
			5 - Wetland Non-Vascular Plants ¹
9			Problematic Hydrophytic Vegetation ⁺ (Explain)
10			¹ Indicators of hydric soil and wetland hydrology must
11	160		be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 15)	100	= Total Cover	
Woody Vine Stratum (Plot size:)			
1			Hydrophytic
2	_		Vegetation
	0	= Total Cover	Present? Yes X No
% Bare Ground in Herb StratumO		_	
Remarks:			

SOIL						Sampling Point:	
Profile Des	cription: (Describe to the depth	needed to docur	nent the Indicator	or confirm t	he absence	e of Indicators.)	
Depth	Matrix		x Features			< ·	
(Inches)	Coior (molst),%	Color (moist)	%Type1	Loc ²	Texture	Remarks	
0-9	104R 3/2 100				Loan	10% gravel	
9-16	10YR 4/3.5 100				Salo	15% gravel	
					1920	1578 glavel	
			·				
	·						
						0	
				<u> </u>			
¹ Type: C=C	oncentration, D=Depletion, RM=R	educed Matrix, CS	=Covered or Coate	d Sand Grai	ns. ² Lo	cation: PL=Pore Lining, M=Matrix.	
Hydric Soil	indicators: (Applicable to all LF	Rs, unless other	wise noted.)		Indicate	ors for Problematic Hydric Solis ³ :	
Histosol	(A1)	_ Sandy Redox (S	55)		2 ci	m Muck (A10)	
Histlc E	pipedon (A2)	_ Stripped Matrix	(S6)			d Parent Material (TF2)	
Black H		_ Loamy Mucky M	fineral (F1) (except	MLRA 1)	Ver	y Shallow Dark Surface (TF12)	
	en Sulfide (A4)	_ Loamy Gleyed N			Oth	ner (Explain in Remarks)	
	d Below Dark Surface (A11)	_ Depleted Matrix	• •		-		
	ark Surface (A12)	_ Redox Dark Sur			³ Indicators of hydrophytic vegetation and		
	Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Sandy Gieyed Matrix (S4) Redox Depressions (F8)				and hydrology must be present,		
	Layer (if present):	_ Redux Depressi		<u>r</u>	unles	ss disturbed or problematic.	
Type:							
Depth (inc							
					Hydric Soll	Present? Yes No X	
Remarks:							
33	1. I.						
YDROLO	GY	····		·····		······································	
	trology Indicators:			<u> </u>			
-					_		
	ators (minimum of one required; c					ndary Indicators (2 or more required)	
	Water (A1)		ned Leaves (B9) (ex	cept	Water-Stained Leaves (B9) (MLRA 1)		
	ter Table (A2)		, 2, 4A, and 4B)		4A, and 4B)		
Saturatio		Salt Crust (I			Drainage Patterns (B10)		
Water Ma			ertebrates (B13)		Dry-Season Water Table (C2)		
	t Deposits (B2)		Sulfide Odor (C1)		Saturation Visible on Aerial Imagery (CS)		
	osits (B3)	Oxidized RI	nizospheres along L	iving Roots	(C3) G	Geomorphic Position (D2)	
	t or Crust (B4)		f Reduced Iron (C4)	•	s	hallow Aquitard (D3)	
Iron Depo		Recent Iron	Reduction in Tilled	Soils (C6)	F.	AC-Neutral Test (D5)	
	Soil Cracks (B6)	Stunted or S	Stressed Plants (D1) (LRR A)	R	aised Ant Mounds (D6) (LRR A)	
	n Visible on Aerial Imagery (B7)		ain in Remarks)		Fi	rost-Heave Hummocks (D?)	
Sparselv	Vegetated Concave Surface (B8)						

Fleid Observations: Yes _____ No _X_ Depth (inches): Surface Water Present? Yes X No Depth (inches): Water Table Present? 12 Saturation Present? 11 ___ Depth (inches): Wetland Hydrology Present? Yes No_ (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: Not expected to have wetland hydrology long enough during the growing season, based on Landscape Position, soils and vegetation, Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region Sampling Date: 24-Jan -13 Unloading Facility City/County: Project/Site: Sampling Point: 5P-E WA State: Sho Applicant/Owner: Section, Township, Range: Section 3, 34 N ae Hamid: B. Fletcher investigator(s): /-1 Landform (hillslope, terrace, etc.): Flat land Local relief (concave, convex, none) Slope (%): Datum: <u>NA083</u> Long: Subregion (LRR): Lat: Soil Map Unit Name: Boh 3 51 NWI classification: Percent can (If no, explain in Remarks.) Are climatic / hydrologic conditions on the site typical for this time of year? Yes No Are "Normal Circumstances" present? Yes __ significantly disturbed? $\cal N$ _, Soll _____, or Hydrology _ Are Vegetation ____ (If needed, explain any answers in Remarks.) ___ naturally problematic? N Are Vegetation ____ ___, Soli ____ ___, or Hydrology ____ SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc. No Hydrophytic Vegetation Present? Yes is the Sampled Area Hydric Soil Present? Yes No within a Wetland? No Wetiand Hydrology Present? Yes No_

VEGETATION – Use scientific names of plants.

Photos:

134-136

10+

Soil

Remarks:

30	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Plot size:)	% Cover	Species?	Status	Number of Dominant Species
$\frac{1}{2} - N/A$				
				Total Number of Dominant
3				
4	0	= Totai Co	ver	Percent of Dominant Species That Are OBL, FACW, or FAC:(D/D)(A/B)
Sapling/Shrub Stratum (Plot size: 15)	<u></u>			Prevalence Index worksheet:
				Total % Cover of: Multiply by:
1 2/A		<u></u>		OBL species x 1 =
3/			`	FACW species x 2 =
4			<u>_</u>	FAC species 100 x 3 = 300
5				FACU species x 4 =
Herb Stratum (Plot size:)		_ = Total Co	iver	UPL species O x 5 = O
1. Aarostis capillaris	35	<u>×</u>	FAC	Column Totals: 100 (A) 300 (B)
2. Alopecuivs pratensis	60	<u>×</u>	FAC	Prevalence Index = B/A = 3.80
3. Cirlium arvense	<u> </u>		FACT	Hydrophytic Vegetation Indicators:
4. Festora acordinarea				1 - Rapid Test for Hydrophytic Vegetation
5				X 2 - Dominance Test is >50%
6		. <u></u>		<u>X</u> 3 - Prevalence Index is ≤3.0 ¹
7 8				4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
9				5 - Wetland Non-Vascuiar Plants ¹
10.				Problematic Hydrophytic Vegetation ¹ (Explain)
11.				¹ Indicators of hydric soil and wetland hydrology must
	100	_= Total Co	ver	be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size:)				
1Ar/A			·	Hydrophytic Vegetation
2				Present? Yes X No
& Bare Ground in Herb Stratum	_0_	_= Total Co	iver	
Remarks:	<u> </u>			

Profile Description: (Describe Depth Matrix		Redov	x Features						
(inches) Color (moist) ,	%	Color (moist)	%	_Type1	Loc ²	Texture		Remarks	
0-8 107R31.	5 100						10%	grave	1
8-10 IDYR3/2		10484/6	10					glavel	24
$\frac{1}{10-18}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$		0YR 4/6	20	<u> </u>		SACICO C / I	1010	giarei	
		011 1/0	00	<u> </u>	<u></u>	SQCI	<u> </u>	10	
			<u> </u>						
				·				····	
		<u> </u>							
¹ Type: C=Concentration, D=Dep	pietlon, RM=Re	duced Matrix, CS	=Covered	or Coated	Sand Gra	ains. ² Loc	ation: PL=	Pore Lining, M	=Matrix.
Hydric Soil Indicators: (Applic	able to all LRF	Rs, unless other	wise note	d.)				lematic Hydr	
Histosol (A1)	_	Sandy Redox (S				2 cm	Muck (A10))	
Histic Epipedon (A2)	_	Stripped Matrix (Red	Parent Mat	erial (TF2)	
Black Histic (A3)		Loamy Mucky M			MLRA 1)			ark Surface (T	F12)
Hydrogen Sulfide (A4)	- (844)	Loamy Gleyed N				Othe	r (Explain I	n Remarks)	
Depleted Below Dark Surfac Thick Dark Surface (A12)		Depleted Matrix				1			
Sandy Mucky Mineral (S1)	75	Redox Dark Surf Depleted Dark S		~				hytic vegetatio	
Sandy Gleyed Matrix (S4)	_	Redox Depressio	•)				y must be pres	
Restrictive Layer (If present):						Unless	alsturbed	or problematic	·
Туре:		X.				}			
Depth (Inches):		11						Yes X	
Remarks:						Hydrlc Soii	Present?	Yes	No
Nemaria.									
									¥1
······································									
HYDROLOGY				<u> </u>					
		H.						· · · · · · · · · · · · · · · · · · ·	
Wetland Hydrology Indicators:	ne required: ch	eck all that apply)				Sasan			
Wetland Hydrology Indicators: Primary Indicators (minimum of o	ne required; chi							ors (2 or more	
Wetland Hydrology Indicators: Primary Indicators (minimum of o Surface Water (A1)	ne reguired; cho	Water-Stain	ed Leaves		cept		ater-Stained	Leaves (B9)	
Wetland Hydrology Indicators: Primary Indicators (minimum of o Surface Water (A1) High Water Table (A2)	ne required; cho	Water-Stain MLRA 1,	ed Leaves 2, 4A, an		cept	Wa	ater-Stained 4 A, and 4I	i Leaves (B9) 3)	
Wetland Hydrology Indicators: Primary Indicators (minimum of o Surface Water (A1) X High Water Table (A2) X Saturation (A3)	ne reguired; chi	Water-Stain MLRA 1, Salt Crust (E	ed Leaves 2, 4 A, an 311)	d 4B)	cept	Wa	ater-Stained 4 A, and 4I ainage Patt	d Leaves (B9) 3) ems (B10)	(MLRA 1, 2,
Wetland Hydrology Indicators: Primary Indicators (minimum of o Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1)	ne required; cho	Water-Staine MLRA 1, Salt Crust (E Aquatic Inve	ed Leaves 2, 4 A, an 311) rtebrates	d 4B) (B13)	cept	Wa Dra Dra	ater-Stained 4 A, and 4I ainage Patt y-Season V	d Leaves (B9) 3) ems (B10) Vater Table (C	(MLRA 1, 2, 2)
Wetland Hydrology Indicators: Primary Indicators (minimum of o Surface Water (A1) X High Water Table (A2) X Saturation (A3) Water Marks (B1) Sediment Deposits (B2)	ne reguired; cho	Water-Stain MLRA 1, Salt Crust (E Aquatic Inve Hydrogen St	ed Leaves 2, 4 A, an 311) rtebrates ulfide Odo	d 4B) (B13) r (C1)		Wa Dra Dra Sa	ater-Stained 4 A, and 4 I ainage Patt y-Season V turation VIs	d Leaves (B9) 3) ems (B10) Vater Table (C ible on Aerial	(MLRA 1, 2, 2)
Wetland Hydrology Indicators: Primary Indicators (minimum of o Surface Water (A1) X High Water Table (A2) X Saturation (A3) Water Marks (B1) SedIment Deposits (B2) Drift Deposits (B3)	ne required; cho	Water-Stain MLRA 1, Salt Crust (E Aquatic Inve Hydrogen St Oxidized Rh	ed Leaves 2, 4 A, an 311) rtebrates ulfide Odo izosphere:	d 4B) (B13) r (C1) s along Liv		Wa Dra Sa s (C3) Ge	ater-Stained 4 A, and 4I ainage Patt y-Season V turation VIs comorphic F	d Leaves (B9) 3) ems (B10) Vater Table (C ible on Aerial Position (D2)	(MLRA 1, 2, 2)
Primary Indicators (minimum of o Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) SedIment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4)	ne required; ch	Water-Stains MLRA 1, Salt Crust (E Aquatic Inve Hydrogen St Oxidized Rh Presence of	ed Leaves 2, 4 A, an 311) rtebrates ulfide Odo izosphere: Reduced	d 4B) (B13) r (C1) s along Liv Iron (C4)	ving Roots	Wa Dra Sa s (C3) Ge Sh	ater-Stained 4 A, and 4 I ainage Patt y-Season V turation VIs comorphic F allow Aquit	d Leaves (B9) 3) ems (B10) Vater Table (C ible on Aerial Position (D2) ard (D3)	(MLRA 1, 2, 2)
Wetland Hydrology Indicators: Primary Indicators (minimum of o 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)	ne required; ch	Water-Stains MLRA 1, Salt Crust (E Aquatic Inve Hydrogen St Oxidized Rh Presence of Recent Iron	ed Leaves 2, 4A, an 311) rtebrates ulfide Odo izosphere: Reduced Reduction	d 4B) (B13) r (C1) s along Liv Iron (C4) i in Tilled S	ving Roots Soils (C6)	Wa Dra Sa s (C3) Ge Sh FA	ater-Stained 4 A, and 4 I ainage Patt y-Season V turation Vis omorphic F allow Aquit C-Neutral 1	d Leaves (B9) 3) ems (B10) Vater Table (C ible on Aerial Position (D2) ard (D3) Fest (D5)	(MLRA 1, 2, 2) Imagery (C9)
Wetland Hydrology Indicators: Primary Indicators (minimum of o 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)	e. L	Water-Stains MLRA 1, Salt Crust (E Aquatic Inve Hydrogen St Oxidized Rh Presence of Recent Iron Stunted or S	ed Leaves 2, 4 A , an 311) rtebrates ulfide Odo izosphere: Reduced Reduction tressed Pi	d 4B) (B13) r (C1) s along Liv Iron (C4) i in Tilled S iants (D1)	ving Roots Soils (C6)	Wa Dra Sa s (C3) Ge Sh FA Ra	ater-Stained 4 A, and 4 I ainage Patt y-Season V turation VIs comorphic F allow Aquit C-Neutral 1 ised Ant Mo	d Leaves (B9) 3) erns (B10) Vater Table (C ible on Aerial Position (D2) ard (D3) Fest (D5) punds (D6) (Li	(MLRA 1, 2, 2) Imagery (C9) RR A)
Wetland Hydrology Indicators: Primary Indicators (minimum of o 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 In	nagery (B7)	Water-Stains MLRA 1, Salt Crust (E Aquatic Inve Hydrogen St Oxidized Rh Presence of Recent Iron	ed Leaves 2, 4 A , an 311) rtebrates ulfide Odo izosphere: Reduced Reduction tressed Pi	d 4B) (B13) r (C1) s along Liv Iron (C4) i in Tilled S iants (D1)	ving Roots Soils (C6)	Wa Dra Sa s (C3) Ge Sh FA Ra	ater-Stained 4 A, and 4 I ainage Patt y-Season V turation VIs comorphic F allow Aquit C-Neutral 1 ised Ant Mo	d Leaves (B9) 3) ems (B10) Vater Table (C ible on Aerial Position (D2) ard (D3) Fest (D5)	(MLRA 1, 2, 2) Imagery (C9) RR A)
Wetland Hydrology Indicators: Primary Indicators (minimum of o 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 Ir Sparsely Vegetated Concave	nagery (B7)	Water-Stains MLRA 1, Salt Crust (E Aquatic Inve Hydrogen St Oxidized Rh Presence of Recent Iron Stunted or S	ed Leaves 2, 4 A , an 311) rtebrates ulfide Odo izosphere: Reduced Reduction tressed Pi	d 4B) (B13) r (C1) s along Liv Iron (C4) i in Tilled S iants (D1)	ving Roots Soils (C6)	Wa Dra Sa s (C3) Ge Sh FA Ra	ater-Stained 4 A, and 4 I ainage Patt y-Season V turation VIs comorphic F allow Aquit C-Neutral 1 ised Ant Mo	d Leaves (B9) 3) erns (B10) Vater Table (C ible on Aerial Position (D2) ard (D3) Fest (D5) punds (D6) (Li	(MLRA 1, 2, 2) Imagery (C9) RR A)
Wetland Hydrology Indicators: Primary Indicators (minimum of o 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 Ir Sparsely Vegetated Concave	nagery (B7) Surface (B8)	Water-Stain MLRA 1, Salt Crust (E Aquatic Inve Hydrogen St Oxidized Rh Presence of Recent Iron Stunted or S Other (Expla	ed Leaves 2, 4 A, an 311) rtebrates ulfide Odo izosphere: Reduced Reduction tressed Pi in in Rem	d 4B) (B13) r (C1) s along Liv Iron (C4) i in Tilled S iants (D1)	ving Roots Soils (C6)	Wa Dra Sa s (C3) Ge Sh FA Ra	ater-Stained 4 A, and 4 I ainage Patt y-Season V turation VIs comorphic F allow Aquit C-Neutral 1 ised Ant Mo	d Leaves (B9) 3) erns (B10) Vater Table (C ible on Aerial Position (D2) ard (D3) Fest (D5) punds (D6) (Li	(MLRA 1, 2, 2) Imagery (C9) RR A)
Wetland Hydrology Indicators: Primary Indicators (minimum of o 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 Ir Sparsely Vegetated Concave Fleid Observations: Surface Water Present?	nagery (B7) Surface (B8)	Water-Stain MLRA 1, Salt Crust (E Aquatic Inve Hydrogen Su Oxidized Rh Presence of Recent Iron Stunted or S Other (Expla	ed Leaves 2, 4 A , an 311) rtebrates ulfide Odo izosphere: Reduced Reduction tressed Pi in in Remains in in Remains es):	d 4B) (B13) r (C1) s along Liv Iron (C4) i in Tilled S iants (D1)	ving Roots Soils (C6)	Wa Dra Sa s (C3) Ge Sh FA Ra	ater-Stained 4 A, and 4 I ainage Patt y-Season V turation VIs comorphic F allow Aquit C-Neutral 1 ised Ant Mo	d Leaves (B9) 3) erns (B10) Vater Table (C ible on Aerial Position (D2) ard (D3) Fest (D5) punds (D6) (Li	(MLRA 1, 2, 2) Imagery (C9) RR A)
Wetland Hydrology Indicators: Primary Indicators (minimum of o 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 Ir Sparsely Vegetated Concave Fleid Observations: Surface Water Present? Ye	nagery (B7) Surface (B8) es No es No	Water-Stains MLRA 1, Salt Crust (E Aquatic Inve Hydrogen St Oxidized Rh Presence of Recent Iron Stunted or S Other (Expla	ed Leaves 2, 4 A , an 311) rtebrates ulfide Odo izosphere: Reduced Reduced Reduction tressed Pi in in Remains es):(d 4B) (B13) r (C1) s along Liv Iron (C4) i in Tilled S iants (D1)	ving Roots Soils (C6) (LRR A)	Wa Dra Sa s (C3) Ge Sh FA Ra Fro	ater-Stained 4 A, and 4I ainage Patt y-Season V turation VIs comorphic F allow Aquit C-Neutral 1 ised Ant Mo ost-Heave F	d Leaves (B9) 3) erns (B10) Vater Table (C ible on Aerial Position (D2) ard (D3) Fest (D5) punds (D6) (Li	(MLRA 1, 2, 2) Imagery (C9) RR A) /)
Wetland Hydrology Indicators: Primary Indicators (minimum of o 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 Ir Sparsely Vegetated Concave Fleid Observations: Surface Water Present? Ye Water Table Present? Ye Saturation Present? Ye	nagery (B7) Surface (B8) s No s No	Water-Stain MLRA 1, Salt Crust (E Aquatic Inve Hydrogen Su Oxidized Rh Presence of Recent Iron Stunted or S Other (Expla	ed Leaves 2, 4 A , an 311) rtebrates ulfide Odo izosphere: Reduced Reduced Reduction tressed Pi in in Remains es):(d 4B) (B13) r (C1) s along Liv Iron (C4) i in Tilled S iants (D1)	ving Roots Soils (C6) (LRR A)	Wa Dra Sa s (C3) Ge Sh FA Ra	ater-Stained 4 A, and 4I ainage Patt y-Season V turation VIs comorphic F allow Aquit C-Neutral 1 ised Ant Mo ost-Heave F	d Leaves (B9) 3) erns (B10) Vater Table (C ible on Aerial Position (D2) ard (D3) Fest (D5) punds (D6) (Li	(MLRA 1, 2, 2) Imagery (C9) RR A)
Wetland Hydrology Indicators: Primary Indicators (minimum of o 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 Ir Sparsely Vegetated Concave Fleid Observations: Surface Water Present? Ye Water Table Present? Ye Saturation Present? Ye (includes capillary fringe) Ye	nagery (B7) Surface (B8) es No es No s No	Water-Stains MLRA 1, Salt Crust (E Aquatic Inve Hydrogen Si Oxidized Rh Presence of Recent Iron Stunted or S Other (Expla	ed Leaves 2, 4 A, an 311) rtebrates ulfide Odo izosphere: Reduced Reduction tressed Pi in in Remains in in Remains es): es):	d 4B) (B13) r (C1) s along Liv Iron (C4) i in Tilled S iants (D1) arks)	ving Roots Soils (C6) (LRR A) Wetian	Wa Dra Sa s (C3) Ge Sh FA Ra Fro	ater-Stained 4 A, and 4I ainage Patt y-Season V turation VIs comorphic F allow Aquit C-Neutral 1 ised Ant Mo ost-Heave F	d Leaves (B9) 3) erns (B10) Vater Table (C ible on Aerial Position (D2) ard (D3) Fest (D5) punds (D6) (Li	(MLRA 1, 2, 2) Imagery (C9) RR A) /)
Wetland Hydrology Indicators: Primary Indicators (minimum of o 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 Ir Sparsely Vegetated Concave Fleid Observations: Surface Water Present? Ye Water Table Present? Ye Saturation Present? Ye	nagery (B7) Surface (B8) es No es No s No	Water-Stains MLRA 1, Salt Crust (E Aquatic Inve Hydrogen Si Oxidized Rh Presence of Recent Iron Stunted or S Other (Expla	ed Leaves 2, 4 A, an 311) rtebrates ulfide Odo izosphere: Reduced Reduction tressed Pi in in Remains in in Remains es): es):	d 4B) (B13) r (C1) s along Liv Iron (C4) i in Tilled S iants (D1) arks)	ving Roots Soils (C6) (LRR A) Wetian	Wa Dra Sa s (C3) Ge Sh FA Ra Fro	ater-Stained 4 A, and 4I ainage Patt y-Season V turation VIs comorphic F allow Aquit C-Neutral 1 ised Ant Mo ost-Heave F	d Leaves (B9) 3) erns (B10) Vater Table (C ible on Aerial Position (D2) ard (D3) Fest (D5) punds (D6) (Li	(MLRA 1, 2, 2) Imagery (C9) RR A) /)
Wetland Hydrology Indicators: Primary Indicators (minimum of o 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 Ir Sparsely Vegetated Concave FleId Observations: Surface Water Present? Ye Saturation Present? Ye Saturation Present? Ye Includes capillary fringe) Describe Recorded Data (stream of the stresment)	nagery (B7) Surface (B8) es No es No s No	Water-Stains MLRA 1, Salt Crust (E Aquatic Inve Hydrogen Si Oxidized Rh Presence of Recent Iron Stunted or S Other (Expla	ed Leaves 2, 4 A, an 311) rtebrates ulfide Odo izosphere: Reduced Reduction tressed Pi in in Remains in in Remains es): es):	d 4B) (B13) r (C1) s along Liv Iron (C4) i in Tilled S iants (D1) arks)	ving Roots Soils (C6) (LRR A) Wetian	Wa Dra Sa s (C3) Ge Sh FA Ra Fro	ater-Stained 4 A, and 4I ainage Patt y-Season V turation VIs comorphic F allow Aquit C-Neutral 1 ised Ant Mo ost-Heave F	d Leaves (B9) 3) erns (B10) Vater Table (C ible on Aerial Position (D2) ard (D3) Fest (D5) punds (D6) (Li	(MLRA 1, 2, 2) Imagery (C9) RR A) /)
Wetland Hydrology Indicators: Primary Indicators (minimum of o 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 Ir Sparsely Vegetated Concave Fleid Observations: Surface Water Present? Ye Water Table Present? Ye Saturation Present? Ye (includes capillary fringe) Ye	nagery (B7) Surface (B8) es No es No s No	Water-Stains MLRA 1, Salt Crust (E Aquatic Inve Hydrogen Si Oxidized Rh Presence of Recent Iron Stunted or S Other (Expla	ed Leaves 2, 4 A, an 311) rtebrates ulfide Odo izosphere: Reduced Reduction tressed Pi in in Remains in in Remains es): es):	d 4B) (B13) r (C1) s along Liv Iron (C4) i in Tilled S iants (D1) arks)	ving Roots Soils (C6) (LRR A) Wetian	Wa Dra Sa s (C3) Ge Sh FA Ra Fro	ater-Stained 4 A, and 4I ainage Patt y-Season V turation VIs comorphic F allow Aquit C-Neutral 1 ised Ant Mo ost-Heave F	d Leaves (B9) 3) erns (B10) Vater Table (C ible on Aerial Position (D2) ard (D3) Fest (D5) punds (D6) (Li	(MLRA 1, 2, 2) Imagery (C9) RR A) /)
Wetland Hydrology Indicators: Primary Indicators (minimum of o 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 Ir Sparsely Vegetated Concave FleId Observations: Surface Water Present? Ye Saturation Present? Ye Concludes capillary fringe) Describe Recorded Data (stream get)	nagery (B7) Surface (B8) es No es No s No	Water-Stains MLRA 1, Salt Crust (E Aquatic Inve Hydrogen Si Oxidized Rh Presence of Recent Iron Stunted or S Other (Expla	ed Leaves 2, 4 A, an 311) rtebrates ulfide Odo izosphere: Reduced Reduction tressed Pi in in Remains in in Remains es): es):	d 4B) (B13) r (C1) s along Liv Iron (C4) i in Tilled S iants (D1) arks)	ving Roots Soils (C6) (LRR A) Wetian	Wa Dra Sa s (C3) Ge Sh FA Ra Fro	ater-Stained 4 A, and 4I ainage Patt y-Season V turation VIs comorphic F allow Aquit C-Neutral 1 ised Ant Mo ost-Heave F	d Leaves (B9) 3) erns (B10) Vater Table (C ible on Aerial Position (D2) ard (D3) Fest (D5) punds (D6) (Li	(MLRA 1, 2, 2) Imagery (C9) RR A) /)
Wetland Hydrology Indicators: Primary Indicators (minimum of o 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 Ir Sparsely Vegetated Concave FleId Observations: Surface Water Present? Ye Saturation Present? Ye Concludes capillary fringe) Describe Recorded Data (stream get)	nagery (B7) Surface (B8) es No es No s No	Water-Stains MLRA 1, Salt Crust (E Aquatic Inve Hydrogen Si Oxidized Rh Presence of Recent Iron Stunted or S Other (Expla	ed Leaves 2, 4 A, an 311) rtebrates ulfide Odo izosphere: Reduced Reduction tressed Pi in in Remains in in Remains es): es):	d 4B) (B13) r (C1) s along Liv Iron (C4) i in Tilled S iants (D1) arks)	ving Roots Soils (C6) (LRR A) Wetian	Wa Dra Sa s (C3) Ge Sh FA Ra Fro	ater-Stained 4 A, and 4I ainage Patt y-Season V turation VIs comorphic F allow Aquit C-Neutral 1 ised Ant Mo ost-Heave F	d Leaves (B9) 3) erns (B10) Vater Table (C ible on Aerial Position (D2) ard (D3) Fest (D5) punds (D6) (Li	(MLRA 1, 2, 2) Imagery (C9) RR A) /)
Wetland Hydrology Indicators: Primary Indicators (minimum of o 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 Ir Sparsely Vegetated Concave Fleid Observations: Surface Water Present? Ye Saturation Present? Ye Saturation Present? Ye Remarks:	nagery (B7) Surface (B8) es No es No s No	Water-Stains MLRA 1, Salt Crust (E Aquatic Inve Hydrogen Si Oxidized Rh Presence of Recent Iron Stunted or S Other (Expla	ed Leaves 2, 4 A, an 311) rtebrates ulfide Odo izosphere: Reduced Reduction tressed Pi in in Remains in in Remains es): es):	d 4B) (B13) r (C1) s along Liv Iron (C4) i in Tilled S iants (D1) arks)	ving Roots Soils (C6) (LRR A) Wetian	Wa Dra Sa s (C3) Ge Sh FA Ra Fro	ater-Stained 4 A, and 4I ainage Patt y-Season V turation VIs comorphic F allow Aquit C-Neutral 1 ised Ant Mo ost-Heave F	d Leaves (B9) 3) erns (B10) Vater Table (C ible on Aerial Position (D2) ard (D3) Fest (D5) punds (D6) (Li	(MLRA 1, 2, 2) Imagery (C9) RR A) /)

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region								
Project/Site: Curde Rail Unluation Fo	cility	Citv/Cou	unty: SI<	agit Sampling Date: Jan 25,2013				
Applicant/Owner: Shell PSR			·····	State: WA Sampling Point: SP-E4				
investigator(s): To Walker B. Kiddler		Section	Township Ray	nae: Section 3, 34N, 26				
Investigator(s): J. Waller B. Kiddler Section, Township, Range: Section 3, 34 N, 2E Landform (hilisiope, terrace, etc.): fer (1.ce Local relief (concave, convex, none): None Slope (%): flat								
Subregion (LRR): <u>A</u> Lat: <u>Long:</u> Datum: <u>UAD83</u> Soil Map Unit Name: <u>Bow growelly loam</u> , 0 to 3 percent slupes <u>NWI classification</u> : <u>PEM(DSS</u>								
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (if no, explain in Remarks.)								
Are Curnatic 7 hydrologic conditions on the site typical for this time of year? Tes (if no, explain in Remarks.) Are Vegetation, Soli, or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No								
Are vegetation, Soil, or Hydrology adjuncting distances are normal circumstances presenter res No Are Vegetation, Soil, or Hydrology naturally problematic? (if needed, explain any answers in Remarks.)								
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.								
Hydrophytic Vegetation Present? Yes X. No								
Hydric Soli Present? Yes X	No		s the Sampled					
	No		vithin a Wetlan	la / Yes No				
Remarks: plat is becknown in Field								
VEGETATION – Use scientific names of plan								
ر <u>Tree Stratum</u> (Plot size: <u>۲</u> ()	Absoiute % Cover		ant indicator s? <u>Status</u>	Dominance Test worksheet:				
1				Number of Dominant Species イ That Are OBL, FACW, or FAC: (A)				
2								
3				Total Number of Dominant Species Across All Strata:				
4				Percent of Dominant Species				
Destination (Distance Internet	7	= Totai	Cover	That Are OBL, FACW, or FAC: (A/B)				
Sapiing/Shrub Stratum (Piot size: 15') 1. Frangula Puzhian	0	X	FAC	Prevalence index worksheet:				
	15	$-\chi$	- FAC	Total % Cover of: Multiply by:				
2. Cratalegy, monogram 3. Crains Screaning		`	- FAL	OBL species x 1 =				
			<u></u>	FACW species $2 \times 2 = 2$				
4 5				FAC species $125 \times 3 = 375$				
	17	= Totai	Cover	FACU species x4= 28				
Herb Stratum (Piot size: 5)		- 10tai	Cover C	UPL species O x 5 = O				
1. Holcus lanatus	50	X	EAC	Coiumn Totais: <u>132</u> (A) <u>403</u> (B)				
2. Agustis	50	<u>X</u>	FAC	Prevalence index = B/A = <u>3. 05</u>				
3. Caren 10 packy tachya	<u> </u>		FACE	Hydrophytic Vegetation indicators:				
4. Stellaria calycanthin	T	 .	- FACW	1 - Rapid Test for Hydrophytic Vegetation				
5				2 - Dominance Test is >50%				
6				3 - Prevalence index is ≤3.0 ¹				
7				 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) 				
8				5 - Wetland Non-Vascular Plants ¹				
9				Problematic Hydrophytic Vegetation ¹ (Explain)				
10				¹ Indicators of hydric soil and wetland hydrology must				
11	100	= Totai (Cover	be present, unless disturbed or problematic.				
Woody Vine Stratum (Plot size:)								
1. Rubes urginus	5	<u> </u>	_ FAW	Hydrophytic				

_____= Totai Cover

dead Satis brown located in plat + not counted in plant percentages

1

% Bare Ground in Herb Stratum

 \mathcal{D}

2. _

Remarks:

Hydrophytic Vegetation

Present?

Sampling Point: SP-E4

Profile Desc	ription: (Desci	ribe to	the depth	needed to docum	ent the i	indicator	or confirm	the absence	of indicators.)	
Depth										
(inches)	Color (moist		%	Color (moist)	%	<u>Type'</u>	_Loc ²	<u>Texture</u>	Remarks	
0-5	10YR3		<u>100 </u>							
5-8	loyr3	<u>k</u> _	90	7.5 YR 46	10	<u> </u>	M	Garge SL	590 grand	
8-16	2.57	715	80	7.54R46	20	C	M	SL	coarse 10-15% gravel	
							<u> </u>			
						·		<u> </u>		
						·				
							<u> </u>			
							<u> </u>			
¹ Type: C=Concentration D=Denietion PM=Reduced Matrix CS=Covered or Costed Sand Crains 21 contien: PL=Pare Links M=Netrix										
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ² Location: PL=Pore Lining, M=Matrix. Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) indicators for Problematic Hydric Soils ³ :										
	hipedon (A2)		_	_ Sandy Redox (Since Section 2) _ Stripped Matrix (n Muck (A10) Parent Material (TF2)	
Biack His			-	_ Simpled Matrix (_ Loamy Mucky Mi		1) (ovcont			/ Shallow Dark Surface (TF12)	
	n Suifide (A4)		-	_ Loamy Gieyed M	•	• •	MLINA I)		er (Explain in Remarks)	
	Below Dark Su	rface (A	11) 3	Copieted Matrix		,				
	rk Surface (A12	-	, <u>~</u>	Redox Dark Surf				³ indicato	rs of hydrophytic vegetation and	
	ucky Minerai (S	·	-	_ Depleted Dark S	• • •	7)			nd hydrology must be present,	
	ieyed Matrix (S4		_	_ Redox Depressio	•	.,			s disturbed or problematic.	
	ayer (if presen				. ,			1		
Type:										
Depth (inc	hes):			_				Hydric Soil	Present? Yes <u> </u>	
Remarks:								Tryune oon		
Remarks:									,	
HYDROLOG	GY									
	rology Indicate	1001								
-			oquired:	check ali that appiv)				Saaan	danu indicators (2 or more required)	
			equiled, o					10 MC	dary indicators (2 or more required)	
	Vater (A1)			Water-Stain			kcept		ater-Stained Leaves (B9) (MLRA 1, 2,	
-77 -	er Table (A2)			MLRA 1,		nd 4B)			4A, and 4B)	
X Saturatio				Sait Crust (F	-				rainage Patterns (B10)	
Water Ma	• •	ψ.		Aquatic inve		• •			ry-Season Water Table (C2)	
	t Deposits (B2)			Hydrogen S	ulfide Od	lor (C1)		Sa	aturation Visibie on Aeriai imagery (C9)	
Drift Dep	• •			Oxidized Rh	izospher	res along l	Living Root	ts (C3) G	eomorphic Position (D2)	
-	t or Crust (B4)			Presence of	Reduce	d iron (C4)	si	nailow Aquitard (D3)	
iron Depo	osits (B5)			Recent iron	Reductio	on in Tilied	l Solis (C6)) F#	AC-Neutral Test (D5)	
Surface S	Soil Cracks (B6)			Stunted or S	Stressed	Plants (D1	I) (LRR A)	Ri	aised Ant Mounds (D6) (LRR A)	
inundatio	n Visibie on Aeri	iai imag	jery (B7)	Other (Expia	ain in Rei	marks)		Fr	ost-Heave Hummocks (D7)	
Sparsely	Vegetated Conc	ave Su	rface (B8))						
Field Observ	ations:			•						
Surface Wate	r Present?	Yes	No	Depth (inch	ies):		_ [
Water Table F	Present?	Yes	No	•		7	_		2	
Saturation Present? Yes X No Depth (inches): Yes Wetland Hydrology Present? Yes No No No										
(includes capi										
		am gau	ige, monil	oring well, aerial ph	iotos, pre	evious insp	pections), if	f availabie:		
Remarks:			· · · ·	· · .					····	
I										

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region
Project/Site: <u>Crude Rail Unluading Facility</u> City/County: <u>Skagit</u> Sampling Date: <u>Jan 25,2013</u> Applicant/Owner: <u>Shell PSR</u> state: <u>WA</u> Sampling Point: <u>SP-E5</u>
investigator(s): J. Wallar, B. Killer Section, Township, Range: Section 4, 34N, 2E
Landform (hilisiope, terrace, etc.): <u>terrace</u> Local relief (concave, convex, none): <u>Curcarc</u> Slope (%): <u>2</u>
Subregion (LRR): Datum: Lat: Long: Datum: Datum: NAD 83
Subregion (LRR): <u>A</u> Lat: Long: <u>Datum: NAD 83</u> Soil Map Unit Name: <u>Baw gravely locm</u> , 0 to 3 percent s(pres NWI classification: <u>PFO</u>
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
Are Vegetation, Soli, or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 🗶 No
Are Vegetation, Soli, 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
VEGETATION – Use scientific names of plants. Absolute Dominant indicator Dominance Test worksheet:

1. <u>Alnus where</u>	<u>% Cover Species?</u> <u>46 X</u>	Status FAC	Number of Dominant Species 4((A)
2 3			Total Number of Dominant Species Across Ali Strata:(B)
4	= Totai Cov	ver	Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
1. Cratacques monogram 2. Lonicera involucrata	<u>50 X</u> <u>36 X</u>	FAC FACW	Prevalence Index worksheet:
3. <u>Rubus spectabilis</u> 4. Spiraen deufesi, 5.		FAC	FACW species $3 \bigcirc$ $x 2 =$ $6 \bigcirc$ FAC species1000 $x 3 =$ 30%
Herb Stratum (Piot size: 5)	$-\underline{B5}$ = Total Cov	-	FACU species $5 \times 4 = 20$ UPL species $5 \times 5 = 0$ Column Totais: 35×6 (A) 385×6 (B)
			Prevalence index = B/A =
3			Hydrophytic Vegetation Indicators:
4			1 - Rapid Test for Hydrophytic Vegetation
5			X 2 - Dominance Test is >50%
6			3 - Prevalence index is ≤3.0 ¹
7 8			4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
9			5 - Wetiand Non-Vascular Plants ¹
10			Problematic Hydrophytic Vegetation ¹ (Explain)
11	= Totai Cov		¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 5')		31	
1. Lugus urginus	<u> </u>	FACU	Hydrophytic Vegetation
2	= Total Cov	er	Present? Yes No
Remarks:	· · · · · · · · · · · · · · · · · · ·		

Sampling Point: <u>SI-E5</u>

Profile Description: (Describe to the depth needed to document the Indicator or confirm the absence of indicators.)										
Depth										
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	_Loc ²	Textur	<u>e </u>	Remarks	
0-4	167R3/2						loan	n		
4-3	104R42	_17	7.5YK 46	3	С	M	Coary SC	L 15%	gravel	
8-16	2.545/2	35	40 YR 5/8	15	C	M	SCL	59	gravel	
	· · · · · · · · · · · · · · · · · · ·		7.5		•					
								· · · · · · · · · · · · · · · · · · ·		
		<u> </u>			· <u></u>		-		<u> </u>	
				·	·		-			·
— <u> </u>					·					······
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ² Location: PL=Pore Lining, M=Matrix.										
	¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Hydric Soll indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Solls ³ :									
Histosol			Sandy Redox (S		,			2 cm Muck (A	-	
	oipedon (A2)	-	Stripped Matrix (-			· · · · · · · · · · · · · · · · · · ·	Red Parent M	•	
	istic (A3)	-	Loamy Mucky M		1) (excent				Dark Surface (T	E12)
	en Suifide (A4)	-	Loamy Gieyed N					-	n in Remarks)	(1 <i>2</i>)
	d Below Dark Surface	(A11)	X Depieted Matrix		/				i in Kennarkoy	
· ·	ark Surface (A12)		Redox Dark Surf	• •			³ indi	cators of bydr	ophytic vegetation	n and
	lucky Minerai (S1)	-	Depieted Dark S		7)			•	ogy must be pres	
	Sieyed Matrix (S4)	-	Redox Depressio	•	•)			-	d or problematic	
		-					u 1			·•
Type:	Restrictive Layer (if present): Type: consulat (any									
		- Jer								
Depth (inc	cnes):		 				Hydric	Soil Present?	Yes X	No
Remarks:										
1										
	<u> </u>									
HYDROLO	GY									
Wetland Hyd	drology Indicators:									
Primary indic	ators (minimum of on	e required:	check all that apply)				Se	condarv indic	ators (2 or more	required)
	Water (A1)		Water-Stain		es (R9) (es	rcent			ed Leaves (B9)	2200
	iter Table (A2)		MLRA 1			pr	-	4A, and		(IIICINA 1, 2,
X Saturatio			Sait Crust (E		iiu 40)			•	•	
	• •				- (040)				atterns (B10)	-
	arks (B1)		Aquatic inve						Water Table (C	·
	nt Deposits (B2)		Hydrogen S						/isibie on Aeriai	imagery (C9)
	oosits (B3)		Oxidized Rh	-	_	-	ts (C3)		Position (D2)	
. –	t or Crust (B4)		Presence of				- č	> Shallow Aqu		Í
	osits (B5)		Recent iron			• • •	/	FAC-Neutra	• •	
	Soli Cracks (B6)		Stunted or S		•) (LRR A))	_ Raised Ant	Mounds (D6) (Ll	RR A)
inundation Visible on Aeriai imagery (B7) Other (Explain in Remarks) Frost-Heave Hummocks (D7)										
Sparsely	Vegetated Concave	Surface (B8	3)							
Field Observ	ations:				-					
Surface Wate	er Present? Ye	s No	$ \underline{X} $ Depth (inch	nes):		_				
Water Table Present? Yes X No Depth (inches): 4										
Saturation Present? Yes X No Depth (inches): 6 Wetland Hydrology Present? Yes No No										
(includes cap			Bopai (aloi		<u> </u>			-91		·····
Describe Rec	corded Data (stream g	lauge, moni	itoring well, aerial ph	iotos, pre	vious insp	ections), i	if available:			
Remarks:	, ()	. 1	1 (/							
	Water flow	vingito	hole from abo	wer 1	in Che	7				
		U								
			••							

Project/Site:CRVF	City/County:Skagit	Sampling Date: 5 Feb 2013
Applicant/Owner: Shell PSR	State:	A Sampling Point: SP-E6
investigator(s): P Hannie B Kidder	Section, Township, Range:	
Landform (hilislope, terrace, etc.): 1cr race	Local relief (concave, convex, none):	
	Long:	
Soli Map Unit Name: Bow gr. Loam, 0-	-33 Slopes NM	I classification: UP knd
Are climatic / hydrologic conditions on the site typical for this time	of year? Yes 🟒 No (If no, ex	plain in Remarks.)
Are Vegetation, Soli, or Hydrology signification	antly disturbed? 🎺 Are "Normal Circum	stances" present? Yes 🗾 No
Are Vegetation, Soli, or Hydrology natural	y problematic? 📌 (if needed, explain a	ny answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map show	ving sampling point locations, tra	insects, important features, etc.
Hydrophytic Vegetation Present? Yes No		
Hydric Soil Present? Yes No	Is the Sampled Area	
Wetland Hydrology Present? Yes No	within a Wetland?	Yes <u>No V</u>
Remarks: photo 24-25 soil		
26-28 plot		

VEGETATION – Use scientific names of plants.

	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Piot size: 10 m)	<u>% Cover</u>	Species?	Status	Number of Dominant Species
1		<u></u> .		That Are OBL, FACW, or FAC: (A)
2				T & the star of Development
3				Total Number of Dominant Species Across All Strata: (B)
4				Percent of Dominant Species
	0	= Total Cov	er	That Are OBL, FACW, or FAC:(A/B)
Sapling/Shrub Stratum (Plot size: 5 -)				Prevalence index worksheet:
1				Totai % Cover of: Muitiply by:
2			92	$\begin{array}{c} \hline \hline \hline \hline \\ OBL species \\ \hline \hline \\ \hline $
3				
4				FACVV species X Z =
		•		FAC species 91 x 3 = 273
5				FACU species x 4 =
Herb Stratum (Plot size: 2 m)	0	= Totai Cov	er	UPL species ^o x 5 = O
1. Agricitas Geilland	60		FAC	Column Totais: //// (A) 713 (B)
	6		FAC	
				Prevalence index = B/A = 3.10
3. <u>Festiva annoinacea</u>	25		FAC	Hydrophytic Vegetation indicators:
4. Cynosurus meitates cristatus	10		FACU	1 - Rapid Test for Hydrophytic Vegetation
5				2 - Dominance Test is >50%
6				3 - Prevalence index is ≤3.0 ¹
7				4 - Morphological Adaptations ¹ (Provide supporting
8				data in Remarks or on a separate sheet)
9				5 - Wetland Non-Vascular Plants ¹
				Problematic Hydrophytic Vegetation ¹ (Explain)
10				¹ indicators of hydric soil and wetland hydrology must
11	1			be present, unless disturbed or problematic.
······ 2 ··· ·	101	= Total Cove	er	
Woody Vine Stratum (Piot size: 2				
1				Hydrophytic
2				Vegetation
	0	= Total Cove	er	Present? Yes <u>No</u> No
% Bare Ground in Herb Stratum0	-			
Remarks:				

2.5

Sampling Point: <u>SP-E6</u>

Profile Description: (Desc	ribe to the dep	th needed to docum	nent the l	ndicator o	or confirm	the absence	of indicators.)		
Depth <u>Mat</u>			x Features			— .	_	š	
$\frac{(\text{inches})}{O-9} = \frac{\text{Color}(\text{mois})}{\log R3}$		Color (moist)	%	<u>Type¹</u>	Loc ²	<u> </u>		emarks	
								910021	
	4/3 100					<u></u>	<u> </u>	gravel	
<u>15-18 54 412</u>	<u>2 85</u>	104R 4/4	15	_ <u>C</u>	m	<u></u>	102	gravel	
								·	
	····- · · · · · · · · · · · · · · · · ·			·	<u> </u>			· · · · · · · · · · · · · · · · · · ·	
	Depiction DM	Deduced Metric 00							
¹ Type: C=Concentration, D=Depietion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Hydric Soli 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					Parent Material	(TF2)	
Biack Histic (A3)		Loamy Mucky N) (except	MLRA 1)		Shallow Dark S		
Hydrogen Sulfide (A4)		Loamy Gieyed N				Other	r (Expiain in Rer	narks)	
Depieted Below Dark Su		Depieted Matrix				3			
Thick Dark Surface (A12 Sandy Mucky Mineral (S	•	Redox Dark Sur Depieted Dark S		7)			s of hydrophytic		
Sandy Gleyed Matrix (S4		Redox Depressi	•	0			d hydrology mus disturbed or pro	•	
Restrictive Layer (if presen									
Туре: ИОЛІС									
Depth (inches):						Hydric Soii F	Present? Yes	No X	
Remarks:			·			L		· · · · · · · · · · · · · · · · · · ·	
								3	
÷.									
HYDROLOGY	· •	·····							
Wetland Hydrology Indicate									
Primary indicators (minimum		· check all that anniv	4			Second	lan: Indicators (2 or more required)	
Surface Water (A1)		Water-Stair		s (RQ) (av	cent			ves (B9) (MLRA 1, 2,	
High Water Table (A2)		-	, 2, 4A, ar		cohr		4A, and 4B)	VCS (D9) (MILICA 1, 2,	
Saturation (A3)		Sait Crust (,		Drainage Patterns (B10)			
Water Marks (B1)		Aquatic inv	-	(B13)			-Season Water		
Sediment Deposits (B2)		Hydrogen S	Sulfide Odd	or (C1)		Sa	turation Visible of	on Aeriai imagery (C9)	
Drift Deposits (B3)		Oxidized R	hizosphere	es along L	iving Root		omorphic Positio		
Algai Mat or Crust (B4)		Presence o	f Reduced	iron (C4)		Sha	aliow Aquitard ([03) 🕤	
iron Deposits (B5)		Recent iron			• •	FA	C-Neutrai Test (D5)	
Surface Soil Cracks (B6)		Stunted or		• •) (LRR A)		ised Ant Mounds	· · · · ·	
inundation Visible on Aer Sparsely Vegetated Cond			ain in Ren	narks)		Fra	st-Heave Humn	nocks (D7)	
Field Observations:									
Surface Water Present?	Yes N	lo <u> </u>							
Water Table Present?		· ·	· —	14	-				
Water Table Present? Yes X No Depth (inches):/4 Saturation Present? Yes X No Depth (inches):3 Wetland Hydrology Present? Yes No									
(includes capiliary fringe)		· · ·					resentr tes	NO <u></u>	
Describe Recorded Data (stre	am gauge, mor	nitoring weil, aerial pl	hotos, prev	vious insp	ections), if	available:			
Remarks:		· .							

54 5 5 1² 8 59

Project/Site: CRUF		City/County:	Skagit	Sampling Date: 5 Feb 2013
Appilcant/Owner: Shell PSR			State: WA	Sampling Point: 5P-E7
investigator(s): P Homid. B Kidder		Section, Township, Ra	ange: Section	3, 34N, 2E
Landform (hilisiope, terrace, etc.): terrace				
Subregion (LRR):				11- 12
Soli Map Unit Name: Bow gr, Logn	1.0-	38 510805	NWI classif	ication: PEMC
Are climatic / hydrologic conditions on the site typical for th	,	1	(if no, explain in l	
Are Vegetation, Soil, or Hydrology	-		"Normal Circumstances"	-
Are Vegetation, Soil, or Hydrology			eeded, explain any answ	
SUMMARY OF FINDINGS – Attach site map				
	No		·····	
	No	Is the Sample	i Area	/
	No	within a Wetla	nd? Yes	No
Remarks: plot 30-32				
VEGETATION – Use scientific names of pla	nts.			
Tree Stratum (Plot size:)	Absolute % Cover	Dominant Indicator Species? Status	Dominance Test wor Number of Dominant S	Species 🦻
12			That Are OBL, FACW,	or FAC: (A)
3.		······································	Total Number of Domi Species Across All Str	
4.		,		
F	٥	= Totai Cover	Percent of Dominant S That Are OBL, FACW,	or FAC: 66 (A/B)
Sapling/Shrub Stratum (Plot size: 5m)			Prevalence index wo	
1			Total % Cover of:	Muitiply by:
2		·	OBL species	0 x1= 0
3		······	FACW species	
5			FAC species	
		= Total Cover	FACU species	
Herb Stratum (Piot size:)	14	1	OFL species	$o_{(A)} \times 5 = 0_{(B)}$
1. Juneus effusus	30	- FACW	Coiumn Totais: 35	
2. <u>Cynosurus cristatus</u> 3. Holcus lanatus	25	- FACU	Prevalence index	
		J FAC FAC	Hydrophytic Vegetat	
4. Festica arundinacea 5. Altrostus capillaris		FAC		Hydrophytic Vegetation
6		<u></u>	2 - Dominance Te	
7		<u></u>		Adaptations ¹ (Provide supporting
8				is or on a separate sheet)
9			5 - Wetiand Non-	/ascular Plants ¹
10			Problematic Hydro	ophytic Vegetation ¹ (Explain)
11	-	<u> </u>		bil and wetland hydrology must
	95.	= Total Cover	be present, unless dis	turbed of problematic.
Woody Vine Stratum (Plot size: 2m)				
2			Hydrophytic Vegetation	/
2	0	= Total Cover	Present? Yo	es No
% Bare Ground in Herb Stratum				
Remarks:			J	· · · · · · · · · · · · · · · · · · ·

5.

Sampiing Point: 57-57

Profile Des	cription: (Descrit	e to the de	pth needed to docum	nent the	indicator	or confirm	n the absence o	of indicators.)	
Depth Matrix Redox Features									
(Inches)	Color (moist)	%	Color (moist)	%	<u>Type'</u>	_Loc ²	<u>Texture</u>	Remarks	
0-5	104R 3/2	90	7.5YR 4/4	10	<u> </u>	M	sandy barn		
5-13	IOYRY/2	80	7.5 YR 3/4	20	2	M,PL	Sandy born .	charceal, 10% gravel	
13-18	101R 4/2	90	7.5YR4/4	10	٢	PIM	Sandy loam	15% gravel, 10% cobble	
				·					
			<u> </u>	<u> </u>	·				
¹ Type: C=Concentration, D=Depietion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ² Location: PL=Pore Lining, M=Matrix.									
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) indicators for Problematic Hydric Soils ³ :									
Histosoi	• •		Sandy Redox (S	-				Muck (A10)	
	pipedon (A2)		Stripped Matrix					Parent Materiai (TF2)	
-	istic (A3)		Loamy Mucky M	-		MLRA 1)		Shailow Dark Surface (TF12)	
	en Suifide (A4)		Loamy Gieyed M		2)		Other	(Explain in Remarks)	
·	d Below Dark Surfa	ice (A11)	Depleted Matrix				31-41-4		
	ark Surface (A12) Iucky Minerai (S1)		Depieted Dark Sur	• • •				s of hydrophytic vegetation and	
	Bieyed Matrix (S4)		Redox Depressi	•	-1)			d hydrology must be present, disturbed or problematic.	
<u> </u>	Layer (if present):					_	uniess	disturbed of problematic.	
Туре:	Nonz							,	
Depth (in	ches):						Hydric Soil P	Present? Yes 📈 No	
Remarks:							1		
HYDROLO	GY								
Wetland Hy	drology indicators	3:		(
Primary India	ators (minimum of	one require	d: check all that apply)	_	-	Second	ary indicators (2 or more required)	
V Surface	Water (A1)		Water-Stair	ned Leave	es (B9) (e)	cept	100 C	ter-Stained Leaves (B9) (MLRA 1, 2,	
	ter Table (A2)			, 2, 4A, a				4A, and 4B)	
Saturatio			Salt Crust (inage Patterns (B10)	
Contraction of the second s	arks (B1)		Aquatic Inv	-	e (B13)			-Season Water Table (C2)	
	t Deposits (B2)		Hydrogen S		•••			uration Visible on Aerial Imagery (C9)	
	oosits (B3)		Oxidized Ri		•	iving Ree			
	t or Crust (B4)		Presence o		-	-		pmorphic Position (D2)	
	osits (B5)				•			allow Aquitard (D3)	
·	Soii Cracks (B6)		Recent iron					C-Neutrai Test (D5)	
	. ,	limesee /D	Stunted or S		•) (LKK A)		sed Ant Mounds (D6) (LRR A)	
	on Visible on Aeria	• • • •	· — · ·	ain in Re	marks)			st-Heave Hummocks (D7)	
	Vegetated Conca	ve Sunace (D0)			_			
Field Observ					- 2 - 1	,	1 1+		
Surface Wate		Yes <u>v</u>	No Depth (incl		2 int	thes are	Jen pipi		
Water Table Present? Yes V Depth (inches): 2									
Saturation Present? Yes 🔨 No Depth (inches): Wetland Hydrology Present? Yes No (includes capillary fringe)									
		m gauge, m	onitoring well, aerial pl	notos, pre	evious insp	ections), i	f available:		
Dama tur									
Remarks:	1	· . V _	1. +1						
	dr	ite A	depth					2.11	
		pockets							
		4							

 $v_{i}(\mathbf{x}_{i},\mathbf{x},\mathbf{x}_{i},\mathbf{x}_{i},\mathbf{x}_{i},\mathbf{x}_{i},\mathbf{x}_{i},\mathbf{x}_{i},\mathbf{x}_{i}$

Project/Site:	City/County:Slagjt	_ Sampling Date: 2-5-/3
Applicant/Owner: <u>Skell RSR</u>	State: VA	Sampling Point: <u>SP-E8</u>
investigator(s): B Killer P Hamili	Section, Township, Range:	3, 37 N, 26
Landform (hillslope, terrace, etc.):terrace	Local relief (concave, convex, none):	
Subregion (LRR): A Lat:	Long:	Datum: <u>NAD @ 3</u>
Soil Map Unit Name: Bow gr, LOam, 0-38	5 loges NWI classifi	cation: Upland
Are climatic / hydrologic conditions on the site typical for this time of ye		Remarks.)
Are Vegetation, Soil, or Hydrology significantly	disturbed? Are "Normal Circumstances"	present? Yes No
Are Vegetation, Soil, or Hydrology naturally pro	blematic? (if needed, explain any answ	ers in Remarks.)

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

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes No Yes No Yes No Yes No	is the Sampled Area within a Wetland?	Yes No
Remarks: Photos 33+ 34-5012	35-37-Plot	e	

VEGETATION – Use scientific names of plants.

 $\sim -\kappa$

÷ 2

1.24.202.0

	Absolute	Dominant Indicator	Dominance lest worksheet:
<u>Tree Stratum</u> (Plot size:]0)	<u>% Cover</u>	<u>Species?</u> Status	Number of Dominant Species
1			That Are OBL, FACW, or FAC: (A)
2		<u> </u>	Total Number of Dominant
3			Species Across All Strata: (B)
4.			
	0	= Total Cover	Percent of Dominant Species 66 (A/B)
Sapling/Shrub Stratum (Plot size: 5 ~)			
1			Prevalence Index worksheet:
2			Total % Cover of: Multiply by:
			OBL species x 1 =
3			FACW species x 2 =
4			FAC species x 3 =0
5			FACU species 30 x 4 = 120
2	0	_ = Total Cover	UPL species X 5 = 0
Herb Stratum (Plot size: 2 m)	20	J FACU	Column Totals: 100 (A) 330 (B)
1. Cynosalrus cristatus	30	texterior to the second s	
2. Festuca arundinacea	35	FV FAC	Prevalence index = B/A =
3. Agrostis copillaris	35	FAC FAC	Hydrophytic Vegetation Indicators:
4	<u> </u>	·	1 - Rapid Test for Hydrophytic Vegetation
5			2 - Dominance Test is >50%
6			3 - Prevalence Index is ≤3.0 ¹
7			4 - Morphological Adaptations ¹ (Provide supporting
8.			data in Remarks or on a separate sheet)
	_		5 - Wetland Non-Vascular Plants ¹
9			Problematic Hydrophytic Vegetation ¹ (Explain)
10			¹ Indicators of hydric soil and wetland hydrology must
11	1 4 10		be present, unless disturbed or problematic.
1	100	_= Total Cover	
Woody Vine Stratum (Plot size:2 🛰)			
1. <u> </u>		·	Hydrophytic
2			Vegetation Present? Yes V No
	0	_= Total Cover	
% Bare Ground in Herb Stratum0			
Remarks:			

Depth	Matrix			x Featur			n the absence of indicators.)
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture Remarks
0-9	10YR 3/2	100					sandy loan
		3					
9-13	704/3	100					1 1 00
9-13	7.5 YR4/3	100			- <u> </u>	<u> </u>	sandy looms 5° gravel
							N 671
13-18	2.544/3	97	IOYR 4/4	3	C	M	sandy loan
	-	12					
				•			
			· · · · · · · · · · · · · · · · · · ·				
	·						
			Reduced Matrix, CS			d Sand Gr	
Hydric Soil	Indicators: (Appli	cable to ali	LRRs, unless othe	rwise no	ted.)	35	indicators for Problematic Hydric Soiis ³ :
Histosol			Sandy Redox (2 cm Muck (A10)
	oipedon (A2)		Stripped Matrix				Red Parent Material (TF2)
	stic (A3)		Loamy Mucky M			MLRA 1)	<u> </u>
	n Sulfide (A4) f Below Dock Surfe		Loamy Gleyed		2)		Other (Explain in Remarks)
·	i Below Dark Surfa ark Surface (A12)	Ce (A11)	Depleted Matrix Redox Dark Su		`		3 adjuster of budgets to the set of the
	lucky Minerai (S1)		Depieted Dark Su				³ Indicators of hydrophytic vegetation and
	lieved Matrix (S4)		Redox Depress	•	•		wetiand hydrology must be present, unless disturbed or problematic.
	_ayer (if present):					-	
Type:	none						
Depth (inc	ches) [,]						Hydric Soil Present? Yes No 🗸
Remarks:					-		Hydric Soil Present? Yes No <u>V</u>
Remarks.							
HYDROLO	GY						
Wetland Hyd	roiogy indicators	:					
Primary Indic	ators (minimum of	one required	; check all that apply	n			Secondary Indicators (2 or more required)
	Water (A1)		Water-Stai			cent	
	ter Table (A2)			1, 2, 4A, a		cehr	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
Saturatio	• •		Salt Crust		and 40)		-
	arks (B1)		Aquatic Inv		e (B13)		Drainage Patterns (B10) Dry-Season Water Table (C2)
	t Deposits (B2)		Hydrogen S				
	osits (B3)		Oxidized R			iving Pool	Saturation Visible on Aerial Imagery (C9)
	t or Crust (B4)		Presence of		•	•	
_ •	osits (B5)		Recent Iror				Shallow Aquitard (D3)
-	Soil Cracks (B6)		Stunted or				
	on Visible on Aerial	imagery (87			•		_
	Vegetated Concav		· · ·		inains)		Frost-Heave Hummocks (D7)
Field Observ					···-		
Surface Wate		∕es N	lo 🏒 🚬 Depth (inc	hee);			
		1	(····		9	-	
Water Table I			lo Depth (inc		0	-	1
Saturation Pro (includes capital)		′es <u> </u>	lo Depth (inc	hes):	0	_ Wetla	nd Hydrology Present? Yes No
		gauge, moi	nitoring well, aerial p	hotos, pr	evious insp	ections), if	f available:
	•		J			,,	
Remarks:					<u></u>		
	wet	scason	high mater	table	in are	a the	t drains well during dess wet
NINT	experto.	1 1	remain 1	10+	long	ENO	ligh during periods
	wing S			UCI	.0.3	- 10	
u							

Project/Site:	City/County:	Skagit	_ Sampling Date: 5 Ftb 2013
Applicant/Owner:PSR		State: <u>WA</u>	Sampling Point: 5P-E9
Investigator(s): P. Hamidi, B. Killer	Section, Towns	ship, Range:Section	3, 3YN, 20
Landform (hillslope, terrace, etc.):		ncave, convex, none):	
Subregion (LRR): Lat:		Long:	Datum: NAD 83
Soil Map Unit Name: BOW gr. Loam, 0-32	3 Slopes	NWI classif	ication: PEMA
Are climatic / hydrologic conditions on the site typical for this time of ye	ear? Yes 🗾	No (If no, explain in	
Are Vegetation, Soil, or Hydrology significantly	v disturbed? N	Are "Normal Circumstances"	present? Yes No
Are Vegetation, Soil, or Hydrology naturally provide the second seco	oblematic? N	(If needed, explain any answ	ers in Remarks.)

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

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes Yes Yes	No No No	ls the Sampled Area within a Wetland?	Yes	No
Remarks:	soil 38-39 13 40-41				

VEGETATION – Use scientific names of plants.

10	Absolute		Dominance Test worksheet:
Tree Stratum (Plot size:0) 1	<u>% Cover</u>	Species? Status	Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2			Total Number of Dominant Species Across All Strata: 3 (B)
4		. <u> </u>	Percent of Dominant Species
Sapling/Shrub Stratum (Plot size:5 m)	0	_ = Total Cover	That Are OBL, FACW, or FAC: (A/B)
			Prevalence index worksheet:
1			Total % Cover of: Multiply by:
2			OBL species0 x 1 =0
3		,	FACW species x 2 =
4			FAC species 90 x 3 = 270
5			FACU species $\frac{10}{10}$ x 4 = $\frac{40}{10}$
Herb Stratum (Plot size: 2)	0	_ = Total Cover	UPL species $x 5 = -7$
Herb Stratum (Plot size:)	30	J FAC	Column Totals: //00 (A) 310 (B)
2. Fertuca arundinasca	20	-J FAC	Prevalence Index = B/A =
3. Elytrigia repens	10	FAC	Hydrophytic Vegetation Indicators:
4. Aarostis capillaris	25	J FAC	1 - Rapid Test for Hydrophytic Vegetation
5. Cynosurus cristatus	10		$\sqrt{2}$ - Dominance Test is >50%
6. Holcus landus	5	FAC	$\frac{1}{2} = 3 - \text{Prevalence Index is } \le 3.0^{1}$
		· [
7			4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
9			5 - Wetland Non-Vascular Plants ¹
			Problematic Hydrophytic Vegetation ¹ (Explain)
10		·	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
	100	_= Total Cover	De present, unless disturbed of problematic.
Woody Vine Stratum (Plot size: 2 m)		-	
1			. Hydrophytic
2			Vegetation Present? Yes No
% Bare Ground in Herb Stratum0		_= Total Cover	Present? Yes <u>V</u> No
Remarks:			

Profile Des	cription: (Descri	ibe to the d	epth needed to do	cument the	indicator	or confirm	n the absence o	of indicators.)
Depth	Matri			edox Feature				
(inches)	Color (moist)		Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>	Remarks
		100	- Charles				loam	
5-10	104R3/2	<u> </u>	7.5YR4/4		<u> </u>	M,PL	sandy loam	
10-16	545/1	<u>- 82</u>	10 YR 4/4		<u> </u>	M	olay loam	2
<u> </u>			10 15/1	3	<u>D</u>	PL		
					·			
					·			
¹ Type: C=C		enletion P	- M=Reduced Matrix,					
Hydric Soil	Indicators: (App	iicable to a	III LRRs, unless ot	herwise not	a or Coate ed.)	d Sand Gr		tion: PL=Pore Lining, M=Matrix. s for Problematic Hydric Soils ³ :
Histoso			Sandy Redo		,			Muck (A10)
	pipedon (A2)		Stripped Mat					Parent Material (TF2)
	istic (A3)		Loamy Muck	• •	l) (except	MLRA 1)		Shallow Dark Surface (TF12)
	en Sulfide (A4)		Loamy Gleye	ed Matrix (F2				(Explain in Remarks)
	d Below Dark Sur		Jepleted Ma					
	ark Surface (A12) /lucky Mineral (S1		Redox Dark	• •				of hydrophytic vegetation and
	Bleyed Matrix (S4)		Depleted Da Redox Depre	•	()			i hydrology must be present,
-	Layer (if present)			55510115 (1-0)			uniess	disturbed or problematic.
Туре:								
Depth (in	ches):						Hydric Soil P	resent? Yes 🗸 No
Remarks:				w				
HYDROLO		đ.						
	drology Indicator							
		t one requir	ed: check all that an					ary Indicators (2 or more required)
 ✓ Surface ✓ High Wa 	vvater (A1) iter Table (A2)			tained Leave		cept		er-Stained Leaves (B9) (MLRA 1, 2,
	• •			A 1, 2, 4A, a	nd 4B)			IA, and 4B)
	arks (B1)		Salt Cru	• •	(040)			nage Patterns (B10)
	it Deposits (B2)			Invertebrates en Sulfide Od				Season Water Table (C2)
	osits (B3)			t Rhizospher	• •	iving Poot		uration Visible on Aerial Imagery (C9)
	t or Crust (B4)			e of Reduced				morphic Position (D2)
	osits (B5)			ron Reductio				llow Aquitard (D3) -Neutral Test (D5)
•	Soil Cracks (B6)			or Stressed I				ed Ant Mounds (D6) (LRR A)
	on Visible on Aeria	i Imagery (I		xplain in Rer				t-Heave Hummocks (D7)
	Vegetated Conca		,	•				
Field Observ	vations:	,				-		1 + 14
Surface Wate	er Present?	Yes	No Depth (inches): 🗾 🧕	-2 jn	small be	pressions the	roughout plat
Water Table	Present?	Yes 🗸	No Depth (inches):	2	_		
Saturation Pr		Yes 🗸	No Depth (inches):	0	Wetlar	nd Hydrology P	resent? Yes 🟒 No
(includes cap Describe Rec		m gauge. m	onitoring well, aeria	l photos pre	Vious inen	ections) if	available	
	· · · · · · · · · · · · · · · · · · ·			n priotoo, pro	tious insp	conona), n	availabic.	
Remarks:								

Project/Site: CRUF	City/County:		ampling Date: 5 Feb 2013
Applicant/Owner: Shell PSR		State:A S	ampling Point: <u>5P-E10</u>
Investigator(s): P Hamidi, B. Killer	Section, Township, Rang	e: Section 3,	34N, 25
Landform (hillslope, terrace, etc.):			Slope (%): 3-5
			Datum: <u>NAD 83</u>
Subregion (LRR): <u>A</u> Soil Map Unit Name: <u>Bowgr, Loam, 0-38</u>	516825	NWI classificat	ion: Upland
Are climatic / hydrologic conditions on the site typical for this time of ye	ear? Yes 🚽 🔜 No 🔜		
Are Vegetation, Soil, or Hydrology significantly	disturbed? Are "N	ormal Circumstances" pre	sent? Yes No
Are Vegetation, Soil, or Hydrology naturally pro	blematic? (If need	ded, explain any answers	in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing	sampling point loc	cations, transects, i	mportant features, etc.

Hydrophytic Vegetation Present Hydric Soil Present? Wetland Hydrology Present?	? Yes Yes Yes	No No No Vo	Is the Sampled Area within a Wetland?	Yes	No
Remarks:	42 - 43 50il 44-45 pt				

VEGETATION – Use scientific names of plants.

	Absolute	Dominant Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>10 m</u>)		Species? Status	Number of Dominant Species
1			That Are OBL, FACW, or FAC: (A)
2			Total Number of Dominant
3			Species Across All Strata: (B)
4			Decent of Deminent Species
	0	= Total Cover	Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
Sapling/Shrub Stratum (Plot size: <u>5 m</u>)			
1			Prevalence index worksheet:
			Total % Cover of: Multiply by:
2			OBL species x 1 =
3			FACW species 0 x 2 = 0
4			FAC species 90 x 3 = 270
5			
	0	= Total Cover	
Herb Stratum (Plot size: 2)		• • • • • • • • • • • • • • • • • • • •	
1 Festiva arundingea	2025	J FAC	Column Totals: / 0 0 (A) _ 2 0 (B)
2. Aerostis capillaris	20 65	V FAC	Prevalence Index = B/A =
	10	FACU	Prevalence Index = B/A =
3. Cynosurus cristatus	10	17100	Hydrophytic Vegetation Indicators:
4			1 - Rapid Test for Hydrophytic Vegetation
5			🗹 2 - Dominance Test is >50%
6			3 - Prevalence Index is ≤3.0 ¹
7			4 - Morphological Adaptations ¹ (Provide supporting
8			data in Remarks or on a separate sheet)
			5 - Wetland Non-Vascular Plants ¹
9			Problematic Hydrophytic Vegetation ¹ (Explain)
10			¹ Indicators of hydric soil and wetland hydrology must
11			be present, unless disturbed or problematic.
9	100	= Total Cover	
Woody Vine Stratum (Plot size:2 ~)			
1			Hydrophytic
2			Vegetation
	0	= Total Cover	Present? Yes No
% Bare Ground in Herb Stratum 🥏 🗾			
Remarks:			L

I

Sampling Point: SP-E10

Depth	Matrix	to the depth i	needed to document the indicator or co Redox Features	onnim the i	adsence (n Indicators.)
(inches)	Color (moist)	%	Color (moist) Type1 _ Lo	oc ² Te	exture	Remarks
0-5	104R 3/2	190		L	Dam	
5-12	10TR 3/2	100		Sand	logm	charcoal, 5% gravel
		······				
12-16	IOYR4/4	100			1. 6.0	51
1610		100		San	dy loan	5% gravel
<u></u>		· <u></u>				
	•• •••	·				
	· · · · · · · · · · · · · · · · · · ·	· <u> </u>				
			duced Matrix, CS=Covered or Coated Sar			tion: PL=Pore Lining, M=Matrix.
		able to all LR	Rs, unless otherwise noted.)		Indicator	for Problematic Hydric Soils ³ :
Histosol	• •		Sandy Redox (S5)			Muck (A10)
	pipedon (A2)		Stripped Matrix (S6)			Parent Material (TF2)
	istic (A3)		Loamy Mucky Mineral (F1) (except MLR	RA 1)		Shallow Dark Surface (TF12)
	en Sulfide (A4)		Loamy Gleyed Matrix (F2)		Other	(Explain in Remarks)
······	d Below Dark Surface ark Surface (A12)	e (ATT)	Depleted Matrix (F3) Redox Dark Surface (F6)		³ Indicator	of hydrophytic vegetation and
	fucky Mineral (S1)		Depleted Dark Surface (F7)			d hydrology must be present,
	Gleyed Matrix (S4)		Redox Depressions (F8)			disturbed or problematic.
	Layer (if present):					
Туре:	Non2		_			/
Depth (ind	ches):		_	Нус	dric Soil P	resent? Yes No 🗸
Remarks:				I		
HYDROLO Wetland Hyd	GY droiogy indicators:		······			· · · · · · · · · · · · · · · · · · ·
	ators (minimum of or	ne required; ch	neck all that apply)		Second	ary Indicators (2 or more required)
	Water (A1)		Water-Stained Leaves (B9) (except	t		ter-Stained Leaves (B9) (MLRA 1, 2,
High Wa	ter Table (A2)		MLRA 1, 2, 4A, and 4B)			4A, and 4B)
Saturatio	on (A3)		Salt Crust (B11)			inage Patterns (B10)
Water Ma	arks (B1)		Aquatic Invertebrates (B13)		Dry	-Season Water Table (C2)
Sedimen	t Deposits (B2)		Hydrogen Sulfide Odor (C1)			uration Visible on Aerial Imagery (C9)
Drift Dep	osits (B3)		Oxidized Rhizospheres along Living	g Roots (C3		pmorphic Position (D2)
Algal Ma	t or Crust (B4)		Presence of Reduced Iron (C4)	-		Illow Aquitard (D3)
Iron Dep	osits (B5)		Recent Iron Reduction in Tilled Soils	ls (C6)		C-Neutral Test (D5)
Surface S	Soil Cracks (B6)		Stunted or Stressed Plants (D1) (LF	RR A)	Rai	sed Ant Mounds (D6) (LRR A)
Inundatio	on Visible on Aerial In	nagery (B7)	Other (Explain in Remarks)		Fro	st-Heave Hummocks (D7)
Sparsely	Vegetated Concave	Surface (B8)				
Field Observ	vations:					
Surface Wate	er Present? Ye	es No _	Depth (inches):			
Water Table F	Present? Ye	es 🟒 No _	Depth (inches):			65
Saturation Pro		es 🗾 No _	Depth (inches)://	Wetland Hy	ydrology	Present? Yes No 🗸
(includes cap Describe Rec		gauge, monito	ring well, aerial photos, previous inspectio	ons), if avai	lable:	
						·····
Remarks:	net season we	iter tablle	in area that drains down s	shallow sl	grig	landscope
Hydro	logy not	expect	in area that drains down s ed to lest long e	novg	h di	ring
grow	ijng Seq	son,				

Project/Site: Crude by Rail		City/County: A a f of	r ws/skag +	Sampling Datas 5/9/13
Applicant/Owner: <u>Shell</u> PSR			states h-A	Sampling Date: <u>57-2E-1</u>
Investigator(s): P-Hamidi, B. Fletche	2	Paction Township Da	3.34N.	
				() ()
Landform (hillslope (terrace) etc.):				
Subregion (LRR): <u>A</u> Soil Map Unit Name: <u>LP-Bow gravelly</u>	Lat:	÷1.		
Are climatic / hydrologic conditions on the site typical for th		,		
Are Vegetation, Soil, or Hydrology				
Are Vegetation, Soil, or Hydrology	naturally pro	oblematic? N (if no	eeded, explain any answe	ers in Remarks.)
SUMMARY OF FINDINGS – Attach site map	showing	sampling point l	ocations, transects	s, important features, etc.
Hydric Soil Present? Yes Yes Wetland Hydrology Present? Yes Yes	No No No	is the Sampled within a Wetla		No
Remarks: Plot on terrace of a m	ifigat	ion area.		
thotos 68-70		<u></u>		
VEGETATION – Use scientific names of plar				
$\frac{\text{Tree Stratum}}{1. \mathcal{N}/\mathcal{A}}$ (Plot size: <u>30</u>)		Species? Status	Dominance Test work Number of Dominant S That Are OBL, FACW,	pecies
2			Total Number of Domir Species Across All Stra	
4			Percent of Dominant S	pecies
Sapling/Shrub Stratum (Plot size: 15)		_= Total Cover	That Are OBL, FACW,	(VB)
1. N/A			Prevalence index wor	
2		· ·	<u>Total % Cover of:</u>	<u>Multiply by:</u>
3				x 2 =
4				x3= 300
5				x 4 =
Herb Stratum (Plot size: 5)		_ = Total Cover	UPL species	
1. Alopecurus pratensis	PO	Y FAC	Column Totals: _/O	<u>o</u> (A) <u>300</u> (B)
2. Agrostig capillaris		FAC	Prevalence Index	= B/A = 3,0
3. Pog pratensis	20	<u> </u>	Hydrophytic Vegetatio	
4			1 - Rapid Test for I	Hydrophytic Vegetation
5			2 - Dominance Tes	
6			X 3 - Prevalence Inde	ex is ≤3.0 ¹
7			4 - Morphological A	Adaptations ¹ (Provide supporting
8			5 - Wetland Non-V	s or on a separate sheet)
9				phytic Vegetation ¹ (Explain)
10				il and wetland hydrology must
11 (Plot size:	100	= Total Cover	be present, unless distr	urbed or problematic.
1			Hydrophytic Vegetation	
2		_= Total Cover	Present? Ye	s_X_ No
% Bare Ground in Herb Stratum				

Sampling	Point:	ς	P	JE	 l

Profile Description: (Describe to the depth needed to document the Indicator or confirm the absence of indicators.)								
Depth <u>Matrix</u>	Redox Features	Tatas T						
(inches) Color (moist) %	Color (moist) % Type ¹ Loc ²	Lohn Soll a trivel: Charson						
0-10 104R312								
10-16 2-54 52 92 1	NYR4/4 8 C M	Salo 30% gravel						
		······································						
	· · · · · · · · · · · · · · · · · · ·	······································						
·								
¹ Type: C=Concentration D=Depletion BM=E	educed Matrix, CS=Covered or Coated Sand G	rains. ² Location: PL=Pore Lining, M=Matrix.						
Hydric Soii indicators: (Applicable to all L		indicators for Problematic Hydric Soils ³ :						
Histosol (A1)	_ Sandy Redox (S5)	2 cm Muck (A10)						
Histosof (A1)	_ Stripped Matrix (S6)	Red Parent Material (TF2)						
Black Histic (A3)	_ Loamy Mucky Mineral (F1) (except MLRA 1)	· · ·						
Hydrogen Sulfide (A4)	_ Loamy Gleyed Matrix (F2)	Other (Explain in Remarks)						
	C Depleted Matrix (F3)							
Thick Dark Surface (A12)	Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and						
Sandy Mucky Mineral (S1)	_ Depleted Dark Surface (F7)	wetland hydrology must be present,						
Sandy Gleyed Matrix (S4)	_ Redox Depressions (F8)	unless disturbed or problematic.						
Restrictive Layer (if present):								
Туре:		\checkmark						
Depth (inches):	—	Hydric Soli Present? Yes X No						
Remarks:								
HYDROLOGY								
Wetland Hydrology Indicators:	54							
Primary Indicators (minimum of one required:		Secondary Indicators (2 or more required)						
Surface Water (A1)	Water-Stained Leaves (B9) (except	Water-Stained Leaves (B9) (MLRA 1, 2,						
High Water Table (A2)	MLRA 1, 2, 4A, and 4B)	4A, and 4B)						
Saturation (A3)	Sait Crust (B11)	Drainage Patterns (B10)						
Water Marks (B1)	Aquatic Invertebrates (B13)	Dry-Season Water Table (C2)						
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)	Saturation Visible on Aerial Imagery (C9)						
Drift Deposits (B3)	Oxidized Rhizospheres along Living Roo	ots (C3) 💢 Geomorphic Position (D2)						
	Presence of Reduced Iron (C4)	Shallow Aquitard (D3)						
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6)	6) FAC-Neutral Test (D5)						
	Recent Iron Reduction in Tilled Soils (Cf Stunted or Stressed Plants (D1) (LRR A	6) FAC-Neutral Test (D5)						
Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7)	Recent Iron Reduction in Tilled Soils (C6 Stunted or Stressed Plants (D1) (LRR A Other (Explain in Remarks)	6) FAC-Neutral Test (D5)						
Iron Deposits (B5) Surface Soil Cracks (B6)	Recent Iron Reduction in Tilled Soils (C6 Stunted or Stressed Plants (D1) (LRR A Other (Explain in Remarks)	6) FAC-Neutral Test (D5) .) Raised Ant Mounds (D6) (LRR A)						
Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8 Field Observations:	Recent Iron Reduction in Tilled Soils (C6 Stunted or Stressed Plants (D1) (LRR A Other (Explain in Remarks)	6) FAC-Neutral Test (D5) .) Raised Ant Mounds (D6) (LRR A)						
Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8) Fleid Observations: Surface Water Present? Yes No	Recent Iron Reduction in Tilled Soils (Cd Stunted or Stressed Plants (D1) (LRR A X Other (Explain in Remarks)	6) FAC-Neutral Test (D5) .) Raised Ant Mounds (D6) (LRR A)						
Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8) Fleid Observations: Surface Water Present? Yes No	Recent Iron Reduction in Tilled Soils (C6 Stunted or Stressed Plants (D1) (LRR A Other (Explain in Remarks)	6) FAC-Neutral Test (D5) .) Raised Ant Mounds (D6) (LRR A)						
Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B6) Fleid Observations: Surface Water Present? Yes No Water Table Present? Yes No	Recent Iron Reduction in Tilled Soils (C6 Stunted or Stressed Plants (D1) (LRR A Other (Explain in Remarks)	5) FAC-Neutral Test (D5) .) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)						
Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8 Field Observations: Surface Water Present? Yes No Water Table Present? Yes No Saturation Present? Yes No (includes capillary fringe) Yes No	Recent Iron Reduction in Tilled Soils (C6 Stunted or Stressed Plants (D1) (LRR A Other (Explain in Remarks))) Depth (inches): Depth (inches): Weth Depth (inches): Weth	5) FAC-Neutral Test (D5) .) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7) land Hydrology Present? Yes No						
Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8 Field Observations: Surface Water Present? Yes No Water Table Present? Yes No Saturation Present? Yes No (includes capillary fringe) Yes No	Recent Iron Reduction in Tilled Soils (C6 Stunted or Stressed Plants (D1) (LRR A Other (Explain in Remarks)	5) FAC-Neutral Test (D5) .) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7) land Hydrology Present? Yes No						
Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8 Field Observations: Surface Water Present? Yes No Water Table Present? Yes No Saturation Present? Yes No (includes capillary fringe) Yes No	Recent Iron Reduction in Tilled Soils (C6 Stunted or Stressed Plants (D1) (LRR A Other (Explain in Remarks))) Depth (inches): Depth (inches): Weth Depth (inches): Weth	5) FAC-Neutral Test (D5) .) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7) land Hydrology Present? Yes No						
Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8 Field Observations: Surface Water Present? Yes No Water Table Present? Yes No Saturation Present? Yes No Saturation Present? Yes No (includes capillary fringe) Describe Recorded Data (stream gauge, mon Remarks:	Recent Iron Reduction in Tilled Soils (C6 Stunted or Stressed Plants (D1) (LRR A Other (Explain in Remarks))) Depth (inches): Depth (inches): Depth (inches): Depth (inches): Depth (inches): Depth (inches): Depth (inches): Depth (inches): Depth (inches):	5) FAC-Neutral Test (D5) .) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7) and Hydrology Present? Yes No if available:						
Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8 Field Observations: Surface Water Present? Yes No Water Table Present? Yes No Saturation Present? Yes No Saturation Present? Yes No (includes capillary fringe) Describe Recorded Data (stream gauge, mon Remarks:	Recent Iron Reduction in Tilled Soils (C6 Stunted or Stressed Plants (D1) (LRR A Other (Explain in Remarks))) Depth (inches): Depth (inches): Depth (inches): Depth (inches): Depth (inches): Depth (inches): Depth (inches): Depth (inches): Depth (inches): Depth (inches):	5) FAC-Neutral Test (D5) .) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7) and Hydrology Present? Yes No if available:						
Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8 Field Observations: Surface Water Present? Yes No Water Table Present? Yes No Saturation Present? Yes No Saturation Present? Yes No (includes capillary fringe) Describe Recorded Data (stream gauge, mon Remarks:	Recent Iron Reduction in Tilled Soils (C6 Stunted or Stressed Plants (D1) (LRR A Other (Explain in Remarks))) Depth (inches): Depth (inches): Depth (inches): Depth (inches): Depth (inches): Depth (inches): Depth (inches): Depth (inches): Depth (inches): Depth (inches):	5) FAC-Neutral Test (D5) .) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7) and Hydrology Present? Yes No if available:						
Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8 Field Observations: Surface Water Present? Yes No Water Table Present? Yes No Saturation Present? Yes No Saturation Present? Yes No (includes capillary fringe) Describe Recorded Data (stream gauge, mon Remarks:	$ \begin{array}{c} _ & \text{Recent Iron Reduction in Tilled Soils (Cd)} \\ _ & Stunted or Stressed Plants (D1) (LRR A \\ \hline & & \\ \hline \hline & & \\ \hline \hline & & \\ \hline & & \\ \hline & & \\ \hline \hline & & \\ \hline \hline & & \\ \hline & & \\ \hline \hline \hline & & \\ \hline \hline & & \\ \hline \hline \hline & & \\ \hline \hline \hline & & \\ \hline \hline \hline \hline$	5) FAC-Neutral Test (D5) .) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7) and Hydrology Present? Yes No if available:						

Project/Site: Crade by Rail		City/County: Anac	ortes/Skegit Sampling Date: 5/9/13
Applicant/Owner: Shell PSR			State: WA Sampling Point: SP-@JE
investigator(s): P. Hamidi, B. Flet	cher	Section, Township, Ra	ange: 3, 34N, 2E
			convex(none): Slope (%):/
			Long: Datum:
Soil Map Unit Name: 18- Bow gravely	loam		NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for			
			"Normal Circumstances" present? Yes X No
Are Vegetation, Soil, or Hydrology			-
			locations, transects, important features, etc.
	No		
Hydric Soil Present? Yes		is the Sample	
Wetland Hydrology Present? Yes	No <u>X</u>	within a Wetia	and? Yes No_ <u>X</u>
Remarks:			
a) c 9/2 7 5			
Photos 71-75			
/EGETATION – Use scientific names of p		ð	· · · · · · · · · · · · · · · · · · ·
Tree Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Indicator Species? Status	
1N/A			Number of Dominant Species
2			
3			Total Number of Dominant Species Across All Strata: (B)
4			
15-		= Total Cover	That Are OBL, FACW, or FAC:(りつ) (A/B)
Sapling/Shrub Stratum (Plot size: 15)		_	Prevalence index worksheet:
1. <u>~/A</u>	•		
2			OBL species x 1 =
3			FACW species x 2 =
4			FAC species /00 x 3 = 300
5		- T-1-1 0	FACU species x 4 =
Herb Stratum (Plot size:)		_ = Total Cover	UPL species x 5 =
1. Alopocurus pratensis	40	Y FAC	Column Totals: 100 (A) 300 (B)
2. Poa pratens: 5		Y FAC	Prevalence Index = B/A =
3. Agrostis capillaris	<u> 4</u> D	Y FAC	Hydrophytic Vegetation indicators:
4			1 - Rapid Test for Hydrophytic Vegetation
5		·	∠ 2 - Dominance Test is >50%
6		·	. <u>×</u> 3 - Prevalence Index is ≤3.0 ¹
7			4 - Morphological Adaptations ¹ (Provide supporting
8			data in Remarks or on a separate sheet)
9			5 - Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain)
10			¹ Indicators of hydric soil and wetland hydrology must
11	100		be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 15)		_= Total Cover	
1. <u>~/</u> A			Hydrophytic
2			Venetation
		= Total Cover	Present? Yes No
% Bare Ground in Herb Stratum		-	
Remarks:			

	Point:	E	-	λ
nına	Point:			

Profile Description: (Describe							
Depth <u>Matrix</u> (inches) Color (moist)		Color (moist)	<u>k Features</u> %		Loc ²	Texture	Remarks
9-11 104R 3/2	100					Lan	252 grand
11-16 104R 4/2,		104R 4/3	10	2	M	Sandy lan	10% cobb / , 208 500
ype: C=Concentration, D=Dep					d Sand Gr		ion: PL=Pore Lining, M=Matrix.
ydric Soil Indicators: (Applic	cable to all L			∋a.)			for Problematic Hydric Solis ³ :
_ Histosol (A1) _ Histic Epipedon (A2)	-	Sandy Redox (S Stripped Matrix)	•				/luck (A10) arent Material (TF2)
Black Histic (A3)	-	Loamy Mucky N	• •) (except	MLRA 1)	10 M M	Shallow Dark Surface (TF12)
Hydrogen Sulfide (A4)	-	Loamy Gleyed M					(Explain in Remarks)
_ Depleted Below Dark Surfac	ce (A11)	Depleted Matrix					
_ Thick Dark Surface (A12)	-	Redox Dark Sur	• •				of hydrophytic vegetation and
_ Sandy Mucky Mineral (S1)	-	Depleted Dark S		7)			hydrology must be present,
Sandy Gleyed Matrix (S4) estrictive Layer (if present):	-	Redox Depressi	ions (F8)				disturbed or problematic.
10. 1							
Depth (inches):						Hydric Soil Pi	resent? Yes No
				22			
				22			
etland Hydrology Indicators				77			
Vetland Hydrology Indicators: rimary Indicators (minimum of c				23			ary Indicators (2 or more required)
Vetland Hydrology Indicators: rimary Indicators (minimum of o Surface Water (A1)		Water-Stail	ned Leave	• • •	xcept	Wat	er-Stained Leaves (B9) (MLRA 1, 2,
Vetland Hydrology Indicators: rimary Indicators (minimum of o Surface Water (A1) High Water Table (A2)		Water-Stain MLRA 1	ned Leave I, 2, 4A, a	• • •	xcept	Wat	er-Stained Leaves (B9) (MLRA 1, 2, IA, and 4B)
Vetland Hydrology Indicators: rimary Indicators (minimum of o Surface Water (A1) High Water Table (A2) Saturation (A3)		Water-Stain MLRA 1 Salt Crust (ned Leave I , 2, 4A, a (B11)	nd 4B)	xcept	Wat Vat Drai	er-Stained Leaves (B9) (MLRA 1, 2, IA, and 4B) inage Patterns (B10)
Vetland Hydrology Indicators: rimary Indicators (minimum of o Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1)		Water-Stain MLRA 1 Salt Crust (Aquatic Inv	ned Leave I , 2, 4A, a (B11) vertebrate:	nd 4B) s (B13)	xcept	Wat Drai Drai	er-Stained Leaves (B9) (MLRA 1, 2, IA, and 4B) inage Patterns (B10) -Season Water Table (C2)
Vetland Hydrology Indicators: rimary Indicators (minimum of of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2)		Water-Stain MLRA Salt Crust (Aquatic Inv Hydrogen S	ned Leave I , 2, 4A, a (B11) vertebrates Sulfide Oc	nd 4B) s (B13) ior (C1)	·	Wat Drai Dry- Satu	er-Stained Leaves (B9) (MLRA 1, 2, IA, and 4B) inage Patterns (B10) Season Water Table (C2) uration Visible on Aerial Imagery (C9)
Vetland Hydrology Indicators: rimary Indicators (minimum of o Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3)		Water-Stain MLRA 1 Salt Crust (Aquatic Inv Hydrogen S Oxidized R	ned Leave I , 2, 4A, a (B11) vertebrates Sulfide Oc hizosphei	ind 4B) s (B13) ior (C1) res along	Living Roo		er-Stained Leaves (B9) (MLRA 1, 2, IA, and 4B) inage Patterns (B10) -Season Water Table (C2) uration Visible on Aerial Imagery (C9) pmorphic Position (D2)
Vetland Hydrology Indicators: rimary Indicators (minimum of of 		Water-Stain MLRA Salt Crust (Aquatic Inv Hydrogen S Oxidized R Presence c	ned Leave I, 2, 4A, a (B11) vertebrate: Sulfide Oc hizospher of Reduce	nd 4B) s (B13) ior (C1) res along d Iron (C4	Living Roo		er-Stained Leaves (B9) (MLRA 1, 2, IA, and 4B) inage Patterns (B10) -Season Water Table (C2) uration Visible on Aerial Imagery (C9) morphic Position (D2) Ilow Aquitard (D3)
Vetland Hydrology Indicators: rimary Indicators (minimum of o Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3)		Water-Stain MLRA 1 Salt Crust (Aquatic Inv Hydrogen S Oxidized R	ned Leave (J, 2, 4A, a (B11) vertebrate: Sulfide Oc hizospher of Reduce n Reduction	nd 4B) s (B13) ior (C1) res along d Iron (C4 on in Tilled	Living Roo) 1 Soils (C6		er-Stained Leaves (B9) (MLRA 1, 2, IA, and 4B) inage Patterns (B10) -Season Water Table (C2) uration Visible on Aerial Imagery (C9) pmorphic Position (D2)
Vetland Hydrology Indicators: rimary Indicators (minimum of of 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)	<u>one required;</u>	Water-Stain MLRA 1 Salt Crust (Aquatic Inv Hydrogen 3 Oxidized R Presence c Recent Iron Stunted or	ned Leave I, 2, 4A, a (B11) vertebrates Sulfide Oc hizosphen of Reduce n Reduction Stressed	nd 4B) s (B13) for (C1) res along d Iron (C4 on in Tilleo Plants (D	Living Roo) 1 Soils (C6		er-Stained Leaves (B9) (MLRA 1, 2, IA, and 4B) inage Patterns (B10) -Season Water Table (C2) uration Visible on Aerial Imagery (C9) morphic Position (D2) Ilow Aquitard (D3) S-Neutral Test (D5)
Vetland Hydrology Indicators: rimary Indicators (minimum of of 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)	one required; Imagery (B7)	Water-Stain MLRA 1 Salt Crust (Aquatic Inv Hydrogen S Oxidized R Presence c Recent Iron Stunted or Other (Exp	ned Leave I, 2, 4A, a (B11) vertebrates Sulfide Oc hizosphen of Reduce n Reduction Stressed	nd 4B) s (B13) for (C1) res along d Iron (C4 on in Tilleo Plants (D	Living Roo) 1 Soils (C6		er-Stained Leaves (B9) (MLRA 1, 2, IA, and 4B) inage Patterns (B10) -Season Water Table (C2) uration Visible on Aerial Imagery (C9) omorphic Position (D2) Ilow Aquitard (D3) C-Neutral Test (D5) sed Ant Mounds (D6) (LRR A)
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	one required; Imagery (B7)	Water-Stain MLRA 1 Salt Crust (Aquatic Inv Hydrogen S Oxidized R Presence c Recent Iron Stunted or Other (Exp	ned Leave I, 2, 4A, a (B11) vertebrates Sulfide Oc hizosphen of Reduce n Reduction Stressed	nd 4B) s (B13) for (C1) res along d Iron (C4 on in Tilleo Plants (D	Living Roo) 1 Soils (C6		er-Stained Leaves (B9) (MLRA 1, 2, IA, and 4B) inage Patterns (B10) -Season Water Table (C2) uration Visible on Aerial Imagery (C9) omorphic Position (D2) Ilow Aquitard (D3) C-Neutral Test (D5) sed Ant Mounds (D6) (LRR A)
Vetland Hydrology Indicators: rimary Indicators (minimum of of 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 Sparsely Vegetated Concav Teld Observations:	one required; Imagery (B7)	Water-Stain MLRA 1 Salt Crust (Aquatic Inv Hydrogen S Oxidized R Presence c Recent Iron Stunted or Other (Exp 8)	ned Leave (B11) vertebrate: Sulfide Oc hizospher of Reduce n Reductio Stressed lain in Re	nd 4B) ior (C1) res along d Iron (C4 on in Tilled Plants (D marks)	Living Roo) I Soils (C6 1) (LRR A)		er-Stained Leaves (B9) (MLRA 1, 2, IA, and 4B) inage Patterns (B10) -Season Water Table (C2) uration Visible on Aerial Imagery (C9) omorphic Position (D2) Ilow Aquitard (D3) C-Neutral Test (D5) sed Ant Mounds (D6) (LRR A)
Vetland Hydrology Indicators: rimary Indicators (minimum of of 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 Sparsely Vegetated Concav Ieid Observations: Surface Water Present?	one required; Imagery (B7) re Surface (B	Water-Stain MLRA 1 Salt Crust (Aquatic Inv Hydrogen 3 Oxidized R Presence 0 Recent Iron Stunted or Other (Exp 8)	ned Leave I, 2, 4A, a (B11) vertebrate: Sulfide Oc hizosphen of Reduce n Reductio Stressed lain in Re	nd 4B) s (B13) for (C1) res along d Iron (C4 on in Tilled Plants (D marks)	Living Roo) 1 Soils (C6 1) (LRR A)		er-Stained Leaves (B9) (MLRA 1, 2, IA, and 4B) inage Patterns (B10) -Season Water Table (C2) uration Visible on Aerial Imagery (C9) omorphic Position (D2) Ilow Aquitard (D3) C-Neutral Test (D5) sed Ant Mounds (D6) (LRR A)
Vetland Hydrology Indicators: rimary Indicators (minimum of of 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 Sparsely Vegetated Concav Veter Table Present?	one required; Imagery (B7) re Surface (B Yes N Yes N Yes N	Water-Stain MLRA 1 Salt Crust (Aquatic Inv Hydrogen 3 Oxidized R Presence of Recent Iron Stunted or Other (Exp 8) Depth (inc Depth (inc	ned Leave I, 2, 4A, a (B11) vertebrates Sulfide Oc hizosphen of Reduce n Reductio Stressed lain in Res ches): ches):	nd 4B) s (B13) for (C1) res along d Iron (C4 on in Tilled Plants (D marks)	Living Roo) 1 Soils (C6 1) (LRR A) — — — — — — — — — — — — —		er-Stained Leaves (B9) (MLRA 1, 2, IA, and 4B) inage Patterns (B10) -Season Water Table (C2) uration Visible on Aerial Imagery (C9) omorphic Position (D2) Illow Aquitard (D3) C-Neutral Test (D5) sed Ant Mounds (D6) (LRR A) st-Heave Hummocks (D7)
Vetland Hydrology Indicators: rimary Indicators (minimum of of 	one required; Imagery (B7) re Surface (B Yes N Yes N Yes N	Water-Stain MLRA 1 Salt Crust (Aquatic Inv Hydrogen 3 Oxidized R Presence of Recent Iron Stunted or Other (Exp 8) Depth (inc Depth (inc	ned Leave I, 2, 4A, a (B11) vertebrates Sulfide Oc hizosphen of Reduce n Reductio Stressed lain in Res ches): ches):	nd 4B) s (B13) for (C1) res along d Iron (C4 on in Tilled Plants (D marks)	Living Roo) 1 Soils (C6 1) (LRR A) — — — — — — — — — — — — —		er-Stained Leaves (B9) (MLRA 1, 2, IA, and 4B) inage Patterns (B10) -Season Water Table (C2) uration Visible on Aerial Imagery (C9) omorphic Position (D2) Illow Aquitard (D3) C-Neutral Test (D5) sed Ant Mounds (D6) (LRR A) st-Heave Hummocks (D7)

A I	ATA FOR	M West	tern Mou	ntains, Valleys, and Coast Region
Project/Site: Crude by Rail		City/County	Anaco	rtes/Skagit Sampling Date: 5/9/13
Applicant/Owner: Shell PSR				State: WA Sampling Point: 5A-# 5E-
Investigator(s): P. Hamidi , B. Fletcher		Section, To	wnship, Ra	nge: 3,34N, 2E
Landform (hillslope,)errace, etc.):		Local relief	concave,	convex, none): Slope (%):
Subregion (LRR):	Lat:			_ Long: Datum:
Soil Map Unit Name: 18 - Bow gravelly loa	~			NWI classification: <u>PEM</u>
Are climatic / hydrologic conditions on the site typical for the	his time of ye	ar? Yes	<u> </u>	(If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology	significantly	disturbed?	Are "	Normal Circumstances" present? Yes X No
Are Vegetation, Soil, or Hydrology				eded, explain any answers in Remarks.)
				ocations, transects, important features, etc.
		Sampin	g point i	
	No No	is th	e Sampied	Area
Wetland Hydrology Present?			in a Wetiar	V
Remarks: Grazed Pasture				
Photos 83-84				
VEGETATION – Use scientific names of pla	nts.			
Tree Stratum (Plot size: 30 -)		Dominant Species2		Dominance Test worksheet:
		Species?		Number of Dominant Species That Are OBL, FACW, or FAC: <u>31</u> (A)
1. <u>AZ [7]</u> 2				(,,
3				Total Number of Dominant Species Across All Strata: 378 (B)
4				
15-		= Total Co	ver	Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
Sapling/Shrub Stratum (Plot size: 15)				Prevaience Index worksheet:
1. <u>NA</u>			·	Total % Cover of: Multiply by:
2			·	OBL species x 1 =
3				FACW species x 2 =
5				FAC species x 3 = 330
2 A		= Total Co	ver	FACU species x 4 =
Herb Stratum (Plot size: 5-)				UPL species x 5 =
1. Alopecurus pratentis		<u> </u>	FAC	Column Totals: (A) (B)
2. Holeus lanatus	- <u>10</u> 40	<u> </u>	<u>FAC</u>	Prevalence index = B/A = <u>3</u> ,
3. Pog pratensis	- <u>77</u> - 30		FAL	Hydrophytic Vegetation Indicators:
4. <u>Agrostis capillaris</u> 5. Trifolium repens		-0-	FAC	2 1 - Rapid Test for Hydrophytic Vegetation
lt	<u></u>		FAC	★ 2 - Dominance Test is >50%
6 7				\mathbf{X} 3 - Prevalence Index is $\leq 3.0^{1}$
8				4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
9				5 - Wetland Non-Vascular Plants ¹
10				Problematic Hydrophytic Vegetation ¹ (Explain)
11				¹ Indicators of hydric soil and wetland hydrology must
	TIØ#	= Total Cov	/er	be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size:)		-		
1. <u><i>N</i>/ A</u>				Hydrophytic
2				Vegetation Present? Yes <u>No</u> No
% Bare Ground in Herb Stratum _ [0		= Total Cov	/er	
	•			L
Bare ground due to deep hoof pr	ints.			

Sampling Point: 5P-SE-1

			oth needed to docum			or confirm	the absence	of indicators.)
Depth (inches)	Color (moist)	<u> </u>	Color (moist)	Features %	; Type ¹	Loc ²	Texture	Remarks
0 - /Z	104R 3/1	5 95	104R 414		C	miPL	Loga	
12-18	2.54 512	88	104R56	10	<u> </u>	<u> </u>	Sister 4	102 quarel, Charcon / in 102 cobby 202 gr
10 10	212 912						- Thread to	un 102, cobby 202 gr
			101 21	_2_		M		
			<u> </u>				······	
							<u></u>	
				· <u> </u>				
			=Reduced Matrix, CS			d Sand Cr		ation: PL=Pore Lining, M=Matrix.
			LRRs, unless othen			d Gang Gr		rs for Problematic Hydric Soils ³ :
Histosol		8.	Sandy Redox (S		,			n Muck (A10)
	pipedon (A2)		Stripped Matrix (Parent Material (TF2)
	istic (A3)		Loamy Mucky M) (excep	MLRA 1)	Very	Shallow Dark Surface (TF12)
	en Sulfide (A4)		Loamy Gleyed N)		Othe	er (Explain in Remarks)
·	d Below Dark Surf	ace (A11)	Depleted Matrix				3	
	ark Surface (A12) /lucky Mineral (S1)		K Redox Dark Sur		7)			ors of hydrophytic vegetation and nd hydrology must be present,
	Bleyed Matrix (S4)		Redox Depression	•	')			s disturbed or problematic.
	Layer (if present)	•						
Туре:	NONA W	18"						
Depth (ind	ches):	•					Hydric Soli	Present? Yes X No
Remarks:							1	
-	drology indicator					26		
		fone require	d: check all that apply					ndary Indicators (2 or more required)
	Water (A1)	3	Water-Stair			xcept	v	Vater-Stained Leaves (B9) (MLRA 1, 2,
Saturatio	iter Table (A2)		MLRA 1	, 2, 4A, a P11)	na 4B)		n	4A, and 4B) rainage Patterns (B10)
	arks (B1)		Aquatic Invo	-	(B13)			ry-Season Water Table (C2)
	nt Deposits (B2)		Hydrogen S			<u>8</u>		aturation Visible on Aerial Imagery (C9)
	osits (B3)					Living Roof		eomorphic Position (D2)
	it or Crust (B4)		Presence o		-	-		hallow Aquitard (D3)
Iron Dep	osits (B5)		Recent Iron	Reductio	on in Tille	d Soils (C6)) F,	AC-Neutral Test (D5)
	Soil Cracks (B6)		Stunted or Stunted or Stunded Street		•	1) (LRR A)	R	aised Ant Mounds (D6) (LRR A)
	on Visible on Aeria			ain in Rer	narks)		Fi	rost-Heave Hummocks (D7)
	Vegetated Conca	ive Surface (B8)			1		· · · · · · · · · · · · · · · · · · ·
Field Observ								
Surface Wate			No X Depth (incl					
Water Table I			No X Depth (incl					
Saturation Pr (includes cap		Yes	No X Depth (incl	nes):		Wetla	ind Hydrology	y Present? Yes X No
		m gauge, m	onitoring well, aerial pl	notos, pre	vious ins	pections), i	f available:	······································
Remarks:								
CALIFA	tion ovo	ected	in early as	owina	1 5pa	son t	to Sase	imput deposits
Jan I	CARPO DAC.	1.00	/ J	· · ·	0019	biona	W L.I	
1.4.4.A	C DELL	r= = '₩ _ \ =	+ 1 t	ن ار	Nauv	100	~1 714	111701 00(105) 85
veep h	00+ 1""+5	in we	T Jerson Soi		1.700.1	107	•	

Project/Site: Crude by Rail		City/County	Ango	CUStes/SKagit Sampling Date: 5/9/13
Applicant/Owner: Shell PSR				
Investigator(s): P. Hamidi, B. Fletcher		Section, To	wnship, Ra	
Landform (hillslope) terrace, etc.):		Local relief	(concave,	convex, none): Slope (%):
Subregion (LRR):	Lat:		(4)	Long: Datum:
Soil Map Unit Name: 18-Bow gravelly log	<u>^</u>		. 10	NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for the	his time of yea	ar? Yes	<u>X_</u> No_	(If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology	significantly	disturbed?	Are'	"Normal Circumstances" present? Yes X No
Are Vegetation, Soil, or Hydrology	naturally pro	blematic?	🗸 (if ne	eeded, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map	showing	samplin	g point l	ocations, transects, important features, etc.
	No			
Hydric Soil Present? Yes			e Sampied in a Wetlar	\mathbf{v}
Wetland Hydrology Present? Yes	No <u>X</u>			
Remarks: Grazed Pasture.				
Photos 85-89				
VEGETATION – Use scientific names of pla	nts.			
Tree Stratum (Plot size: 30)	Absolute			Dominance Test worksheet:
1. <u>V/A</u>	<u>% Cover</u>		The second se	Number of Dominant Species 3 That Are OBL, FACW, or FAC: (A)
2				
3				Total Number of Dominant 3 Species Across All Strata: (B)
4				Percent of Dominant Species
Sapling/Shrub Stratum (Plot size: 15)		= Total Co	ver	That Are OBL, FACW, or FAC: (A/B)
1. N/A				Prevalence index worksheet:
2				Total % Cover of: Multiply by:
3				OBL species x 1 =
4		. <u> </u>		FACW species $x_2 =$ FAC species $1(0, x_3 =$ 330
5				FACU species $5 \times 4 = 20$
Herb Stratum (Plot size: 5)		= Total Co	ver	UPL species x 5 =
1. Alopecurus pratensis	25	У	FAC	Column Totals: /15 (A) 350 (B)
2. Agrostis capillaris	25	<u> </u>	FA(Prevalence Index = B/A = <u>3,04</u>
3. Cirstum arvense	10		F+(Hydrophytic Vegetation indicators:
4. Pog protensis	40	<u> </u>	FAC	1 - Rapid Test for Hydrophytic Vegetation
5. Fasturg arundinacea			PAC	∠ 2 - Dominance Test is >50%
6. CYNDSURUS Cristatus			FACU	3 - Prevalence Index is ≤3.0 ¹
7		<u> </u>		4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
8				5 - Wetland Non-Vascular Plants ¹
9 10				Problematic Hydrophytic Vegetation ¹ (Explain)
11.		<u></u>		¹ Indicators of hydric soil and wetland hydrology must
	115-200	= Total Cov	rer	be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 15-)				
1. <u>v/A</u>		<u>. </u>		Hydrophytic
2		Tatal O		Vegetation Present? Yes X No
% Bare Ground in Herb Stratum		= Total Cov	er	
Remarks:	<u> </u>			·

Profile Des	cription: (Descril	be to the de	oth needed to docum	ent the i	ndicator	or confirm	the absence	of indicators.)
Depth	Matrix			Features				
(inches)	<u>Color (moist)</u>	%	Color (moist)	%	_Type ¹	_Loc ²	<u></u>	Remarks
0-9	104K3/2	$-\frac{100}{000}$			<u>ت</u>		Loan	156 grave 1
9-16	104R 3/2	<u> </u>	7.54R 3/3	3 <u>5</u>	<u> </u>	<u></u>	Logm	30E gravel
	•	_	•					
	<u></u>							
					<u> </u>	<u></u>	<u></u>	
				·				
	··						<u></u>	
			Reduced Matrix, CS			d Sand Gra		cation: PL=Pore Lining, M=Matrix.
-		licable to al	LRRs, unless other		∋d.)			ors for Problematic Hydric Soils ³ :
	(A1) Dipedon (A2)		Sandy Redox (S					n Muck (A10) I Parent Material (TF2)
Black Hi			Stripped Matrix Loarny Mucky M) (except	MLRA 1)		y Shallow Dark Surface (TF12)
	en Sulfide (A4)		Loamy Gleyed N					er (Explain in Remarks)
	d Below Dark Surf	ace (A11)	Depleted Matrix				_	
	ark Surface (A12)		Redox Dark Sur					ors of hydrophytic vegetation and
	Nucky Mineral (S1)		Depleted Dark S		7)			nd hydrology must be present,
	Bleyed Matrix (S4) Layer (if present)	•	Redox Depressi	ons (F8)			unies	s disturbed or problematic.
Type:	nom	•						
	ches):				14.		Hydric Soll	Present? Yes No 🔨
Remarks:					10			
Normano.								
HYDROLO	CV							;
								- 1274
-	drology indicator		di abaala all ébaé amali	8 T.			See	
		r one require	d; check all that apply					ndary Indicators (2 or more required)
	Water (A1) iter Table (A2)		Water-Stair			cept	v	Vater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
Saturatio			Salt Crust (l , 2, 4A, a (B11)	iliu 40)		r	Prainage Patterns (B10)
	arks (B1)		Aquatic Inv		s (B13)			Pry-Season Water Table (C2)
	t Deposits (B2)		Hydrogen S					aturation Visible on Aerial Imagery (C9)
	osits (B3)		Oxidized R			Living Roof		eomorphic Position (D2)
Algal Ma	it or Crust (B4)		Presence of	f Reduce	d Iron (C4)	s	hallow Aquitard (D3)
Iron Dep	osits (B5)		Recent Iror	n Reductio	on in Tilleo	Soils (C6))F	AC-Neutral Test (D5)
	Soil Cracks (B6)		Stunted or			1) (LRR A)		aised Ant Mounds (D6) (LRR A)
	on Visible on Aeria		_	lain in Re	marks)		F	rost-Heave Hummocks (D7)
	Vegetated Conca	ive Surface	(B8)					
Field Observ								
Surface Wate		Yes	No <u>X</u> Depth (inc			-		
Water Table		Yes	No <u>No</u> Depth (inc			-		
Saturation Pr (includes cap		Yes	No K Depth (inc	hes):		_ Wetia	and Hydrolog	y Present? Yes No <u>X</u>
		m gauge, m	onitoring well, aerial p	hotos, pre	evious ins	pections), i	f available:	
	-	. –	- · ·	••				
Remarks:								

Project/Site: CRVF	City/County:Ska	- Ki	Sampling Date: 6 Feb 2013
Applicant/Owner: Shell PSR		State:A	Sampling Point: <u>SP-II</u>
	Section, Township, Rang	e: Section 3	34N,25
		onvex, none): <u>non</u> ę	Slope (%): <u>3-5</u>
Subregion (LRR):A Lat:		Long:	Datum: NAD83
Soil Map Unit Name: Coveland gr. Loam, O-	38 Slopes	NWI classifica	
Are climatic / hydrologic conditions on the site typical for this time of ye	1	(If no, explain in Re	
Are Vegetation, Soil, or Hydrology significantly		ormal Circumstances" pr	
Are Vegetation, Soil, or Hydrology naturally pro		ded, explain any answer	

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

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes No Yes No Yes No	Is the Sampled Area within a Wetland? Yes No
Remarks: vegetation activi	cly grazed by cattle in f	Field 46-48 plots photos

VEGETATION – Use scientific names of plants.

	Absolute	Dominant Indicator	Dominance lest worksheet:
Tree Stratum (Plot size:/0)		<u>Species?</u> <u>Status</u>	Number of Dominant Species
1			That Are OBL, FACW, or FAC: (A)
2			Total Number of Dominant
3			Species Across All Strata: (B)
4			Percent of Dominant Species
	0	= Total Cover	That Are OBL, FACW, or FAC:(a/B)
Sapling/Shrub Stratum (Plot size: 5m)			Prevalence Index worksheet:
1			Total % Cover of: Multiply by:
2			OBL species O x1 = O
3			
4			FACW species \underline{b} $x 2 = \underline{b}$ FAC species $\underline{85}$ $x 3 = \underline{255}$
5			FAC species 07 $x_3 = 07$
	0	= Total Cover	FACU species $x 4 =60$
Herb Stratum (Plot size: <u>2 m</u>)			UPL species x 5 =
1. Festuca arundinacea	20	J FAC	Column Totals: (A) (B)
2. Agrestis capillaris	65	J FAC	Prevalence Index = B/A =
3. Cynosurus cristatus	15	FACU	Hydrophytic Vegetation Indicators:
4		And a state of the	1 - Rapid Test for Hydrophytic Vegetation
5			$\sqrt{2}$ 2 - Dominance Test is >50%
			3 - Prevalence Index is $\leq 3.0^{1}$
6			
7			 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
8			5 - Wetland Non-Vascular Plants ¹
9			Problematic Hydrophytic Vegetation ¹ (Explain)
10			
11			¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
	100	= Total Cover	
Woody Vine Stratum (Plot size: 2 m)			
1			Hydrophytic
2			Vegetation Present? Yes Ves
	0	= Total Cover	
% Bare Ground in Herb Stratum			l
Remarks:			

SOIL									Sampling Point	5P-I1	
Profile Desg	ription: (Describ	e to the de	oth needed to docur	nent the	indicator	or confirm	n the abse	nce of indica			
Depth	Matrix		Redo	x Feature	S				•		
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	<u> </u>	<u> </u>	Remarks	124	
0-10	104 R 3/2	98	7.54R 3/2	2	С	Μ	sandy lo	nam			
10-16	25 / 4/3	97	IOYR4/4	3	<u> </u>	m		1 10	6 gravets		
				·			lonny se		grace		
					·						
			Reduced Matrix, CS LRRs, unless other			d Sand Gra			_=Pore Lining, N oblematic Hydr		
Histosol			Sandy Redox (S		ou.,			2 cm Muck (A	-	10 30115 .	
	oipedon (A2)		Stripped Matrix					•	laterial (TF2)		
Black Hi			Loamy Mucky N		1) (except	MLRA 1)			Dark Surface (7	(F12)	
	n Sulfide (A4)		Loamy Gleyed I			···-···	-		n in Remarks)	,	
Depleted	Below Dark Surfa	ice (A11)	Depleted Matrix	-					,		
	ark Surface (A12)		Redox Dark Su	• •			³ Indic	ators of hydi	ophytic vegetati	ion and	
· - ·	lucky Mineral (S1)		Depleted Dark S	•	7)			•	ogy must be pre	-	
	leyed Matrix (S4)		Redox Depress	ions (F8)			ur	nless disturbe	d or problemati	c	
	ayer (if present):										
Туре:										1	
Depth (inc	ches):						Hydric S	ioil Presenti	? Yes	No <u>V</u>	
HYDROLO	GY										
	froiogy Indicators	B:									
Primary Indic	ators (minimum of	one require	d; check all that apply	<i>ù</i>			<u>Se</u>	condary India	cators (2 or more	e required)	
Surface	Water (A1)		Water-Stai	ned Leave	es (B9) (e)	cept		Water-Stair	ned Leaves (B9)	(MLRA 1. 2.	
High Wa	ter Table (A2)		MLRA ²	I, 2, 4A, a	ind 4B)	•		4A, and			
Saturatio	on (A3)		Salt Crust				Drainage Patterns (B10)				
Water Ma	arks (B1)		Aquatic Inv	ertebrates	s (B13)		Dry-Season Water Table (C2)				
Sedimen	t Deposits (B2)		Hydrogen S	Sulfide Oc	dor (C1)			Saturation	Visible on Aerial	Imagery (C9)	
Drift Dep	osits (B3)		Oxidized R	hizospher	res along l	iving Root	ts (C3)	Geomorphi	c Position (D2)		
Algai Ma	t or Crust (B4)	08	Presence of	of Reduce	d Iron (C4)	е <u>–</u>	Shallow Aq	uitard (D3)		
· · ·	osits (B5)		Recent Iror					FAC-Neutra			
	Soil Cracks (B6)		Stunted or) (LRR A)		Raised Ant	Mounds (D6) (L	.RR A)	
	on Visible on Aerial Vegetated Concav		· · ·	lain in Rei	marks)			Frost-Heave	e Hummocks (D)7)	
Field Observ	vations:		1	·						·	
Surface Wate	er Present?	Yes	No 🗾 Depth (inc	hes):		_					
Water Table I	Present?	Yes 1	No 🟒 Depth (inc	hes):		_					
Saturation Pro (includes cap	illary fringe)		No Depth (inc					ogy Present	? Yes	No	
Describe Rec	orded Data (strean	n gauge, mo	nitoring well, aerial p	hotos, pre	evious insp	ections), if	f available:				
Remarks:						·					
			a .								

Project/Site:CRUF		City/County:	Skagit	Sampling Date: 6 Feb 2012
Applicant/Owner: Shell PSR			State: VA	Sampling Point: <u>SP-I2</u>
Investigator(s): _ P Hamish B. Kilder				
Landform (hillslope, terrace, etc.):				
Subregion (LRR):	l at:		Long:	Datum: NAD83
Soil Map Unit Name: Coveland 94, Loam	0-32	510825	NIMI classific	ation: PEMA at alt
	•	- 6-		
Are climatic / hydrologic conditions on the site typical for				(
Are Vegetation, Soil, or Hydrology				resent? Yes 🧹 No
Are Vegetation, Soil, or Hydrology	_ naturally pro	blematic? (If ne	eded, explain any answe	rs in Remarks.)
SUMMARY OF FINDINGS – Attach site ma	p showing	sampling point I	ocations, transects	, important features, etc.
Hydrophytic Vegetation Present? Yes	No			
Hydric Soil Present? Yes	No	is the Sampled within a Wetlar		No
Wetland Hydrology Present? Yes	No	Widini a Weda		
Remarks: active grazing by cattle		os 49-50 sóil 51-52 pta		
VEGETATION – Use scientific names of pla				
<u>Tree Stratum</u> (Plot size: <u>10 m</u>)		Dominant Indicator Species? Status	Dominance Test work Number of Dominant S That Are OBL, FACW,	pecies 🥊
2				
3	12		Total Number of Domin Species Across All Stra	7
4			Bereent of Dominant St	
· · · · · · · · · · · · · · · · · · ·	0	= Total Cover	Percent of Dominant Sp That Are OBL, FACW,	
Sapling/Shrub Stratum (Plot size: 5 m)			Prevalence Index wor	ksheet:
1			Total % Cover of:	Multiply by:
2			OBL species	x1=
3 4			FACW species	
5				83 x3= 221
-	0	= Total Cover	FACU species 5	
Herb Stratum (Plot size:)			UPL species	(A) 293 (B)
1. Juneus affusus		FACW	Column Totals:	
2. Alopacurus proteosis	25	FAC	Prevalence Index	= B/A = 2.93
3. Agratis apillaris	28	FAC	Hydrophytic Vegetatio	on Indicators:
4. Renunculus repens	- 15	FAC		lydrophytic Vegetation
5. Festuca arundinacea 6. Cynosurus cristatus	- 15	FAC	2 - Dominance Tes	
			3 - Prevalence Inde	
7			data in Remark	Adaptations ¹ (Provide supporting s or on a separate sheet)
8 9			5 - Wetland Non-V	•
10			Problematic Hydro	phytic Vegetation ¹ (Explain)
11				I and wetland hydrology must
	100	= Total Cover	be present, unless dist	
Woody Vine Stratum (Plot size: 2 m)				
1			Hydrophytic Vegetation	1
2		- Total Caura	Present? Ye	s 🗾 No
% Bare Ground in Herb Stratum0	<u> </u>	= Total Cover		
Remarks:			• · · · · · · · · · · · · · · · · · · ·	

		e to the de	oth needed to docu			or confirm	the absence	of indicator	S.)	_
Depth _(inches)	<u>Matrix</u> Color (moist)		Color (moist)	<u>x Feature</u> %	s Type ¹	Loc ²	Texture		Remarks	
0-5	5 Y 5/1	90	7.5YR 4/4	10	<u> </u>	M	loam	compar	1	overburden
5-15	104R3/1	95	7.5YR 3/3	5	C	MPL	1			
						<u> </u>	leam	<u> </u>		
15-18	584/1	70	10YR4/3	30			1		5% 100	
19-10	21 1/1		1018 1/3		<u> </u>	M	loamy coar	St Sand	58 900	VKI
					· <u> </u>	·	<u> </u>			
						·			·	
	<u> </u>									<u> </u>
			=Reduced Matrix, C			ed Sand Gr			ore Lining, M=	
		cable to all	LRRs, unless othe		ed.)				ematic Hydrid	: Soiis':
Histosol	(A1) bipedon (A2)		Sandy Redox (Stripped Matrix					Muck (A10)		
Black Hi			Loamy Mucky I					Parent Mate	rial (1F2) rk Surface (TF	-10)
	n Sulfide (A4)		Loamy Gleyed					er (Explain in		-12)
	Below Dark Surfac	ce (A11)	Depleted Matrix	•	/			n (ryhann m	nemainaj	
	ark Surface (A12)		T Redox Dark Su				³ Indicato	rs of hydroph	ytic vegetatio	n and
	lucky Mineral (S1)		Depleted Dark	• •	7)				must be pres	
	ileyed Matrix (S4)		Redox Depress	ions (F8)					r problematic.	
Restrictive I	_ayer (if present):						ſ		·	······
Туре:									1	
Depth (inc	ches):						Hydric Soil	Present?	Yes 🗾	No
Remarks:		······					۰. ۱			
HYDROLO	GY					0				····
Wetland Hyd	Irology Indicators		<u> </u>		··				<u> </u>	
Primary Indic	ators (minimum of o	one require	d; check all that apply	v)			Secon	darv Indicato	rs (2 or more	required)
	Water (A1)		Water-Stai		es (B9) (e	xcept			Leaves (B9) (
🟒 High Wa	ter Table (A2)			1, 2, 4A, a		•••		4A, and 4B		
V Saturatio	n (A3)		Salt Crust		•		Dr	ainage Patte		
Water Ma	arks (B1)		Aquatic Inv	ertebrates	s (B13)			-	ater Table (C2	2)
Sedimen	t Deposits (B2)		Hydrogen						ole on Aerial I	•
Drift Dep	osits (B3)		🗡 Oxidized F	hizospher	es along	Living Root		eomorphic Po		
Algal Ma	t or Crust (B4)		Presence	of Reduce	d Iron (C4	4)	Sh	allow Aquita	rd (D3)	
Iron Dep	osits (B5)		Recent Iro	n Reductio	on in Tille	d Soils (C6)	FA	C-Neutral To	est (D5)	
Surface S	Soil Cracks (B6)		Stunted or	Stressed	Plants (D	1) (LRR A)	Ra	ised Ant Mo	unds (D6) (LR	RRA)
Inundatio	n Visible on Aerial	Imagery (B)	7) Other (Exp	lain in Rer	marks)		Fr	ost-Heave H	ummocks (D7)
	Vegetated Concave	e Surface (I	38)							
Field Observ										
Surface Wate	• • • • • • •		No <u>V</u> Depth (ind	·	0					
Water Table I	Present? Y	'es	No Depth (inc	:hes):	Y	-				
Saturation Pro (includes capital)		'es <u>V</u> 1	No Depth (inc	:hes):	8	_ Wetia	nd Hydrology	Present?	Yes 🗾	No
		gauge, mo	nitoring well, aerial p	hotos, pre	vious ins	pections), if	available:			
			\$)							
Remarks:	c .				1) .h		·	
	Surtace	water	present just	outside	plot	0-1 incl	n depth			

١

Project/Site: CRUF		City/County	Sk	tien	_ Sampling Date: 6 Feb 2013
Applicant/Owner: Shel) PSR	6				_ Sampling Point: _SP-I3
Investigator(s): PHANIN B Kilder		Section, To	wnship, Ra	inge: Section 3	
Landform (hillslope, terrace, etc.):					
Subregion (LRR):A					
Soil Map Unit Name: Courland gr. Lo					
Are climatic / hydrologic conditions on the site typical for th			1		
Are Vegetation, Soil, or Hydrology					present? Yes <u>/</u> No
Are Vegetation, Soil, or Hydrology				eded, explain any answ	
SUMMARY OF FINDINGS – Attach site map				· · ·	·
Hydrophytic Vegetation Present? Yes N	lo				
	lo		e Sampled	I Area	
Wetland Hydrology Present? Yes N	No	with	in a Wetlar	nd? Yes <u>v</u>	No
Remarks: photos 57-58 upper white ch		stream	to sou	th / active gro	izing by cattle
	2 plot			1	
VEGETATION – Use scientific names of plan	nts.				
Tree Stratum (Plot size: 10)		Dominant Species?		Dominance Test wor Number of Dominant S	Species 7
1				That Are OBL, FACW,	or FAC: (A)
3				Total Number of Domi Species Across All Str	
4.					
	0	= Total Co	ver	Percent of Dominant S That Are OBL, FACW,	
Sapling/Shrub Stratum (Plot size: 5~)				Prevalence Index wo	
				Total % Cover of:	Multiply by:
2				OBL species	D x1= D
3		,		FACW species	0 x2= <u>v</u>
····				FAC species	x3= 240
··	0	= Total Co	ver		$\frac{10}{2} \times 4 = \frac{80}{2}$
Herb Stratum (Plot size:)			-	UPL species	
1. Cynosurus chistotus	20	1	FACU	Column Totals:	(A) <u>320</u> (B)
2. Agrestis capillaris	60		FAC		x = B/A = <u>}.2</u>
3. <u>Alopecurus protensis</u> 4. <u>Trifolium sp</u>			FAC	Hydrophytic Vegetat	
			FAC		Hydrophytic Vegetation
5				2 - Dominance Te	
6 7				3 - Prevalence Inc	
8				data in Remark	Adaptations ¹ (Provide supporting ks or on a separate sheet)
9				5 - Wetland Non-	/ascular Plants ¹
10				Problematic Hydro	ophytic Vegetation ¹ (Explain)
11					pil and wetland hydrology must
Woody Vine Stratum (Plot size: 2m)		= Total Cov	ver	be present, unless dist	urbed or problematic.
1				Hydrophytic	
2				Vegetation	es No
% Bare Ground in Herb Stratum	0	= Total Cov	rer		75 <u> </u>
Remarks:					

America A	Matrix	~~~~		<u>x Feature</u>		12	T -	
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	<u> Texture</u>	Remarks
0-4	104R 3/2	100	Schould				loam	1.7.91
4-10	10YR3/2	90	7.5YR4/6	10	<u> </u>	_M,PL	loam	15 % gravel
10-16	10YR 4/2	70	7.5YRY/4	30	C	Ms	andy learn	charcoal 10% gravel
	· · · · · · · · · · · · · · · · · · ·							· · · · · · · · · · · · · · · · · · ·
			<u></u>					
						<u> </u>		
1							. 2.	
			=Reduced Matrix, C LRRs, unless othe			d Sand Gra		ation: PL=Pore Lining, M=Matrix. rs for Problematic Hydric Soils ³ :
Histoso			Sandy Redox (Bu./			-
	pipedon (A2)		Stripped Matrix	•				n Muck (A10) Parent Material (TF2)
11-22 2-12	listic (A3)		Loamy Mucky I	• •	I) (except	MLRA 1)		Shallow Dark Surface (TF12)
	en Sulfide (A4)		Loamy Gleyed			,		er (Explain in Remarks)
	d Below Dark Surfa	ce (A11)	A Depleted Matri				a	.
	ark Surface (A12)		Redox Dark Su					rs of hydrophytic vegetation and
	Mucky Mineral (S1) Gleyed Matrix (S4)		Depleted Dark Redox Depress	•	.7)			nd hydrology must be present, s disturbed or problematic.
	Layer (if present):							
Type:	, , ,							
Depth (in	iches):						Hydric Soil	Present? Yes No
Remarks:							· · · · · · · · · · · · · · · · · · ·	······································
							3	
	GY drology Indicators	:					đ	
Wetland Hy Primary Indi	drology Indicators cators (minimum of		d: check all that appl					dary Indicators (2 or more required)
Wetland Hy Primary Indi <u> Surface</u>	drology Indicators cators (minimum of Water (A1)		Water-Sta	ined Leave		xcept		ater-Stained Leaves (B9) (MLRA 1, 2,
Wetland Hy Primary Indi ✓ Surface ✓ High Wa	drology Indicators cators (minimum of Water (A1) ater Table (A2)		Water-Sta MLRA	ined Leave 1, 2, 4A, a		xcept	W	ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
Wetland Hy <u>Primary Indi</u> <u>★</u> Surface <u>↓</u> High Wa <u>★</u> Saturati	drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3)		Water-Sta MLRA Salt Crust	ined Leave 1, 2, 4A, a (B11)	ind 4B)	xcept	W	ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10)
Wetland Hy Primary Indi ✓ Surface ✓ High Wa ✓ Saturati ✓ Water M	drology Indicators <u>cators (minimum of</u> Water (A1) ater Table (A2) on (A3) flarks (B1)		Uater-Sta MLRA Salt Crust	ined Leave 1, 2, 4A, a (B11) vertebrate	and 4B) s (B13)	xcept	W Di Di	Ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2)
Wetland Hy <u>Primary Indi</u> ✓ Surface ✓ High Wa ✓ Saturati — Water M — Sedime	drology Indicators <u>cators (minimum of</u> Water (A1) ater Table (A2) on (A3) flarks (B1) nt Deposits (B2)		Water-Sta MLRA Salt Crust Aquatic In Hydrogen	ined Leave 1, 2, 4A, a (B11) vertebrate: Sulfide Oc	ind 4B) s (B13) for (C1)		W D D	Ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9)
Primary Indi ✓ Surface ✓ High Wa ✓ Saturati — Water M — Sedime — Drift De	drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3)		Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized F	ined Leave 1, 2, 4A, a (B11) vertebrates Sulfide Oc Rhizospher	s (B13) for (C1) res along	Living Root	W D D Sa s (C3)≻ G	Ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9) eomorphic Position (D2)
Wetland Hy Primary Indi ✓ Surface ✓ High Wa ✓ Saturati ✓ Saturati ✓ Saturati ✓ Drift Deg ✓ Algal Ma	drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4)		Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized F Presence	ined Leave 1, 2, 4A, a (B11) vertebrate: Sulfide Oc Rhizospher of Reduce	nd 4B) s (B13) for (C1) res along d iron (C4	Living Root	W D D S s (C3) S	Ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9) eomorphic Position (D2) nallow Aquitard (D3)
Wetland Hy Primary Indi ✓ Surface ✓ High Wa ✓ Saturati ✓ Water N ✓ Sedime ✓ Drift Deg ✓ Algal Ma ✓ Iron Deg	drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3)		Water-Sta MLRA Salt Crust Aquatic In Hydrogen X Oxidized F Presence Recent Iro	ined Leave 1, 2, 4A, a (B11) vertebrate: Sulfide Oc Rhizospher of Reduce on Reductio	s (B13) for (C1) res along d Iron (C4 on in Tilled	Living Root	W Di Si s (C3) <u> </u>	Ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9) eomorphic Position (D2)
Wetland Hy Primary Indi ✓ Surface ✓ High Wa ✓ Saturati ✓ Water M ✓ Sedime ✓ Drift Deg ✓ Algal Ma ✓ Surface	drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5)	<u>one require</u>	Water-Sta MLRA Salt Crust Aquatic In Hydrogen X Oxidized F Presence Recent Iro Stunted or	ined Leave 1, 2, 4A, a (B11) vertebrate: Sulfide Oc Rhizospher of Reduce on Reduction r Stressed	s (B13) for (C1) res along d iron (C4 on in Tilleo Plants (D	Living Root	W D S s (C3) S S S F R	Ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9) eomorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5)
Wetland Hy Primary Indi ✓ Surface ✓ High Wa ✓ Saturati ✓ Water N ✓ Sedime ✓ Drift Deg ✓ Algal Ma ✓ Surface ✓ Iron Deg ✓ Inundati	drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6)	one require	Water-Sta MLRA Salt Crust Aquatic In Hydrogen X Oxidized F Presence Recent Irc Stunted or 7) Other (Exp	ined Leave 1, 2, 4A, a (B11) vertebrate: Sulfide Oc Rhizospher of Reduce on Reduction r Stressed	s (B13) for (C1) res along d iron (C4 on in Tilleo Plants (D	Living Root	W D S s (C3) S S S F R	Ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9) eomorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A)
Wetland Hy Primary Indi ✓ Surface ✓ High Wa ✓ Saturati ✓ Water N ✓ Sedime ✓ Drift Deg ✓ Algal Ma ✓ Surface ✓ Iron Deg ✓ Inundati	drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) flarks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) fon Visible on Aerial y Vegetated Concav	one require Imagery (B re Surface (Water-Sta MLRA Salt Crust Aquatic In Hydrogen X Oxidized F Presence Recent Iro Stunted or 7) Other (Exp B8)	ined Leave 1, 2, 4A, a (B11) vertebrate: Sulfide Oc Rhizospher of Reduce on Reduction r Stressed blain in Re	s (B13) for (C1) res along d Iron (C4 on in Tilled Plants (D marks)	Living Root) I Soils (C6) 1) (LRR A)	W Di Si s (C3) <u> </u>	Ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9) eomorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) ost-Heave Hummocks (D7)
Wetland Hy Primary Indi ✓ Surface ✓ High Wa ✓ Saturati ✓ Sedime ✓ Drift Deg ✓ Algal Ma ✓ Iron Deg ✓ Surface ✓ Inundati ✓ Sparsely Field Obser Surface Wat	drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aerial y Vegetated Concav vations: er Present?	one require Imagery (B re Surface (Water-Sta MLRA Salt Crust Aquatic In Hydrogen ✓ Oxidized F Presence Recent Irco Stunted or 7) Other (Exp B8) No Depth (in	ined Leave 1, 2, 4A, a (B11) vertebrate: Sulfide Oc Rhizospher of Reduce on Reduction r Stressed blain in Ref ches):	s (B13) for (C1) res along d Iron (C4 on in Tilled Plants (D marks)	Living Root) I Soils (C6) 1) (LRR A)	W Di Si s (C3) <u> </u>	Ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9) eomorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A)
Wetland Hy Primary Indi ✓ Surface ✓ High Wa ✓ Saturati ✓ Sedime ✓ Iron Deg ✓ Iron Deg ✓ Inundati ✓ Sparsely Field Obser Surface Wat Water Table Yeter Table	drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) flarks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aerial y Vegetated Concav vations: er Present?	Imagery (B re Surface (Yes Yes	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized F Presence Recent Irco Stunted or 7) Other (Exp B8) No Depth (in No Depth (in	ined Leave 1, 2, 4A, a (B11) vertebrate: Sulfide Oc Rhizospher of Reduce on Reduction r Stressed blain in Ref ches): ches):	and 4B) s (B13) for (C1) res along d Iron (C4 on in Tilleo Plants (D' marks)	Living Root:) d Soils (C6) 1) (LRR A)	W Di Si Si Si Fi Ri Fr	Ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9) eomorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) ost-Heave Hummocks (D7)
Wetland Hy Primary Indi ✓ Surface ✓ High Wa ✓ Saturati ✓ Sufface ✓ Iron Deg ✓ Inundati ✓ Sparsely Field Obser Surface Wat Water Table Saturation P	drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aerial y Vegetated Concav vations: er Present? Present?	Imagery (B re Surface (Yes Yes	Water-Sta MLRA Salt Crust Aquatic In Hydrogen ✓ Oxidized F Presence Recent Irco Stunted or 7) Other (Exp B8) No Depth (in	ined Leave 1, 2, 4A, a (B11) vertebrate: Sulfide Oc Rhizospher of Reduce on Reduction r Stressed blain in Ref ches): ches):	and 4B) s (B13) for (C1) res along d Iron (C4 on in Tilleo Plants (D' marks)	Living Root:) d Soils (C6) 1) (LRR A)	W Di Si Si Si Fi Ri Fr	Ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9) eomorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) ost-Heave Hummocks (D7)
Wetland Hy Primary Indi ✓ Surface ✓ High Wa ✓ Saturati ✓ Sedime ✓ Algal Ma ✓ Iron Deg ✓ Iron Deg ✓ Inundati ✓ Sparsely Field Obser Surface Wat Water Table Saturation P (includes ca) Saturation P	drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aerial y Vegetated Concav vations: er Present? Present? pillary fringe)	Imagery (B re Surface (Yes Yes	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized F Presence Recent Irco Stunted or 7) Other (Exp B8) No Depth (in No Depth (in	ined Leave 1, 2, 4A, a (B11) vertebrate: Sulfide Oc Rhizospher of Reduce on Reduction r Stressed plain in Ref ches): ches):	s (B13) for (C1) res along d Iron (C4 on in Tilled Plants (D marks)	Living Root: d Soils (C6) 1) (LRR A) h in free Wetlan	W Di Si Si Si Fi Fr Fr	Ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9) eomorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) ost-Heave Hummocks (D7)
Wetland Hy Primary Indi ✓ Surface ✓ High Wa ✓ Saturati	drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aerial y Vegetated Concav vations: er Present? Present? pillary fringe)	Imagery (B re Surface (Yes Yes	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized F Presence Recent Irco Stunted or 7) Other (Exp B8) No Depth (in No Depth (in No Depth (in	ined Leave 1, 2, 4A, a (B11) vertebrate: Sulfide Oc Rhizospher of Reduce on Reduction r Stressed plain in Ref ches): ches):	s (B13) for (C1) res along d Iron (C4 on in Tilled Plants (D marks)	Living Root: d Soils (C6) 1) (LRR A) h in free Wetlan	W Di Si Si Si Fi Fr Fr	Ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9) eomorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) ost-Heave Hummocks (D7)
Wetland Hy Primary Indi ✓ Surface ✓ High Wa ✓ Saturati ✓ Sedime ✓ Algal Ma ✓ Iron Deg ✓ Iron Deg ✓ Inundati ✓ Sparsely Field Obser Surface Wat Water Table Saturation P (includes ca) Saturation P	drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aerial y Vegetated Concav vations: er Present? Present? Present? pillary fringe) corded Data (strear	Imagery (B re Surface (Yes Yes res n gauge, mo	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized F Presence Recent Iro Stunted or 7) Other (Exp B8) No Depth (in No Depth (in No Depth (in	ined Leave 1, 2, 4A, a (B11) vertebrate: Sulfide Oc Rhizospher of Reduce on Reduction r Stressed plain in Ref ches): ches):	s (B13) for (C1) res along d Iron (C4 on in Tilled Plants (D marks)	Living Root: d Soils (C6) 1) (LRR A) h in free Wetlan	W Di Si Si Si Fi Fr Fr	Ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9) eomorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) ost-Heave Hummocks (D7)
Wetland Hy Primary Indi ✓ Surface ✓ High Wa ✓ Saturati	drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aerial y Vegetated Concav vations: er Present? Present? Present? pillary fringe) corded Data (strear	Imagery (B re Surface (Yes Yes	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized F Presence Recent Iro Stunted or 7) Other (Exp B8) No Depth (in No Depth (in No Depth (in	ined Leave 1, 2, 4A, a (B11) vertebrate: Sulfide Oc Rhizospher of Reduce on Reduction r Stressed plain in Ref ches): ches):	s (B13) for (C1) res along d Iron (C4 on in Tilled Plants (D marks)	Living Root: d Soils (C6) 1) (LRR A) h in free Wetlan	W Di Si Si Si Fi Fr Fr	Ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9) eomorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) ost-Heave Hummocks (D7)
Wetland Hy Primary Indi ✓ Surface ✓ High Wa ✓ Saturati	drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aerial y Vegetated Concav vations: er Present? Present? Present? pillary fringe) corded Data (strear	Imagery (B re Surface (Yes Yes res n gauge, mo	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized F Presence Recent Iro Stunted or 7) Other (Exp B8) No Depth (in No Depth (in No Depth (in	ined Leave 1, 2, 4A, a (B11) vertebrate: Sulfide Oc Rhizospher of Reduce on Reduction r Stressed plain in Ref ches): ches):	s (B13) for (C1) res along d Iron (C4 on in Tilled Plants (D marks)	Living Root: d Soils (C6) 1) (LRR A) h in free Wetlan	W Di Si Si Si Fi Fr Fr	Ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9) eomorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) ost-Heave Hummocks (D7)

Project/Site: <u>CRUF</u> Applicant/Owner: <u>Shell</u> PSR		Sampling Date: <u>6 Feb 2013</u> WA Sampling Point: <u>56-14</u>
Investigator(s): <u>P Harris</u> <u>B</u> Killer Landform (hillslope, terrace, etc.): <u>terrace</u>	Section, Township, Range:	tion 35, 34N, 25
Subregion (LRR): <u>A</u> Soil Map Unit Name: <u>Coueland</u> gr. Loam		
Are climatic / hydrologic conditions on the site typical for this time Are Vegetation, Soil, or Hydrology signif	icantly disturbed? Are "Normal Circums	tances" present? Yes No
Are Vegetation, Soil, or Hydrology natura SUMMARY OF FINDINGS – Attach site map sho		ny answers in Remarks.) nsects, important features, etc.
Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes No		/

Wetland Hyd	rology Pr	esent?		Yes	No 🗸	•	within a Wetland?	Yes	No <u>√</u>	
Remarks:	active	grazing	4	catlic	phto5		soil 65 plat			

VEGETATION – Use scientific names of plants.

10	Absolute	Dominant Indicator	Dominance lest worksneet:
<u>Tree Stratum</u> (Plot size: <u>10 m</u>)		<u>Species?</u> <u>Status</u>	Number of Dominant Species 2 (A)
2 3	<u> </u>		Total Number of Dominant (B)
4	0	= Total Cover	Percent of Dominant Species That Are OBL, FACW, or FAC:(00 (A/B)
			Prevaience index worksheet:
1			Total % Cover of:Multiply by:
2			
3		<u> </u>	
4		<u> </u>	FAC species $\frac{38}{38}$ x 3 = $\frac{264}{264}$
5			FACU species 12 $x = 48$
	0	= Total Cover	
Herb Stratum (Plot size: 2m)		1	
1. Agrostis capillaris	63	FAC	Column Totals: _/0@ (A) _3/2 (B)
2. Cynosurus cristatus	12_	FACU	Prevalence Index = B/A = 93.12
3. Tamaxicum officinale	T	FAC	Hydrophytic Vegetation indicators:
4. Festuca anundinasea	25	J FAC	1 - Rapid Test for Hydrophytic Vegetation
5. Vicin americana	7	FAC	$\sqrt{2}$ 2 - Dominance Test is >50%
			2 - Dominance rest is > 30 %
6			
7 8			4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
9			5 - Wetland Non-Vascular Plants ¹
10			Problematic Hydrophytic Vegetation ¹ (Explain)
11			¹ Indicators of hydric soil and wetland hydrology must
· · · · · · · · · · · · · · · · · · ·		= Total Cover	be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 2)	100	_= Total Cover	
			11
1			Hydrophytic Vegetation
2			Present? Yes <u>V</u> No
% Bare Ground in Herb Stratum	0	= Total Cover	
Remarks:			1

Sampling Point: 5P-14

Profile Description: (Describe to the dep	oth needed to document the indicator or confirm	n the absence of indicators.)
Depth <u>Matrix</u>	Redox Features	_
$\frac{\text{(inches)}}{0.7} \frac{\text{Color (moist)}}{10YR 3/2} \frac{\%}{2.5}$	<u>Color (moist)</u> <u>%</u> <u>Type¹</u> <u>Loc²</u>	Texture Remarks
		Fill 30% gravel
7-16 10YR 3/2 97	10YR 4/3 2 C M	loam chargeal 10% grand
<u>16-18 7.54R4/3 95</u>	7.5YR494 5 C M	sandy toom charceal 15% gravel
	<i>n</i> .	
¹ Type: C=Concentration D=Depletion BM	=Reduced Matrix, CS=Covered or Coated Sand Gr	rains. ² Location: PL=Pore Lining, M=Matrix.
Hydric Soli Indicators: (Applicable to all		indicators for Problematic Hydric Solis 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)	
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)	³ Indicators of hydrophytic vegetation and
Sandy Mucky Mineral (S1)	Depleted Dark Surface (F7)	wetland hydrology must be present,
Sandy Gleyed Matrix (S4)	Redox Depressions (F8)	unless disturbed or problematic.
Restrictive Layer (if present):		
Туре: Осла		
Depth (inches):		Hydric Soli Present? Yes No V
Remarks:		
HYDROLOGY		
Wetland Hydrology Indicators:		
Primary Indicators (minimum of one require		Secondary Indicators (2 or more required)
Surface Water (A1)	Water-Stained Leaves (B9) (except	Water-Stained Leaves (B9) (MLRA 1, 2,
High Water Table (A2)	MLRA 1, 2, 4A, and 4B)	4A, and 4B)
Saturation (A3)	Salt Crust (B11)	Drainage Patterns (B10)
Water Marks (B1)	Aquatic Invertebrates (B13)	Dry-Season Water Table (C2)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)	Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3)	Oxidized Rhizospheres along Living Roo	
Algai Mat or Crust (B4)	Presence of Reduced iron (C4)	Shailow Aquitard (D3)
Iron Deposits (B5)	Recent Iron Reduction in Tilled Soils (C6	
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1) (LRR A)	
Inundation Visible on Aerial Imagery (B	· <u> </u>	Frost-Heave Hummocks (D7)
Sparsely Vegetated Concave Surface (Field Observations:	B8)	
	No Depth (inches):	
	No Depth (inches):	
(includes capillary fringe)	No Depth (inches): L C Wetla onitoring well, aerial photos, previous inspections), i	and Hydroiogy Present? Yes No
Remarks:		- · · · · · · · · · · · · · · · · · · ·
		5
		· · · · · · · · · · · · · · · · · · ·

Project/Site: Crude Rail un	on Shark		
Applicant/Owner: Shell	_ City/County:	Sam	pling Date: June 25, 2013 Ding Point: SP - 15
		_ State: Sam	pling Point: <u>SP - T5</u>
Investigator(s): P. Hamidi, J. Walke	_ Section, Township, Range:	5.3, T34N,	K2E
Landform (hillslope, terrace, etc.): Terran	_ Local relief (concave, conv	ex, none): Conver	Slope (%): <u>3</u>
Subregion (LRR): A Lat:	Loi	ng:	Datum:
Subregion (LRR): A Lat:	38 56103	NWI classification:	UPland
Are climatic / hydrologic conditions on the site typical for this time of y	year? Yes <u>X</u> No	_ (If no, explain in Remark	s.)
Are Vegetation, Soil, or Hydrology significant	ly disturbed? Are "Nom	nal Circumstances" present	? Yes 🗶 No
Are Vegetation, Soil, or Hydrology naturally p	problematic? (If needed	, explain any answers in R	emarks.)
SUMMARY OF FINDINGS – Attach site map showin	ig sampling point locat	ions, transects, imp	ortant features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes No Yes No Yes No	is the Sampled Area within a Wetland?	Yes No
Remarks:			

VEGETATION – Use scientific names of plants.

٠.

Tere Obstance (Pl.4.)		Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:) 1			Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2 3			Total Number of Dominant Species Across All Strata: (B)
4		= Total Cover	Percent of Dominant Species That Are OBL, FACW, or FAC:5 (A/B)
			Prevalence Index worksheet:
			Total % Cover of:Multiply by:
2			OBL species x 1 =
3			FACW species 0 x 2 =
4			FAC species x 3 = 165
5		Total Cover	FACU species 60 x4 = 240
Herb Stratum (Plot size: 5	<u> </u>	- Total Cover	UPL species X 5 = b
1. Tablium respens	30	x FAC	Column Totals: 115 (A) 405 (B)
	28	X FACU	Prevalence index = $B/A = 352$
3. Agastis capillari/stownth	30	X PAC	Hydrophytic Vegetation Indicators:
4. Triplium dubium	20	× FACU	1 - Rapid Test for Hydrophytic Vegetation
5. Browns hordeacens	10	FACU	2 - Dominance Test is >50%
6. Latium perence		FAC	3 - Prevalence Index is $\leq 3.0^1$
7 I			4 - Morphological Adaptations ¹ (Provide supporting
8			data in Remarks or on a separate sheet)
9			5 - Wetland Non-Vascular Plants ¹
10			Problematic Hydrophytic Vegetation ¹ (Explain)
11			¹ Indicators of hydric soil and wetland hydrology must
Woody Vine Stratum (Plot size:)	=	Total Cover	be present, unless disturbed or problematic.
1			Hydrophytic
2			Vegetation . 7
% Bare Ground in Herb Stratum	=	Total Cover	Present? Yes No
Remarks:			

÷

Sampling Point:	SP-15

			th needed to docum		-					
Depth (inches)	<u>Matrix</u> Color (moist)	%	Color (moist)	Feature %	s Type ¹	Loc ²	Texture		Remarks	
<u>()-9</u>	101R3/2	25	101R44	5	C	M	l	refux	only in he	p 2" of
9_11	104R 43	92	10TR4/4	Ŕ	C	M	/	159	avail	······
1-10	101173			_0		<u> </u>	<u> </u>		Jane	
	·				·					<u> </u>
										<u> </u>
								<u> </u>		. <u></u>
			<u> </u>							
				-Covoro	d or Coate		2i o	cation: PI =P	ore Lining, M=	Matrix
Type: C=C	oncentration, D=De	cable to all	=Reduced Matrix, CS LRRs, unless other	wise not	ed.)	Sanu Gra			ematic Hydric	
Histosol			Sandy Redox (S		,			n Muck (A10)		
	pipedon (A2)		Stripped Matrix					Parent Mate		
	istic (A3)		Loamy Mucky N	• •	1) (excep	t MLRA 1)	Ver	y Shallow Da	rk Surface (TF	12)
	en Sulfide (A4)		Loamy Gleyed				Oth	er (Explain in	Remarks)	
	d Below Dark Surfac	ce (A11)	Depleted Matrix				1.	.		
	ark Surface (A12)		Redox Dark Sur						nytic vegetatio	
	Aucky Mineral (S1)		Depleted Dark S	•	•				must be pres problematic.	
	Gleyed Matrix (S4) Layer (If present):		Redox Depress						providinado.	
Type:										
							Hydric Sol	I Present?	Yes	No X
Depth (in Remarks:				<u></u>						
		meer	hickness reg	iren	sit for	- refox	dals	shree	(F6)	
Wetiand Hy	IGY drology indicators	:			sit for	- refox				required)
Wetland Hy Primary Indi	OGY drology Indicators cators (minimum of	:	d; check all that apply	<i>(</i>)			Secc	ondary Indicat	ors (2 or more	
Wetland Hy Primary Indi Surface	OGY drology Indicators cators (minimum of Water (A1)	:	<u>ed: check all that apply</u> Water-Stai	/) ned Leav	ves (B9) (4		Secc	ondary Indicate Nater-Stained	ors (2.or more I Leaves (B9)	
Wetland Hy Primary Indi Surface High Wa	OGY drology Indicators cators (minimum of Water (A1) ater Table (A2)	:	ed; check all that apply Water-Stai MLRA	/) ned Leav 1, 2, 4A,			<u>Secc</u>	ondary Indicate Nater-Stained 4A, and 4E	ors (2 or more I Leaves (B9) 3)	
Wetland Hy <u>Primary Indi</u> Surface High Wa Saturati	OGY drology Indicators cators (minimum of Water (A1) ater Table (A2) ion (A3)	:	ed: check all that apply Water-Stai MLRA Salt Crust	/) ned Leav 1, 2, 4A, (B11)	ves (B9) (0 and 4B)		<u>Secc</u>	ondary Indicate Water-Stained 4A, and 4E Drainage Patt	ors (2 or more I Leaves (B9) 3) erns (B10)	(MLRA 1, 2,
Wetland Hy <u>Primary Indi</u> Surface High Wa Saturati Water M	OGY drology Indicators cators (minimum of Water (A1) ater Table (A2) ion (A3) Marks (B1)	:	<u>ed: check all that apply</u> Water-Stai MLRA Sait Crust Aquatic Inv	/) ned Leav 1, 2, 4A, (B11) vertebrate	/es (B9) ((and 4B) es (B13)		<u>Secc</u>	ondary Indicate Water-Stainec 4A, and 4E Drainage Patt Dry-Season W	ors (2 or more I Leaves (B9) 3)	(MLRA 1, 2, 2)
Wetiand Hy Primary Indi Surface High Wa Saturati Water N Sedime	OGY drology Indicators cators (minimum of Water (A1) ater Table (A2) ion (A3) Marks (B1) int Deposits (B2)	:	<u>ed: check all that apply</u> Water-Stai Sait Crust Aquatic Inv Hydrogen	/) ned Leav 1, 2, 4A, (B11) vertebrate Sulfide C	ves (B9) (r and 4B) es (B13) edor (C1)	эхсерt	<u>Secc</u>	ondary Indicate Water-Stainec 4A, and 4E Drainage Patt Dry-Season W	ors (2 or more I Leaves (B9) 3) erns (B10) /ater Table (C ible on Aerial	(MLRA 1, 2, 2)
Wetiand Hy Primary Indi Surface High Wa Saturati Water M Sedime Drift De	DGY drology Indicators cators (minimum of Water (A1) ater Table (A2) ion (A3) Marks (B1) mt Deposits (B2) posits (B3)	:	<u>ed: check all that apply</u> Water-Stai Sait Crust Aquatic Inv Hydrogen	/) ned Leav 1, 2, 4A, (B11) vertebrate Sulfide C Shizosphe	ves (B9) (and 4B) es (B13) edor (C1) eres along	except	<u>Secc</u> \ \ \ ts (C3) \	ondary Indicate Water-Stained 4A, and 4E Drainage Patt Dry-Season W Saturation Vis	ors (2 or more I Leaves (B9) 3) erns (B10) /ater Table (C ible on Aerial Position (D2)	(MLRA 1, 2, 2)
Wetland Hy Primary Indi Surface High Wa Saturati Water M Sedime Algal M	OGY drology Indicators cators (minimum of Water (A1) ater Table (A2) ion (A3) Marks (B1) int Deposits (B2)	:	ed: check all that apply Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F	r) ned Leav 1, 2, 4A, (B11) vertebrate Sulfide C Sulfide C Shizosphe of Reduc	ves (B9) (d and 4B) es (B13) odor (C1) eres along ed Iron (C	except Living Roo 4)	<u>Secc</u>	Andary Indicate Water-Stained 4A, and 4E Drainage Patt Dry-Season V Saturation Vis Geomorphic F	ors (2 or more I Leaves (B9) 3) erns (B10) /ater Table (C ible on Aerial Position (D2) ard (D3)	(MLRA 1, 2, 2)
Wetland Hy Primary Indi Surface High Wa Saturati Water N Sedime Algal M Iron De	DGY drology Indicators cators (minimum of Water (A1) ater Table (A2) ion (A3) Marks (B1) Int Deposits (B2) posits (B3) at or Crust (B4)	:	ed: check all that apply Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of	r) ned Leav 1, 2, 4A, (B11) vertebrato Sulfide C Sulfide C Sulfide C Sulfide C Sulfide C n Reduct	ves (B9) (e and 4B) es (B13) odor (C1) eres along ed Iron (C tion in Tille	except Living Roo 4) ad Soils (C6	<u>Secc</u>	Andary Indicate Water-Stained 4A, and 4E Drainage Patt Dry-Season V Saturation Vis Geomorphic F Shallow Aquit FAC-Neutral T Raised Ant Mo	ors (2 or more I Leaves (B9) 3) erns (B10) /ater Table (C ible on Aerial Position (D2) ard (D3) Fest (D5) pounds (D6) (L	(MLRA 1, 2, 2) Imagery (C9) RR A)
Wetiand Hy Primary Indi Surface High Wa Saturati Sedime Chief Algal M Chief Algal M Chief Content Surface Inundat	OGY drology Indicators cators (minimum of Water (A1) ater Table (A2) ion (A3) Marks (B1) mt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) e Soil Cracks (B6) ion Visible on Aerial	: one require	ed: check all that apply Water-Stai MLRA Sait Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iro Stunted or 37) Other (Exp	/) ned Leav 1, 2, 4A, (B11) vertebrate Sulfide C Shizospho of Reduc n Reduct Stressed	ves (B9) (4 and 4B) es (B13) edor (C1) eres along ed Iron (C tion in Tille d Plants (I	except Living Roo 4) ad Soils (C6	<u>Secc</u>	Andary Indicate Water-Stained 4A, and 4E Drainage Patt Dry-Season V Saturation Vis Geomorphic F Shallow Aquit FAC-Neutral T Raised Ant Mo	ors (2 or more I Leaves (B9) 3) erns (B10) /ater Table (C ible on Aerial Position (D2) ard (D3) Fest (D5)	(MLRA 1, 2, 2) Imagery (C9) RR A)
Wetiand Hy Primary Indi Surface High Wa Saturati Sedime Chief Algal M Chief Algal M Chief Content Surface Inundat	OGY drology Indicators cators (minimum of Water (A1) ater Table (A2) ion (A3) Marks (B1) mt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) e Soil Cracks (B6)	: one require	ed: check all that apply Water-Stai MLRA Sait Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iro Stunted or 37) Other (Exp	/) ned Leav 1, 2, 4A, (B11) vertebrate Sulfide C Shizospho of Reduc n Reduct Stressed	ves (B9) (4 and 4B) es (B13) edor (C1) eres along ed Iron (C tion in Tille d Plants (I	except Living Roo 4) ad Soils (C6	<u>Secc</u>	Andary Indicate Water-Stained 4A, and 4E Drainage Patt Dry-Season V Saturation Vis Geomorphic F Shallow Aquit FAC-Neutral T Raised Ant Mo	ors (2 or more I Leaves (B9) 3) erns (B10) /ater Table (C ible on Aerial Position (D2) ard (D3) Fest (D5) pounds (D6) (L	(MLRA 1, 2, 2) Imagery (C9) RR A)
Wetiand Hy Primary Indi Surface High Wa Saturati Sedime Chief Algal M Chief Algal M Chief Content Surface Inundat	DGY drology Indicators cators (minimum of Water (A1) ater Table (A2) ion (A3) Marks (B1) mt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) a Soil Cracks (B6) ion Visible on Aerial ly Vegetated Concar rvations:	: one require Imagery (E ve Surface	ed: check all that apply Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iro Stunted or 37) Other (Exp (B8)	() ned Leav 1, 2, 4A, (B11) vertebrate Sulfide C thizosphe of Reduc n Reduct Stressed lain in R	ves (B9) (d and 4B) es (B13) edor (C1) eres along ed Iron (C tion in Tille d Plants (I emarks)	except Living Roo 4) 2d Soils (C6 D1) (LRR A)	<u>Secc</u>	Andary Indicate Water-Stained 4A, and 4E Drainage Patt Dry-Season V Saturation Vis Geomorphic F Shallow Aquit FAC-Neutral T Raised Ant Mo	ors (2 or more I Leaves (B9) 3) erns (B10) /ater Table (C ible on Aerial Position (D2) ard (D3) Fest (D5) pounds (D6) (L	(MLRA 1, 2, 2) Imagery (C9) RR A)
Wetland Hy Primary Indi Surface High Wa Saturati Water N Sedime Algal M Iron De Surface Inundat Sparsel Field Obser	PGY drology Indicators cators (minimum of Water (A1) ater Table (A2) ion (A3) Marks (B1) Int Deposits (B2) posits (B3) at or Crust (B4) posits (B5) a Soil Cracks (B6) ion Visible on Aerial ly Vegetated Concar rvations: ter Present?	: one require Imagery (E ve Surface Yes	ed; check all that apply Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iro Stunted or Stunted or Other (Exp (B8) No X Depth (inv	() ned Leav 1, 2, 4A, (B11) vertebrate Sulfide C Rhizospho of Reduc n Reduct Stressec lain in R	ves (B9) (and 4B) es (B13) ed r (C1) eres along ed Iron (C tion in Tille d Plants (I emarks)	except Living Roo 4) ed Soils (C6 D1) (LRR A)	<u>Secc</u>	Andary Indicate Water-Stained 4A, and 4E Drainage Patt Dry-Season V Saturation Vis Geomorphic F Shallow Aquit FAC-Neutral T Raised Ant Mo	ors (2 or more I Leaves (B9) 3) erns (B10) /ater Table (C ible on Aerial Position (D2) ard (D3) Fest (D5) pounds (D6) (L	(MLRA 1, 2, 2) Imagery (C9) RR A)
Wetland Hy Primary Indi Surface High Wa Saturati Water N Sedime Algal M Iron De Surface Inundat Sparsel Field Obser	PGY drology Indicators cators (minimum of Water (A1) ater Table (A2) ion (A3) Marks (B1) mt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) ion Visible on Aerial y Vegetated Concar rvations: ter Present? Present?	: one require Imagery (E ve Surface Yes Yes	Ad: check all that apply Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iro Stunted or 37) Other (Exp (B8) No X Depth (inv No ADD Depth (inv	() ned Leav 1, 2, 4A, (B11) vertebrato Sulfide C thizosphe of Reduc of Reduc of Reduc thespic second chespic chespic chespic chespic chespic chespic chespic chespic cher chespic chespic cher	ves (B9) (r and 4B) es (B13) ed r (C1) eres along ed Iron (C tion in Tille d Plants (I emarks)	Eliving Roo 4) ed Soils (C6 01) (LRR A)	Secc ts (C3))	Andary Indicate Water-Stained 4A, and 4E Drainage Patt Dry-Season W Saturation Vis Geomorphic F Shallow Aquit FAC-Neutral T Raised Ant Mo Frost-Heave H	ors (2 or more I Leaves (B9) B) erns (B10) /ater Table (C ible on Aerial Position (D2) ard (D3) Fest (D5) ounds (D6) (L lummocks (D	(MLRA 1, 2, 2) Imagery (C9) RR A) 7)
Wetland Hy Primary Indi Surface High Wa Saturati Sedime Algal M Algal M Iron De Algal M Iron De Surface Surface Wa Water Table Saturation F	PGY drology Indicators cators (minimum of Water (A1) ater Table (A2) ion (A3) Marks (B1) int Deposits (B2) posits (B3) at or Crust (B4) posits (B5) a Soil Cracks (B6) ion Visible on Aerial ly Vegetated Concar rvations: ter Present? Present?	: one require Imagery (E ve Surface Yes Yes	ed; check all that apply Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iro Stunted or Stunted or Other (Exp (B8) No X Depth (inv	() ned Leav 1, 2, 4A, (B11) vertebrato Sulfide C thizosphe of Reduc of Reduc of Reduc thespic second chespic chespic chespic chespic chespic chespic chespic chespic cher chespic chespic cher	ves (B9) (r and 4B) es (B13) ed r (C1) eres along ed Iron (C tion in Tille d Plants (I emarks)	Eliving Roo 4) ed Soils (C6 01) (LRR A)	Secc ts (C3))	Andary Indicate Water-Stained 4A, and 4E Drainage Patt Dry-Season W Saturation Vis Geomorphic F Shallow Aquit FAC-Neutral T Raised Ant Mo Frost-Heave H	ors (2 or more I Leaves (B9) 3) erns (B10) /ater Table (C ible on Aerial Position (D2) ard (D3) Fest (D5) pounds (D6) (L	(MLRA 1, 2, 2) Imagery (C9) RR A) 7)
Wetland Hy Primary Indi Surface High Wa Saturati Sedime Algal M Iron Del Surface Inundat Field Obser Surface Wa Water Table Saturation F (includes ca	PGY drology Indicators cators (minimum of Water (A1) ater Table (A2) ion (A3) Marks (B1) Int Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) ion Visible on Aerial ly Vegetated Concar rvations: ter Present? Present? Present? pollary fringe)	: one require Imagery (E ve Surface Yes Yes Yes	Ad; check all that apply Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iro Stunted or Stunted or Stunted or Other (Exp (B8) No X Depth (inv No X Depth (inv	() ned Leav 1, 2, 4A, (B11) vertebrate Sulfide C Stressec lain in R ches): ches): ches):	ves (B9) (and 4B) es (B13) ed ron (C1) eres along ed Iron (C tion in Tille d Plants (I emarks)	except Living Roo 4) ed Soils (C6 01) (LRR A)	Secc ts (C3))) and Hydrolog	Andary Indicate Water-Stained 4A, and 4E Drainage Patt Dry-Season W Saturation Vis Geomorphic F Shallow Aquit FAC-Neutral T Raised Ant Mo Frost-Heave H	ors (2 or more I Leaves (B9) B) erns (B10) /ater Table (C ible on Aerial Position (D2) ard (D3) Fest (D5) ounds (D6) (L lummocks (D	(MLRA 1, 2, 2) Imagery (C9) RR A) 7)
Wetland Hy Primary Indi Surface High Wa Saturati Water N Sedime Algal M Inon Del Surface Inundat Field Obser Surface Wa Water Table Saturation F (includes ca	PGY drology Indicators cators (minimum of Water (A1) ater Table (A2) ion (A3) Marks (B1) Int Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) ion Visible on Aerial ly Vegetated Concar rvations: ter Present? Present? Present? pollary fringe)	: one require Imagery (E ve Surface Yes Yes Yes	Ad: check all that apply Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iro Stunted or 37) Other (Exp (B8) No X Depth (inv No ADD Depth (inv	() ned Leav 1, 2, 4A, (B11) vertebrate Sulfide C Stressec lain in R ches): ches): ches):	ves (B9) (and 4B) es (B13) ed ron (C1) eres along ed Iron (C tion in Tille d Plants (I emarks)	except Living Roo 4) ed Soils (C6 01) (LRR A)	Secc ts (C3))) and Hydrolog	Andary Indicate Water-Stained 4A, and 4E Drainage Patt Dry-Season W Saturation Vis Geomorphic F Shallow Aquit FAC-Neutral T Raised Ant Mo Frost-Heave H	ors (2 or more I Leaves (B9) B) erns (B10) /ater Table (C ible on Aerial Position (D2) ard (D3) Fest (D5) ounds (D6) (L lummocks (D	(MLRA 1, 2, 2) Imagery (C9) RR A) 7)
Primary Indi Surface High Wa Saturati Vater M Sedime Drift De Algal M Iron De Surface Inundat Sparsel Field Obser Surface Wa Water Table Saturation F (includes ca Describe Re	PGY drology Indicators cators (minimum of Water (A1) ater Table (A2) ion (A3) Marks (B1) Int Deposits (B2) posits (B3) at or Crust (B4) posits (B5) a Soil Cracks (B6) ion Visible on Aerial ly Vegetated Concar rvations: ter Present? a Present? Present? pollary fringe)	: one require Imagery (E ve Surface Yes Yes Yes	Ad; check all that apply Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iro Stunted or Stunted or Stunted or Other (Exp (B8) No X Depth (inv No X Depth (inv	() ned Leav 1, 2, 4A, (B11) vertebrate Sulfide C Stressec lain in R ches): ches): ches):	ves (B9) (and 4B) es (B13) ed ron (C1) eres along ed Iron (C tion in Tille d Plants (I emarks)	except Living Roo 4) ed Soils (C6 01) (LRR A)	Secc ts (C3))) and Hydrolog	Andary Indicate Water-Stained 4A, and 4E Drainage Patt Dry-Season W Saturation Vis Geomorphic F Shallow Aquit FAC-Neutral T Raised Ant Mo Frost-Heave H	ors (2 or more I Leaves (B9) B) erns (B10) /ater Table (C ible on Aerial Position (D2) ard (D3) Fest (D5) ounds (D6) (L lummocks (D	(MLRA 1, 2, 2) Imagery (C9) RR A) 7)
Wetland Hy Primary Indi Surface High Wa Saturati Water N Sedime Algal M Inon Del Surface Inundat Field Obser Surface Wa Water Table Saturation F (includes ca	PGY drology Indicators cators (minimum of Water (A1) ater Table (A2) ion (A3) Marks (B1) Int Deposits (B2) posits (B3) at or Crust (B4) posits (B5) a Soil Cracks (B6) ion Visible on Aerial ly Vegetated Concar rvations: ter Present? a Present? Present? pollary fringe)	: one require Imagery (E ve Surface Yes Yes Yes	Ad; check all that apply Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iro Stunted or Stunted or Stunted or Other (Exp (B8) No X Depth (inv No X Depth (inv	() ned Leav 1, 2, 4A, (B11) vertebrate Sulfide C Stressec lain in R ches): ches): ches):	ves (B9) (and 4B) es (B13) ed ron (C1) eres along ed Iron (C tion in Tille d Plants (I emarks)	except Living Roo 4) ed Soils (C6 01) (LRR A)	Secc ts (C3))) and Hydrolog	Andary Indicate Water-Stained 4A, and 4E Drainage Patt Dry-Season W Saturation Vis Geomorphic F Shallow Aquit FAC-Neutral T Raised Ant Mo Frost-Heave H	ors (2 or more I Leaves (B9) B) erns (B10) /ater Table (C ible on Aerial Position (D2) ard (D3) Fest (D5) ounds (D6) (L lummocks (D	(MLRA 1, 2, 2) Imagery (C9) RR A) 7)
Wetland Hy Primary Indi Surface High Wa Saturati Water N Sedime Drift De Algal M Iron De Surface Inundat Field Obset Surface Wa Water Table Saturation F (includes ca Describe Re	PGY drology Indicators cators (minimum of Water (A1) ater Table (A2) ion (A3) Marks (B1) Int Deposits (B2) posits (B3) at or Crust (B4) posits (B5) a Soil Cracks (B6) ion Visible on Aerial ly Vegetated Concar rvations: ter Present? a Present? Present? pollary fringe)	: one require Imagery (E ve Surface Yes Yes Yes	Ad; check all that apply Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iro Stunted or Stunted or Stunted or Other (Exp (B8) No X Depth (inv No X Depth (inv	() ned Leav 1, 2, 4A, (B11) vertebrate Sulfide C Stressec lain in R ches): ches): ches):	ves (B9) (and 4B) es (B13) ed ron (C1) eres along ed Iron (C tion in Tille d Plants (I emarks)	except Living Roo 4) ed Soils (C6 01) (LRR A)	Secc ts (C3))) and Hydrolog	Andary Indicate Water-Stained 4A, and 4E Drainage Patt Dry-Season W Saturation Vis Geomorphic F Shallow Aquit FAC-Neutral T Raised Ant Mo Frost-Heave H	ors (2 or more I Leaves (B9) B) erns (B10) /ater Table (C ible on Aerial Position (D2) ard (D3) Fest (D5) ounds (D6) (L lummocks (D	(MLRA 1, 2, 2) Imagery (C9) RR A) 7)
Wetiand Hy Primary Indi Surface High Wa Saturati Vater N Sedime Algal M Iron Del Surface Inundat Field Obser Surface Wa Water Table Saturation F (includes ca Describe Ref	PGY drology Indicators cators (minimum of Water (A1) ater Table (A2) ion (A3) Marks (B1) Int Deposits (B2) posits (B3) at or Crust (B4) posits (B5) a Soil Cracks (B6) ion Visible on Aerial ly Vegetated Concar rvations: ter Present? a Present? Present? pollary fringe)	: one require Imagery (E ve Surface Yes Yes Yes	Ad; check all that apply Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iro Stunted or Stunted or Stunted or Other (Exp (B8) No X Depth (inv No X Depth (inv	() ned Leav 1, 2, 4A, (B11) vertebrate Sulfide C Stressec lain in R ches): ches): ches):	ves (B9) (and 4B) es (B13) ed ron (C1) eres along ed Iron (C tion in Tille d Plants (I emarks)	except Living Roo 4) ed Soils (C6 01) (LRR A)	Secc ts (C3))) and Hydrolog	Andary Indicate Water-Stained 4A, and 4E Drainage Patt Dry-Season W Saturation Vis Geomorphic F Shallow Aquit FAC-Neutral T Raised Ant Mo Frost-Heave H	ors (2 or more I Leaves (B9) B) erns (B10) /ater Table (C ible on Aerial Position (D2) ard (D3) Fest (D5) ounds (D6) (L lummocks (D	(MLRA 1, 2, 2) Imagery (C9) RR A) 7)
Wetiand Hy Primary Indi Surface High Wa Saturati Vater N Sedime Algal M Iron Del Surface Inundat Field Obser Surface Wa Water Table Saturation F (includes ca Describe Ref	PGY drology Indicators cators (minimum of Water (A1) ater Table (A2) ion (A3) Marks (B1) Int Deposits (B2) posits (B3) at or Crust (B4) posits (B5) a Soil Cracks (B6) ion Visible on Aerial ly Vegetated Concar rvations: ter Present? a Present? Present? pollary fringe)	: one require Imagery (E ve Surface Yes Yes Yes	Ad; check all that apply Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iro Stunted or Stunted or Stunted or Other (Exp (B8) No X Depth (inv No X Depth (inv	() ned Leav 1, 2, 4A, (B11) vertebrate Sulfide C Stressec lain in R ches): ches): ches):	ves (B9) (and 4B) es (B13) ed ron (C1) eres along ed Iron (C tion in Tille d Plants (I emarks)	except Living Roo 4) ed Soils (C6 01) (LRR A)	Secc ts (C3))) and Hydrolog	Andary Indicate Water-Stained 4A, and 4E Drainage Patt Dry-Season W Saturation Vis Geomorphic F Shallow Aquit FAC-Neutral T Raised Ant Mo Frost-Heave H	ors (2 or more I Leaves (B9) B) erns (B10) /ater Table (C ible on Aerial Position (D2) ard (D3) Fest (D5) ounds (D6) (L lummocks (D	(MLRA 1, 2, 2) Imagery (C9) RR A) 7)

Project/Site: Crude Rail unloading facility Applicant/Owner: <u>Shell</u>	City/County: _SKag.+	Samp	ling Date: Jun. 25, 2013
Applicant/Owner:	J	_ State: 1 A Samp	ling Point: 51-16
investigator(s): P. Hamada, J. Walker	Section, Township, Range:	5.3, T34N	RZE
Landform (hillslope, terrace, etc.): Terrace	Local relief (concave, conv	· · · · · · · · · · · · · · · · · · ·	
Subregion (LRR): Lat:	Lor	ng:	Datum:
Soil Map Unit Name: Courland gr. Loan, 0-3	8 56005	NWI classification:	upland
Are climatic / hydrologic conditions on the site typical for this time of ye		_ (If no, explain in Remarks	
Are Vegetation, Soll, or Hydrology significantly	disturbed? Are "Norn	nal Circumstances" present	? Yes 🔀 No
Are Vegetation, Soil, or Hydrology naturally pro	oblematic? (If needed	l, explain any answers in Re	emarks.)
SUMMARY OF FINDINGS – Attach site map showing	sampling point locat	tions, transects, imp	ortant features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes No Yes No Yes No	is the Sampled Area within a Wetland?	Yes No_X
Remarks:			

VEGETATION - Use scientific names of plants.

I

	Absolute	Dominan	t Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:) 1		Species?	<u>Status</u>	Number of Dominant Species 3 That Are OBL, FACW, or FAC: (A)
2 3				Total Number of Dominant 3 Species Across All Strata: (B)
4		= Total Co	over	Percent of Dominant Species That Are OBL, FACW, or FAC:(A/B)
1				Prevalence Index worksheet:
2				Total % Cover of: Multiply by:
			·	OBL species x 1 =
3			· <u> </u>	FACW species x 2 =
4				FAC species 90 x 3 = 270
5				FACU species 10 x4 = 40
Herb Stratum (Plot size:)		= Total Co	ver	UPL species x 5 =
1. Festuca arundingen	20	<u> </u>	PAC	Column Totals: 100 (A) 3/0 (B)
2. Algeany pratentis	30	_X`_	FAC	Prevalence Index = B/A = 3, \$O
3. Browns pordencen	5		FACU	Hydrophytic Vegetation Indicators:
4. Tothlium verson S	10		FAC	
5. Vulpin browstiles	T		the	1 - Rapid Test for Hydrophytic Vegetation
6. Carsium aniense	T		PAC	<u>↓</u> 2 - Dominance Test is >50%
7. Agriph's capilaris / Stalari kn	30	$\overline{}$	FAC	3 - Prevalence Index is ≤3.0 ¹
8. Lotion schenne	T		FAC	 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
9. Cynsum Gistates	5		FACU	5 - Wetland Non-Vascular Plants ¹
10				Problematic Hydrophytic Vegetation ¹ (Explain)
11				¹ Indicators of hydric soil and wetland hydrology must
	100	= Total Cov	/er	be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size:)				
1				Hydrophytic
2				Vegetation Present? Yes X No
% Bare Ground in Herb Stratum	<u> </u>	= Total Cov	/er	Present? Yes <u>X</u> No
Remarks:				

Sampling Point: S-16

Profile Desc	ription: (Describe	to the dept	h needed to docur	nent the li	ndicator	or confirm	the absence	of Indicators.)
Depth	Matrix_			x Features				Barrada
(inches)	Color (moist)	%	Color (moist)		_Type ¹	Loc ²	Texture	Remarks
0-7	164R 3/2	100	2			<u> </u>	Loan	
7-13_	10 YR 3/2.5	100					boan	
13-16	10 YR 4/6	100					Logm	Charcel + oxidized Suil
<u></u>								
				·				
	<u> </u>							,
	<u> </u>							
							·	
							<u></u>	
			Reduced Matrix, C			d Sand Gra		cation: PL=Pore Lining, M=Matrix.
Hydric Soii	indicators: (Applie	cable to all	LRRs, unless othe	rwise note	ed.)			ors for Problematic Hydric Solls ³ :
Histosol	(A1)		Sandy Redox (•				n Muck (A10)
	pipedon (A2)		Stripped Matrix	• •				d Parent Material (TF2)
	stic (A3)		Loamy Mucky I	•		MLRA 1)		y Shallow Dark Surface (TF12) er (Explain in Remarks)
	en Sulfide (A4) d Balavy Dark Surfa		Loamy Gleyed)		Om	
· · ·	d Below Dark Surfac ark Surface (A12)		Depleted Matrix Redox Dark Su				³ Indicate	ors of hydrophytic vegetation and
	Aucky Mineral (S1)		Depleted Dark		7)			and hydrology must be present,
	Bleyed Matrix (S4)		Redox Depress					ss disturbed or problematic.
	Layer (If present):							
Туре:	mone							
Depth (in	ches):						Hydric Soil	I Present? Yes No
Remarks:								
HYDROLO								
-	drology indicators						0	adar (adiasters (2 or more required)
·		one required	I: check all that app					ndary Indicators (2 or more required)
	Water (A1)			ined Leave	• • •	xcept	v	Vater-Stained Leaves (B9) (MLRA 1, 2,
	ater Table (A2)			1, 2, 4A, a	ind 4B)		-	4A, and 4B)
Saturati			Salt Crust	• •	- (D40)			Drainage Patterns (B10)
	larks (B1)		·	vertebrate	• •			Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9)
	nt Deposits (B2)			Sulfide Oc		Living Ree		
	posits (B3)			of Reduce		Living Root		Geomorphic Position (D2) Shallow Aquitard (D3)
	at or Crust (B4) posits (B5)					+) d Soils (C6		FAC-Neutral Test (D5)
	Soil Cracks (B6)					1) (LRR A)	· <u> </u>	Raised Ant Mounds (D6) (LRR A)
	on Visible on Aerial	Imagery (B		plain in Re				Frost-Heave Hummocks (D7)
	y Vegetated Concav		· ·		, mana)			
Field Obser								· · · · · · · · · · · · · · · · · · ·
Surface Wat		Yes	No 🗴 Depth (ir	ches):				
Water Table			No Depth (ir	• —				
Saturation P			No <u>X</u> Depth (ir				and Hydroloc	gy Present? Yes No 🔀
(includes ca	pillary fringe)		v					
Describe Re	corded Data (stream	m gauge, mo	onitoring well, aerial	photos, pr	evious ins	spections),	if available:	
Remarks:		· · · ·						

4

1

Project/Site:CRUF	City/County: Sampling Date: 6 Feb 2013
Applicant/Owner: Shell PSR	State: Sampling Point: <u>5P-J1</u>
	Section, Township, Range: Section 3, 34 N, 25
Λ	Local relief (concave, convex, none): <u>non</u> Slope (%): <u>3</u>
	Long: Datum: NAD 8.3
Soil Map Unit Name: Coveland gr, Loan, 0-3	
Are climatic / hydrologic conditions on the site typical for this time of y	
Are Vegetation, Soil, or Hydrology significantly	
Are Vegetation, Soil, or Hydrology naturally pr	
	g sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes Vegetation	Is the Sampled Area
Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No	within a Wetland? Yes No
active cattle grazing both	
66-67	stream under coher rail
VEGETATION – Use scientific names of plants.	
Tree Stratum (Plot size: 10 m) Absolute % Cover	
	<u>Species?</u> <u>Status</u> Number of Dominant Species That Are OBL EACW or EAC
1	
3	
4.	Species Across All Strata: (B)
r O	_ = Total Cover Percent of Dominant Species That Are OBL, FACW, or FAC: // (A/B)
Sapling/Shrub Stratum (Plot size: 5 m)	Prevalence Index worksheet:
1	Total % Cover of: Multiply by:
2	OBL species v x1 = b
3	FACW energies U v 2 - a
4	FAC species / 0 0 x 3 = 300
· · · · · · · · · · · · · · · · · · ·	FACU species 0 x4 = 0
Herb Stratum (Plot size: 2m)	_= Total Cover UPL species x 5 =
1. Alopeçurus protensis 35	$\int FAC$ Column Totals: $(a \circ A) $ (B)
2. Agrostis capillaris/stelonitera 59	Prevalence Index = B/A = _= 3
3. <u>Circiam gruense</u>	FAC Hydrophytic Vegetation Indicators:
4. Plutciaia repos	FAC 1 - Rapid Test for Hydrophytic Vegetation
5. Fertuca arundingcea 5	$ FAC = \frac{\sqrt{2}}{\sqrt{2}} 2 - Dominance Test is >50\%$
6	3 - Prevalence Index is ≤3.01
7	
8	
9	Problematic Hydrophytic Vegetation ¹ (Explain)
11	¹ Indicators of hydric soil and wetland hydrology must
100	= Total Cover
Woody Vine Stratum (Plot size: 2 ~)	
1	
2	Vegetation
% Bare Ground in Herb Stratum 0	= Total Cover
Remarks:	

die. SOIL

OIL									npling Poir	
		to the dep	th needed to docur	nent the i		or confirm	n the absence			<u> </u>
Depth (inches)	Matrix Color (moist)	%	Color (moist)	<u>%</u>	Type1	Loc ²	Texture	7	Remarks	
0-4	104R3/2	100					sitt loam	Fill	10%	gravel
4-9	2 CN 4/2	85	10484/4	15	c	m	loam	Fill	10%	gravel
9-15	10YR 3/2	98	7.5 YR 3/3	2	C	M	loam			71.00
				5	<u> </u>					
15-18	104R4/2.5	95	10/R 4/3	3		<u>_M</u>	loam			
			<u> </u>			· <u> </u>				
ype: C=Co vdric Soii li	ncentration, D=Dep	letion, RM= able to all	Reduced Matrix, C: LRRs, unless othe	S=Covere rwise not	d or Coate ed.)	ed Sand G		cation: PL=P		
_ Histosol (Sandy Redox (·		2 c	m Muck (A10)		
-	ipedon (A2)		Stripped Matrix					d Parent Mate		
_ Black His	tic (A3)		Loamy Mucky			t MLRA 1)		y Shallow Dai		
	n Sulfide (A4)		Loamy Gleyed		!)		Oth	er (Explain in	Remarks)	
	Below Dark Surfac	e (A11)	Depleted Matrix	• •			3 indiant	ors of hydroph	wic veget	ation and
_	rk Surface (A12)		Redox Dark Su Depleted Dark					and hydrology		
	ucky Mineral (S1) leyed Matrix (S4)		Redox Depress	•	• /			ss disturbed o		
-	ayer (if present):	<u></u>				<u>.</u>			•	
Type:										1
••	hes):						Hydric Sol	Present?	Yes	No
							Hyune oo	I FIGSONLI		
Remarks:			is old 1	=:1	mgt	fer ig				-26
emarks:)- 7" La GY	iger i	is old 1	=:1	mq	ser i g				
YDROLOG Vetland Hyd) - 7" La GY Irology Indicators:	yer i			mq	fer i q	1	1		
emarks:) - 7" La GY Irology Indicators:	yer i	d; check all that app	ly)			 	ondary Indicato		
emarks: (DROLOO /etland Hyd rimary Indic _ Surface V) ~ 7" La. GY Irology Indicators: ators (minimum of c Water (A1)	yer i	d; check all that app Water-Sta	ly) lined Leav	res (B9) (e		 	ondary Indicato Water-Stained	Leaves (E	ore required) 39) (MLRA 1, 2,
emarks: //DROLOG /etland Hyd rimary Indic Surface N High Wat) ~ 7" La GY Irology Indicators: ators (minimum of c Nater (A1) ter Table (A2)	yer i	d <u>; check all that app</u> Water-Sta MLRA	ly) lined Leav 1, 2, 4A, 5	res (B9) (e		<u>Secc</u>	ondary Indicato Nater-Stained 4A, and 4E	Leaves (E 3)	
emarks: (DROLOO Vetland Hyd rimary Indic _ Surface V _ High Wat _ Saturatio) ~ 7 ^{''} La GY Irology Indicators: ators (minimum of c Water (A1) ter Table (A2) in (A3)	yer i	d <u>; check all that app</u> Water-Sta MLRA Salt Crust	ly) ined Leav 1, 2, 4A, 5 ; (B11)	res (B9) (e and 4B)		<u>Secc</u>	ondary Indicato Water-Stained 4A, and 4E Drainage Patto	Leaves (B 3) erns (B10)	89) (MLRA 1, 2,
emarks: (DROLOO /etland Hyd rimary Indic Surface N High Wa Saturatio Water Mi) ~ 7 ^{''} L a GY Irology Indicators: ators (minimum of a Water (A1) ter Table (A2) in (A3) arks (B1)	yer i	d <u>; check all that app</u> Water-Sta Salt Crusi Salt Crusi Aquatic Ir	ly) ained Leav 1, 2, 4A, 5 ((B11) avertebrate	res (B9) (¢ and 4B) es (B13)		Secc \	ondary Indicato Water-Stained 4A, and 4E Drainage Patte Dry-Season W	Leaves (B 3) erns (B10) /ater Table	89) (MLRA 1, 2, (C2)
emarks: (DROLOG /etland Hyd /etland Hyd) ~ 7 ["] La GY Irology Indicators: ators (minimum of c Nater (A1) ter Table (A2) in (A3) arks (B1) t Deposits (B2)	yer i	d <u>; check all that app</u> Water-Sta MLRA Salt Crusi Aquatic Ir Hydrogen	ly) lined Leav 1, 2, 4A, 5 (B11) ivertebrate Sulfide O	res (B9) (e and 4B) es (B13) dor (C1)	except	<u>Secc</u>	ondary Indicato Water-Stained 4A, and 4E Drainage Patte Dry-Season W Saturation Visi	Leaves (B 3) erns (B10) /ater Table ible on Aer	89) (MLRA 1, 2, (C2) ial Imagery (C9)
emarks: (DROLOO /etland Hyd /etland Hyd) ~ 7 ["] L a. GY irology indicators: ators (minimum of c Water (A1) ter Table (A2) on (A3) arks (B1) t Deposits (B2) osits (B3)	yer i	d; check all that app Water-Sta Salt Crusi Aquatic Ir Hydrogen Oxidized	ly) ined Leav 1, 2, 4A, 4 (B11) ivertebrate Sulfide O Rhizosphe	res (B9) (¢ and 4B) es (B13) dor (C1) eres along	except	<u>Secc</u> 11 11 11 11 	ondary Indicato Water-Stained 4A, and 4E Drainage Patte Dry-Season W Saturation Visi Geomorphic P	Leaves (E 3) erns (B10) /ater Table ible on Aer losition (D2	89) (MLRA 1, 2, (C2) ial Imagery (C9)
emarks: (DROLOO /etland Hyd /etland Hyd) ~ 7 ' L a GY Irology indicators: ators (minimum of c Nater (A1) ter Table (A2) on (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4)	yer i	d; check all that app Water-Sta MLRA Salt Crusi Aquatic Ir Hydrogen Oxidized Presence	ly) ined Leav 1, 2, 4A, 4 (B11) ivertebrate Sulfide O Rhizosphe of Reduce	res (B9) (¢ and 4B) es (B13) dor (C1) eres along ed iron (C	except	<u>Secc</u> \ \ \ \ \ \ \ \ \ \ \ \	Andary Indicato Water-Stained 4A, and 4E Drainage Patte Dry-Season W Saturation Visi Geomorphic P Shallow Aquita	Leaves (E 3) erns (B10) /ater Table ible on Aer Position (D2 ard (D3)	89) (MLRA 1, 2, (C2) ial Imagery (C9)
emarks: (DROLOO /etiand Hyd rimary Indic Surface V High Wat Saturatio Water Ma Sedimen Drift Dep Algal Ma Iron Dep	$) \sim 7'' L \alpha$ GY Irology indicators: <u>ators (minimum of c</u> <i>Nater</i> (A1) ter Table (A2) on (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5)	yer i	d: check all that app Water-Sta MLRA Salt Crust Aquatic Ir Hydrogen Oxidized Presence Recent Irr	ly) ined Leav 1, 2, 4A, 5 (B11) ivertebrate Sulfide O Rhizosphe of Reduct	res (B9) (6 and 4B) es (B13) dor (C1) eres along ed iron (C ion in Tille	except	<u>Secc</u>	Andary Indicato Water-Stained 4A, and 4E Drainage Patte Dry-Season W Saturation Visi Geomorphic P Shallow Aquita FAC-Neutral T	Leaves (E 3) erns (B10) /ater Table ible on Aer Position (D2 ard (D3) Fest (D5)	89) (MLRA 1, 2, (C2) tial Imagery (C9) 2)
emarks: (DROLOO /etland Hyd /etland Hyd) ~ 7 ^{''} L a GY Irology Indicators: ators (minimum of a Mater (A1) ter Table (A2) in (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6)	ger i	d: check all that app Water-Sta MLRA Salt Crusi Aquatic Ir Hydrogen Oxidized Presence Recent In Stunted o	ly) ined Leav 1, 2, 4A, i (B11) ivertebrate Sulfide O Rhizosphe of Reduct of Reduct r Stressed	es (B9) (e and 4B) es (B13) dor (C1) eres along ed Iron (C ion in Tille i Plants (D	except	Secc \ 	Andary Indicato Water-Stained 4A, and 4E Drainage Patte Dry-Season W Saturation Visi Geomorphic P Shallow Aquita	Leaves (E 3) Jarns (B10) Jater Table ible on Aer Position (D2 ard (D3) Test (D5) Dunds (D6)	89) (MLRA 1, 2, (C2) ial Imagery (C9) 2) (LRR A)
emarks: (DROLOO /etland Hyd /etland Hyd /etland Hyd /etland Hyd /etland Hyd /etland Hyd //etland Hyd //et) ~ 7'' La GY Irology Indicators: ators (minimum of c Nater (A1) ter Table (A2) in (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aerial	me required	d: check all that app Water-Sta MLRA Salt Crusi Aquatic Ir Hydrogen Oxidized Presence Recent Ira Stunted o I7) Other (Ex	ly) ined Leav 1, 2, 4A, 5 (B11) ivertebrate Sulfide O Rhizosphe of Reduct	es (B9) (e and 4B) es (B13) dor (C1) eres along ed Iron (C ion in Tille i Plants (D	except	Secc \ 	andary Indicato Water-Stained 4A, and 4E Drainage Patte Dry-Season W Saturation Visi Geomorphic P Shallow Aquita FAC-Neutral T Raised Ant Mo	Leaves (E 3) Jarns (B10) Jater Table ible on Aer Position (D2 ard (D3) Test (D5) Dunds (D6)	89) (MLRA 1, 2, (C2) ial Imagery (C9) 2) (LRR A)
emarks: (DROLOO /etland Hyd /etland Hyd /etland Hyd /etland Hyd /etland Hyd /etland Hyd /etland Hyd //etland Hyd //etl) ~ 7'' La GY Irology Indicators: ators (minimum of c Nater (A1) ter Table (A2) in (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aerial Vegetated Concav	me required	d: check all that app Water-Sta MLRA Salt Crusi Aquatic Ir Hydrogen Oxidized Presence Recent Ira Stunted o I7) Other (Ex	ly) ined Leav 1, 2, 4A, i (B11) ivertebrate Sulfide O Rhizosphe of Reduct of Reduct r Stressed	es (B9) (e and 4B) es (B13) dor (C1) eres along ed Iron (C ion in Tille i Plants (D	except	Secc \ 	andary Indicato Water-Stained 4A, and 4E Drainage Patte Dry-Season W Saturation Visi Geomorphic P Shallow Aquita FAC-Neutral T Raised Ant Mo	Leaves (E 3) Jarns (B10) Jater Table ible on Aer Position (D2 ard (D3) Test (D5) Dunds (D6)	89) (MLRA 1, 2, (C2) ital Imagery (C9) 2) (LRR A)
emarks: (DROLOO /etland Hyd /etland Hyd /etland Hyd /etland Hyd /etland Hyd /etland Hyd /etland Hyd //etland Hyd //etl) ~ 7'' L a GY Irology indicators: ators (minimum of a Nater (A1) ter Table (A2) on (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aerial Vegetated Concave vations:	imagery (B e Surface (d: check all that app Water-Sta MLRA Salt Crusi Aquatic Ir Hydrogen Oxidized Presence Recent Ira Stunted o I7) Other (Ex	ly) ined Leav 1, 2, 4A, 5 (B11) ivertebrate Sulfide O Rhizosphe of Reduct on Reduct r Stressed plain in Re	es (B9) (e and 4B) es (B13) dor (C1) eres along ed Iron (C ion in Tille i Plants (D	except	Secc \ 	andary Indicato Water-Stained 4A, and 4E Drainage Patte Dry-Season W Saturation Visi Geomorphic P Shallow Aquita FAC-Neutral T Raised Ant Mo	Leaves (E 3) Jarns (B10) Jater Table ible on Aer Position (D2 ard (D3) Test (D5) Dunds (D6)	89) (MLRA 1, 2, (C2) ial Imagery (C9) 2) (LRR A)
emarks: (DROLOO /etland Hyd rimary Indic Surface V High Wai Saturatio Water Ma Sedimen Drift Dep Algal Ma Iron Dep Surface Saturatio Inundatio Sparsely leld Observior) ~ 7'' La GY Irology Indicators: ators (minimum of c Nater (A1) ter Table (A2) in (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aerial Vegetated Concav vations: ar Present?	imagery (B e Surface (d: check all that app Water-Sta MLRA Salt Crusi Aquatic Ir Hydrogen Oxidized Presence Recent In Stunted of 17) Other (Ex 188) No Depth (ir	ly) ained Leav 1, 2, 4A, i (B11) avertebrate Sulfide O Rhizosphe of Reduct on Reduct r Stressed plain in Re	es (B9) (e and 4B) es (B13) dor (C1) eres along ed Iron (C ion in Tille i Plants (D	except	Secc \ 	andary Indicato Water-Stained 4A, and 4E Drainage Patte Dry-Season W Saturation Visi Geomorphic P Shallow Aquita FAC-Neutral T Raised Ant Mo	Leaves (E 3) Jarns (B10) Jater Table ible on Aer Position (D2 ard (D3) Test (D5) Dunds (D6)	89) (MLRA 1, 2, (C2) ial Imagery (C9) 2) (LRR A)
emarks: (DROLOO /etland Hyd rimary Indic Surface V High Wai Saturatio Water Mai Sedimen Drift Dep Algal Mai Iron Dep Algal Mai Sparsely leld Observi- furface Water Vater Table iaturation Principles cap) ~ 7'' La GY Irology Indicators: ators (minimum of c Nater (A1) ter Table (A2) in (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aerial Vegetated Concav vations: ar Present? Present? Soil Cracks (B6) Soil Cracks (B6) Soil Cra	Imagery (B e Surface (res	d: check all that app Water-Sta MLRA Salt Crusi Aquatic Ir Hydrogen Oxidized Presence Recent In Stunted o 57) Other (Ex 188) No Depth (ir No Depth (ir No Depth (ir	ly) ained Leav 1, 2, 4A, i (B11) avertebrate Sulfide O Rhizosphe of Reduct of Reduct r Stressed plain in Re aches): aches):	res (B9) (e and 4B) es (B13) dor (C1) eres along ed Iron (C ion in Tille Plants (D emarks) 15	except Living Ro 4) ed Soils (C D1) (LRR A	Secc 1 	endary Indicato Water-Stained 4A, and 4E Drainage Patte Dry-Season W Saturation Visi Geomorphic P Shallow Aquita FAC-Neutral T Raised Ant Mo Frost-Heave H	Leaves (E 3) erns (B10) /ater Table ible on Aer losition (D2 ard (D3) fest (D5) bunds (D6) iummocks	89) (MLRA 1, 2, (C2) ial Imagery (C9) 2) (LRR A)
Vetland Hyd Vetland Hyd Vetland Hyd Vetland Hyd Primary Indic Surface V High Wai Saturatio Water Ma Sedimen Drift Dep Algal Ma Iron Dep Surface Saturation Surface Water Vater Table Saturation Princludes cap) ~ 7'' La GY Irology Indicators: ators (minimum of c Nater (A1) ter Table (A2) in (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aerial Vegetated Concav vations: ar Present? Present? Soil Cracks (B6) Soil Cracks (B6) Soil Cra	Imagery (B e Surface (res	d: check all that app Water-Sta MLRA Salt Crusi Aquatic Ir Hydrogen Oxidized Presence Recent Ira Stunted o (7) Other (Ex (88) No Depth (ir	ly) ained Leav 1, 2, 4A, i (B11) avertebrate Sulfide O Rhizosphe of Reduct of Reduct r Stressed plain in Re aches): aches):	res (B9) (e and 4B) es (B13) dor (C1) eres along ed Iron (C ion in Tille Plants (D emarks) 15	except Living Ro 4) ed Soils (C D1) (LRR A	Secc 1 	endary Indicato Water-Stained 4A, and 4E Drainage Patte Dry-Season W Saturation Visi Geomorphic P Shallow Aquita FAC-Neutral T Raised Ant Mo Frost-Heave H	Leaves (E 3) erns (B10) /ater Table ible on Aer losition (D2 ard (D3) fest (D5) bunds (D6) iummocks	89) (MLRA 1, 2, (C2) ital Imagery (C9) 2) (LRR A) (D7)
Vetland Hyd Vetland Hyd Vetland Hyd Vetland Hyd Surface V High Wa Saturatio Water Ma Sedimen Drift Dep Algal Ma Iron Dep Surface S Inundatio Sparsely Vater Table Saturation Pr includes cap) ~ 7'' La GY Irology Indicators: ators (minimum of c Nater (A1) ter Table (A2) in (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aerial Vegetated Concav vations: ar Present? Present? Soil Cracks (B6) Soil Cracks (B6) Soil Cra	Imagery (B e Surface (res	d: check all that app Water-Sta MLRA Salt Crusi Aquatic Ir Hydrogen Oxidized Presence Recent In Stunted o 57) Other (Ex 188) No Depth (ir No Depth (ir No Depth (ir	ly) ained Leav 1, 2, 4A, i (B11) avertebrate Sulfide O Rhizosphe of Reduct of Reduct r Stressed plain in Re aches): aches):	res (B9) (e and 4B) es (B13) dor (C1) eres along ed Iron (C ion in Tille Plants (D emarks) 15	except Living Ro 4) ed Soils (C D1) (LRR A	Secc 1 	endary Indicato Water-Stained 4A, and 4E Drainage Patte Dry-Season W Saturation Visi Geomorphic P Shallow Aquita FAC-Neutral T Raised Ant Mo Frost-Heave H	Leaves (E 3) erns (B10) /ater Table ible on Aer losition (D2 ard (D3) fest (D5) bunds (D6) iummocks	89) (MLRA 1, 2, (C2) ital Imagery (C9) 2) (LRR A) (D7)
Vetland Hyd Vetland Hyd Vetland Hyd Vetland Hyd Surface V High Wat Saturatio Water Ma Saturatio Drift Dep Algal Ma Iron Dep Surface Saturation Pr includes cap Describe Red) ~ 7'' La GY Irology Indicators: ators (minimum of c Nater (A1) ter Table (A2) in (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aerial Vegetated Concav vations: ar Present? Present? Soil Cracks (B6) Soil Cracks (B6) Soil Cra	Imagery (B e Surface (res	d: check all that app Water-Sta MLRA Salt Crusi Aquatic Ir Hydrogen Oxidized Presence Recent In Stunted o 57) Other (Ex 188) No Depth (ir No Depth (ir No Depth (ir	ly) ained Leav 1, 2, 4A, i (B11) avertebrate Sulfide O Rhizosphe of Reduct of Reduct r Stressed plain in Re aches): aches):	res (B9) (e and 4B) es (B13) dor (C1) eres along ed Iron (C ion in Tille Plants (D emarks) 15	except Living Ro 4) ed Soils (C D1) (LRR A	Secc 1 	endary Indicato Water-Stained 4A, and 4E Drainage Patte Dry-Season W Saturation Visi Geomorphic P Shallow Aquita FAC-Neutral T Raised Ant Mo Frost-Heave H	Leaves (E 3) erns (B10) /ater Table ible on Aer losition (D2 ard (D3) fest (D5) bunds (D6) iummocks	89) (MLRA 1, 2, (C2) fial Imagery (C9) 2) (LRR A) (D7)
Vetland Hyd Vetland Hyd Vetland Hyd Vetland Hyd Surface V High Wai Saturatio Water Mi Sedimen Drift Dep Algal Ma Iron Dep Surface Saturation Pr includes cap Describe Red) ~ 7'' La GY Irology Indicators: ators (minimum of c Nater (A1) ter Table (A2) in (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aerial Vegetated Concav vations: ar Present? Present? Soil Cracks (B6) Soil Cracks (B6) Soil Cra	Imagery (B e Surface (res	d: check all that app Water-Sta MLRA Salt Crusi Aquatic Ir Hydrogen Oxidized Presence Recent In Stunted o 57) Other (Ex 188) No Depth (ir No Depth (ir No Depth (ir	ly) ained Leav 1, 2, 4A, i (B11) avertebrate Sulfide O Rhizosphe of Reduct of Reduct r Stressed plain in Re aches): aches):	res (B9) (e and 4B) es (B13) dor (C1) eres along ed Iron (C ion in Tille Plants (D emarks) 15	except Living Ro 4) ed Soils (C D1) (LRR A	Secc 1 	endary Indicato Water-Stained 4A, and 4E Drainage Patte Dry-Season W Saturation Visi Geomorphic P Shallow Aquita FAC-Neutral T Raised Ant Mo Frost-Heave H	Leaves (E 3) erns (B10) /ater Table ible on Aer losition (D2 ard (D3) fest (D5) bunds (D6) iummocks	89) (MLRA 1, 2, (C2) fial Imagery (C9) 2) (LRR A) (D7)

Project/Site:	City/County: Sampling Date: 6 Feb 2013
Applicant/Owner: Shell PSR	State: WA Sampling Point: 5P-J2
Investigator(s): P Hamid, B Killer	Section, Township, Range: Section 3, 34 N, 2E
Landform (hillslope, terrace, etc.):	_ Local relief (concave, convex, none): Slope (%): _3
Subregion (LRR): Lat:	Long: Datum: NAD 83
Subregion (LRR): _A Lat:	3% Slopis NWI classification: PEMA
Are climatic / hydrologic conditions on the site typical for this time of y	ear? Yes No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly	y disturbed? Are "Normal Circumstances" present? Yes 🔟 No
Are Vegetation, Soil, or Hydrology naturally pr	roblematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing	g sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No	Is the Sampled Area

Hydric Soil Present? Wetland Hydrology Present	Yes No ? Yes No	Is the Sampled Area within a Wetland? Yes No
Remarks: active catt	e gracing photos 70 soils 71-72 pla	ot

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: /)	Absolute	Dominant Indicator	Dominance Test worksheet:
		<u>Species?</u> Status	Number of Dominant Species That Are OBL, FACW, or FAC:(A)
2			Total Number of Dominant
3		·	Species Across All Strata: (B)
4			Percent of Dominant Species
	0	= Total Cover	That Are OBL, FACW, or FAC: 106 (A/B)
Sapling/Shrub Stratum (Plot size: 5,)		-	Prevalence index worksheet:
1			Total % Cover of: Multiply by:
2			OBL species X1 =
3			FACW species $lb = x^2 = 20$
4			
5			
		= Total Cover	FACU species x 4 =
Herb Stratum (Plot size: 2m)			UPL species x 5 =
1. Juneus effusus	10	FACW	Column Totals: 100 (A) 210 (B)
2. Arrostis capitaris	62	J FAC	Prevalence Index = B/A = 2.9
3. Festuca grundinacea	8	FAC	Hydrophytic Vegetation Indicators:
4. Alopecurus protensis	20	V FAC	1 - Rapid Test for Hydrophytic Vegetation
5			2 - Dominance Test is >50%
6			3 - Prevalence Index is $\leq 3.0^{1}$
7			4 - Morphological Adaptations ¹ (Provide supporting
8			data in Remarks or on a separate sheet)
9			5 - Wetland Non-Vascular Plants ¹
10			Problematic Hydrophytic Vegetation ¹ (Explain)
11			¹ Indicators of hydric soil and wetland hydrology must
		= Total Cover	be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 2 🕋)			
1			Hydrophytic
2			Vegetation (
·····			Present? Yes <u>V</u> No
% Bare Ground in Herb Stratum	<u> </u>	= Total Cover	
Remarks:			1

Profile Desc	ription: (Describ	e to the dep	th needed to docum	nent the i	ndicator	or confirm	n the absend	e of indica	tors.)	
Depth	Matrix			<u>c Features</u>	5					
(inches)	Color (molst)	%	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>		Ren	arks
<u>9-7</u>	10YR 3/2	<u>93</u>	104R4/4	5	<u> </u>	M	10 am	<u><u> </u></u>	100.00	
7-10	2.5 44/2	90	10YR4/4	10	C	M	samby clay	tray till	15%	grand
10-18	104R 3/2	95	7.5YR 3/4	_5	<u> </u>	M	loam			
18-20	1045/1	85	104R4/4	15	<u> </u>	M	sandy loan	<u> </u>		
								CN-I		
						<u></u>	•••••			
	· · · · · · · · · · · · · · · · · · ·									
1		niotion PM	Reduced Matrix, CS			d Sand G	raine ² l	ocation: Di	⇒Dore Lir	ing, M=Matrix.
			LRRs, unless other			u sanu G				Hydric Solls ³ :
Histosol			Sandy Redox (S		,			cm Muck (A		
	bipedon (A2)		Stripped Matrix					ed Parent N	-	-2)
Black Hi	• • •		Loamy Mucky N) (except	MLRA 1)		ery Shallow	-	-
	n Sulfide (A4)		Loamy Gleyed I					ther (Explai		
	Below Dark Surfa	ace (A11)	Depleted Matrix		· ·					
	ark Surface (A12)		Redox Dark Sul				³ Indica	itors of hydi	ophytic ve	getation and
	lucky Mineral (S1)		Depleted Dark S	• •	7)			land hydrol		-
	leyed Matrix (S4)		Redox Depress					ess disturbe		•
	ayer (if present):									
Type:										1
Depth (ind	ches):						Hydric So	ll Present	Yes_	V No
Remarks:										
									<u> </u>	
HYDROLO		•								
-	drology indicator									
Primary India	ators (minimum of	one require	d; check all that apply	<u>/)</u>			<u>Sec</u>	-		or more required)
	Water (A1)		Water-Stai	ned Leave	es (B9) (e	xcept		Water-Stai	ned Leave	s (B9) (MLRA 1, 2,
🔣 High Wa	iter Table (A2)		MLRA	l, 2, 4A, a	nd 4B)			4A, and	4B)	
<u> X</u> Saturatio	on (A3)		Salt Crust	(B11)				Drainage F	atterns (B	10)
Water M	arks (B1)		Aquatic Inv	ertebrates	s (B13)			Dry-Seaso	n Water T	able (C2)
Sedimer	t Deposits (B2)		Hydrogen					Saturation	Visibie on	Aerial Imagery (C9)
	osits (B3)		Oxidized R			Living Roo	ots (C3)	Geomorphi	c Position	(D2)
	at or Crust (B4)		Presence of					Shallow Ac		
	osits (B5)		Recent Iro				6) X	FAC-Neutr		
	Soil Cracks (B6)		Stunted or				• •		-	D6) (LRR A)
	on Visible on Aeria	l Imagen/ /P			-	., (=)(), A	·/	Frost-Heav		
			· · · ·		markay			1103011041		
Field Obser	Vegetated Conca					T				.
Surface Wate		Yes 🗸	No Depth (ind	:hes) 💋	-2 :	her in	small a	والمحصر مع	as th	ershort plat
Water Table		Yes \checkmark	No Depth (ind			- T				
Saturation Pr		1	No Depth (ind		0	_	and Hydrold	av Present	7 Vae	V No
(includes cap		109			Y	- ****		81 10301	. 103_	

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

Remarks:

Project/Site: CRUF	City/County: 5kg	git Sampling [Date: 5P-QI
Applicant/Owner: Shell PSR		State: <u>WA</u> Sampling P	oint: 20 Aug 2013
Investigator(s): Paul Hamidi, Bill Kidder	Section, Township, Re	ange: 3,34N, 2E	and they end
Landform (hillslope, terrace, etc.):	Local relief (concave.		Slone (%): 2-3
Subregion (LRR):	(_ Long:	
Soil Map Unit Name: Courland gr. Loam, 0-32	510.005		
Are climatic / hydrologic conditions on the site typical for this time of ye	STOP 24		<u>rru</u>
Are Vegetation, Soil, or Hydrology significantly	• 1		1
	A ("Normal Circumstances" present? Ye	
Are Vegetation, Soil, or Hydrology naturally pr	•	eeded, explain any answers in Remark	
SUMMARY OF FINDINGS – Attach site map showing	sampling point l	ocations, transects, importa	nt features, etc.
Hydrophytic Vegetation Present? Yes No	In the Complete		
Hydric Soil Present? Yes V Wetland Hydrology Present? Yes No	is the Sampled within a Wetlar	/	
Remarks:			
photos 3-12			1
no upland plot sampled because	wetland spans of	lepression between road o	ind railmood
VEGETATION – Use scientific names of plants.			embankments
Tree Stratum (Plot size: 5 x 15 m) Absolute % Cover		Dominance Test worksheet:	<u>.</u>
1. Salix lucida sep lasiandra 40	Species? Status	Number of Dominant Species	5 (1)
2. Salix scouleriana 5	FACW FAC	That Are OBL, FACW, or FAC:	(A)
3. Salix sitchensis 15	V FACW	Total Number of Dominant	5
4.		Species Across All Strata:	(B)
	= Total Cover	Percent of Dominant Species	100 (17)
Sapling/Shrub Stratum (Plot size: 2 m)	1	That Are OBL, FACW, or FAC:	(A/B)
1. <u>Salix Scouleriana</u> <u>30</u>	V FAC	Prevalence Index worksheet:	
2. <u>Spirgea douglasii</u> 10	- FACW	<u> </u>	Solution by:
3. <u>Cornos altos</u> Lonicera involucrata 10	FAC	FACW species 90 20 x 2 =	
4. <u>Rosa nytkana</u> <u>5</u>	FAC	FAC species 55 $3=$ $x_3 =$	
5. <u>Rubus spectabilis</u> 5	FAC		
Herb Stratum (Plot size: 2 m)	_ = Total Cover	LIPI species	
1. Carex eboyeta 50	V COBL	Column Totals: <u>195</u> (A) 3	95 (B)
2. Phalaris arundinacea 25	J FACW		
3		Prevalence index = B/A = Hydrophytic Vegetation Indicators	
4		1 - Rapid Test for Hydrophytic Ve	
5		$\frac{1}{2}$ 2 - Dominance Test is >50%	geranou
6		$\frac{1}{\sqrt{3}}$ - Prevalence Index is $\leq 3.0^1$	
7		4 - Morphological Adaptations ¹ (F	Provide supporting
8		data in Remarks or on a sepa	rate sheet)
9		5 - Wetland Non-Vascular Plants	1
10		Problematic Hydrophytic Vegetat	
11		¹ Indicators of hydric soil and wetland be present, unless disturbed or proble	hydrology must
Woody Vine Stratum (Plot size: 2 m)	= Total Cover		
1 (Liver	сы:
2		Hydrophytic Vegetation /	
0	= Total Cover	Present? Yes V	·
% Bare Ground in Herb Stratum 30			
Remarks:			

rotile Desc	cription: (Describe	to the der	oth needed to docu	ment the i	indicator	or confirm	n the absence	of indica	Sampling Poin Itors.)	10
Depth	Matrix		Redo	ox Feature	<u>s</u>					
inches)	Color (moist)	%	Color (moist)	%	Type ¹	<u>Loc²</u>	Texture		Remarks	
	34 1		—				<u> </u>	. <u> </u>		
0-6	101R3/2	85	7.5 YR 4/6	<u> 5</u>	<u> </u>	MJ	silt loam			
6-14	10YR 4/2	80	7.5YR 4/6	20	<u> </u>	MP	sitty clay lo	<u>3</u> m		
4-20	10675/1	80	10YR4/4	20	<u> </u>	M	sitty clay ba	<u>~ V</u>	<u>«ry moist</u>	
	Concentration, D=Dep			 S=Covere	d or Coat	ed Sand G			L=Pore Lining,	
lydric Soli	Indicators: (Applic	able to al	I LRRs, unless othe	erwise not	ed.)		Indicato	rs for Pr	oblematic Hyd	tric Solis ³ :
Histoso			Sandy Redox	(S5)			—	Muck (A	•	
	pipedon (A2)		Stripped Matrix		4) (Material (TF2) Dark Surface	(TE12)
	listic (A3)		Loamy Mucky			DUWERA 1)			in in Remarks)	(11 12)
	en Sulfide (A4) ed Below Dark Surfac	ce (A11)	7 Depleted Matr		-,				· ·	
	Dark Surface (A12)		Redox Dark S						rophytic vegeta	
	Mucky Mineral (S1)		Depleted Dark	-	-				logy must be p	
	Gleyed Matrix (S4)		Redox Depres	isions (F8)					ed or problema	
	Layer (if present):								,	
Type:							Hydric Soll	Present	? Yes	No
							I HAULE OOL			
Depth (ii Remarks:							- Hyune Son			
Remarks:										
Remarks:	DGY									
Remarks: IYDROL(Wetland H			ed; check all that ap				<u>Seco</u>	ndary Inc	licators (2 or m	ore required)
Remarks: IYDROLO Wetland H Primary Inc	DGY ydrology indicators			oly) ained Lea	ves (B9) (except	<u>Seco</u>	ndary Inc	licators (2 or m ined Leaves (E	ore required)
Remarks: YDROLO Wetland H Primary Inc Surfac	DGY ydrology indicators licators (minimum of		Water-St MLR/	ained Lea A 1, 2, 4A,	• • •	/except	<u>Seco</u>	ndary Inc Vater-Sta 4A, an	l <u>icators (2 or m</u> ined Leaves (E d 4 B)	ore required)
Remarks: YDROLO Wetland H Primary Inco Surfac High V Satura	DGY ydrology Indicators licators (minimum of e Water (A1) Vater Table (A2) tion (A3)		Water-St MLR/ Salt Crus	ained Leav A 1, 2, 4A, st (B11)	and 4B)	/except	<u>Seco</u> ⊻ ∨ 	ndary Inc Vater-Sta 4A, an)rainage	l <u>icators (2 or m</u> ined Leaves (E d 4B) Patterns (B10)	<u>ore required)</u> 39) (MLRA 1,
Remarks: IYDROLO Wetland H Primary Inc Surfac High W Satura V Water	DGY ydrology Indicators licators (minimum of e Water (A1) Vater Table (A2) tion (A3) Marks (B1)		Water-St MLR/ Salt Crus Aquatic I	ained Lea A 1, 2, 4A, st (B11) nvertebrat	and 4B) es (B13)	except	Secon V V 	ndary Inc Vater-Sta 4A, an Drainage Dry-Seaso	licators (2 or m ined Leaves (E d 4B) Patterns (B10) on Water Table	ore required) 39) (MLRA 1,
Remarks: IYDROLO Wetland H Primary Inc Surfac High V Satura Vater Vater Sedim	DGY <u>ydrology Indicators</u> <u>licators (minimum of</u> e Water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2)		Water-St MLR/ Salt Crus Aquatic I Hydroge	ained Lea A 1, 2, 4A, st (B11) nvertebrat n Sulfide C	and 4B) es (B13) Odor (C1)			ndary Inc Vater-Sta 4A, an Orainage Ory-Sease Saturation	licators (2 or m ined Leaves (E d 4B) Patterns (B10) on Water Table o Visible on Ae	ore required) 39) (MLRA 1, (C2) rial Imagery (C
Remarks: IYDROLO Wetland H Primary Inc Surfac High W Satura Water Water Water Drift D	DGY ydrology Indicators ficators (minimum of e Water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3)		Water-St MLR/ Salt Crus Aquatic I ↓ Hydroge ✔ Oxidized	ained Lea A 1, 2, 4A, st (B11) Invertebrat n Sulfide C I Rhizosph	and 4B) es (B13) Odor (C1) eres alon	g Living Ro	<u>Secon</u> √ v √ c c pots (C3) √ c	ndary Inc Vater-Sta 4A, an Orainage Ory-Seaso Saturation Geomorp	licators (2 or m ined Leaves (E d 4B) Patterns (B10) on Water Table n Visible on Ae hic Position (D2	ore required) 39) (MLRA 1, (C2) rial Imagery (C
Remarks: IYDROLO Wetland H Primary Inc Surfac High W Satura Vater Vater Sedim Algal M	DGY ydrology Indicators licators (minimum of e Water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4)		Water-St MLR/ Salt Crus Aquatic I Hydroge Presence	ained Lea A 1, 2, 4A, st (B11) Invertebrat n Sulfide C I Rhizosph e of Reduc	and 4B) es (B13) Odor (C1) eres alon ced iron (C	g Living Ro C4)	Secondering Se	ndary Inc Vater-Sta 4A, an Orainage Ory-Sease Saturation Seomorp Shallow A	licators (2 or m ined Leaves (E d 4B) Patterns (B10) on Water Table o Visible on Ae	ore required) 39) (MLRA 1, (C2) rial Imagery (C
Remarks:	DGY ydrology Indicators licators (minimum of e Water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5)		Water-St MLR/ Salt Crus Aquatic I Hydroge Presenci Recent I	ained Lear A 1, 2, 4A, st (B11) nvertebrat n Sulfide C i Rhizosph e of Reduc ron Reduc	and 4B) es (B13) Odor (C1) eres alon ced Iron (C tion in Till	g Living Ro	<u>Seco</u> ✓ v ✓ v ✓ c pots (C3) <u>√</u> c So(C3) <u>√</u> c	ndary Inc Vater-Sta 4A, an Orainage Ory-Sease Saturation Seomorp Shallow A CAC-Neut	licators (2 or m ined Leaves (E d 4B) Patterns (B10) on Water Table o Visible on Ae hic Position (D) quitard (D3)	<u>ore required)</u> 39) (MLRA 1, 9 (C2) rial Imagery (C 2)
Remarks: YDROLO Wetland H Primary Inco Burfac High W Satura Vater Vater Algal M Iron Do Surfac	DGY ydrology Indicators licators (minimum of e Water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4)	<u>one requir</u>	Water-St MLR/ Salt Crus Aquatic I Hydroge Presence Recent I Stunted	ained Lear A 1, 2, 4A, st (B11) nvertebrat n Sulfide C i Rhizosph e of Reduc ron Reduc	and 4B) es (B13) Odor (C1) eres alony ced iron (C tion in Till d Plants (g Living Ro C4) Ied Soils (C	<u>Secon</u> √ v √ z pots (C3) <u>√</u> S (C3) <u>√</u> S	ndary Inc Vater-Sta 4A, an Drainage Dry-Sease Saturation Geomorp Shallow A Shallow A CAC-Neu Raised An	licators (2 or m ined Leaves (E d 4B) Patterns (B10) on Water Table n Visible on Ae hic Position (D2 iquitard (D3) tral Test (D5)	ore required) 39) (MLRA 1, 6 (C2) rial Imagery (2) 6 (LRR A)
Remarks: IYDROLO Wetland H Primary Inc Surfac High W Satura Water Sedim Drift D Algal M Iron Do Surfac Inunda	DGY ydrology Indicators licators (minimum of e Water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) se Soil Cracks (B6)	<u>one requir</u> I Imagery (Water-St MLR/ Salt Crus Aquatic I Hydroge Presence Recent I Stunted (B7) Other (E	ained Lear A 1, 2, 4A, st (B11) nvertebrat n Sulfide C Rhizosph e of Reduc ron Reduc or Stresse	and 4B) es (B13) Odor (C1) eres alony ced iron (C tion in Till d Plants (g Living Ro C4) Ied Soils (C	<u>Secon</u> √ v √ z pots (C3) <u>√</u> S (C3) <u>√</u> S	ndary Inc Vater-Sta 4A, an Drainage Dry-Sease Saturation Geomorp Shallow A Shallow A CAC-Neu Raised An	licators (2 or m ined Leaves (E d 4B) Patterns (B10) on Water Table n Visible on Aer hic Position (D2 nquitard (D3) tral Test (D5) nt Mounds (D6)	ore required) 39) (MLRA 1, 6 (C2) rial Imagery ((2) 6 (LRR A)
Remarks: YDROLO Wetiand H Primary Inc Surfac High V Satura Water Vater Sedim Drift D Algal M Iron Do Surfac Inunda Sparse	DGY ydrology Indicators <u>licators (minimum of</u> e Water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) se Soil Cracks (B6) ation Visible on Aerial ely Vegetated Concar	<u>one requir</u> I Imagery (Water-St MLR/ Salt Crus Aquatic I Hydroge Presence Recent I Stunted (B7) Other (E	ained Lear A 1, 2, 4A, st (B11) nvertebrat n Sulfide C Rhizosph e of Reduc ron Reduc or Stresse	and 4B) es (B13) Odor (C1) eres alony ced iron (C tion in Till d Plants (g Living Ro C4) Ied Soils (C	<u>Secon</u> √ v √ z pots (C3) <u>√</u> S (C3) <u>√</u> S	ndary Inc Vater-Sta 4A, an Drainage Dry-Sease Saturation Geomorp Shallow A Shallow A CAC-Neu Raised An	licators (2 or m ined Leaves (E d 4B) Patterns (B10) on Water Table n Visible on Aer hic Position (D2 nquitard (D3) tral Test (D5) nt Mounds (D6)	ore required) 39) (MLRA 1, 6 (C2) rial Imagery ((2) 6 (LRR A)
Remarks: IYDROLO Wetland H Primary Inc Surfac High W Satura Water Vater Sedim Algal M Iron Do Surfac Iron Do Surfac Field Obse	DGY ydrology Indicators e Water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) the Soil Cracks (B6) ation Visible on Aerial ely Vegetated Concar ervations:	<u>one requir</u> I Imagery (Water-St MLR/ Salt Crus Aquatic I Hydroge Oxidized Presence Recent I Stunted (B7) Other (E (B8)	ained Lear A 1, 2, 4A, st (B11) nvertebrat n Sulfide C Rhizosph e of Reduc or Reduc or Stresse xplain in R	and 4B) es (B13) Odor (C1) eres alony ced iron (C tion in Till d Plants (g Living Ro C4) Ied Soils (C	<u>Secon</u> √ v √ z pots (C3) <u>√</u> S (C3) <u>√</u> S	ndary Inc Vater-Sta 4A, an Drainage Dry-Sease Saturation Geomorp Shallow A Shallow A CAC-Neu Raised An	licators (2 or m ined Leaves (E d 4B) Patterns (B10) on Water Table n Visible on Aer hic Position (D2 nquitard (D3) tral Test (D5) nt Mounds (D6)	ore required) 39) (MLRA 1, 6 (C2) rial Imagery ((2) 6 (LRR A)
Remarks: IYDROLO Wetiand H Primary Inc Surfac High V Satura Vater Sedim Drift D Algal M Iron Do Surfac Surface W	DGY ydrology Indicators e Water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) the Soil Cracks (B6) ation Visible on Aerial ely Vegetated Concar ervations:	one requir I Imagery (ve Surface	Water-St MLR/ Salt Crus Aquatic I Hydroge Presence Recent I Stunted (B7)Other (E (B8) Depth (Depth (ained Lear A 1, 2, 4A, st (B11) nvertebrat n Sulfide C Rhizosph e of Reduc or Stresse xplain in R inches): inches):	and 4B) es (B13) Odor (C1) eres alon ced Iron (C tion in Till d Plants (cemarks)	g Living Ro C4) led Soils (C D1) (LRR /	<u>Secon</u> V V 	ndary Inc Vater-Sta 4A, an Drainage Dry-Sease aturation Seomorpi Shallow A Gaised Al Frost-Hea	licators (2 or m ined Leaves (E d 4B) Patterns (B10) on Water Table hic Position (D2 Aquitard (D3) tral Test (D5) ht Mounds (D6) ave Hummocks	<u>ore required)</u> 39) (MLRA 1, 6 (C2) fial Imagery (C 2) 9 (LRR A) (D7)
Remarks: IYDROLO Wetland H Primary Inc Surfac High W Satura Water Sedim Drift D Algal M Iron Du Surfac Surface W Water Tab Saturation	DGY ydrology Indicators <u>licators (minimum of</u> 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) ation Visible on Aerial ely Vegetated Concar ervations: ater Present? le Present? Present?	one requir I Imagery (ve Surface Yes	Water-St MLR/ Salt Crus Aquatic I Hydroge Presence Recent I Stunted (B7)Other (E (B8) Depth (Depth (ained Lear A 1, 2, 4A, st (B11) nvertebrat n Sulfide C Rhizosph e of Reduc or Reduc or Stresse xplain in R	and 4B) es (B13) Odor (C1) eres alony ced iron (C tion in Till d Plants (g Living Ro C4) led Soils (C D1) (LRR /	<u>Secon</u> √ v √ z pots (C3) <u>√</u> S (C3) <u>√</u> S	ndary Inc Vater-Sta 4A, an Drainage Dry-Sease aturation Seomorpi Shallow A Gaised Al Frost-Hea	licators (2 or m ined Leaves (E d 4B) Patterns (B10) on Water Table hic Position (D2 Aquitard (D3) tral Test (D5) ht Mounds (D6) ave Hummocks	ore required) 39) (MLRA 1, 6 (C2) rial Imagery ((2) 6 (LRR A)
Remarks: YDROLO Wetland H Primary Inc Surfac High W Satura Water Satura Drift D Algal M Iron Do Surface Field Obse Surface W Water Tab Saturation	DGY ydrology Indicators <u>licators (minimum of</u> e Water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) se Soil Cracks (B6) ation Visible on Aerial ely Vegetated Concar ervations: ater Present? le Present?	I Imagery (ve Surface Yes Yes Yes	Water-St MLR/ Salt Crus Aquatic I Voxidized Presence Recent I Stunted (B7) Other (E (B8) No Depth (No Depth (ained Lear A 1, 2, 4A, st (B11) nvertebrat n Sulfide C Rhizosph e of Reduc or Reduc or Stresse xplain in R 	and 4B) es (B13) Door (C1) eres alon ced Iron (C tion in Till d Plants (temarks)	g Living Ro C4) led Soils (C D1) (LRR /	<u>Secon</u> √ V √ U C _ C	ndary Inc Vater-Sta 4A, an Drainage Dry-Sease aturation Seomorpi Shallow A Gaised Al Frost-Hea	licators (2 or m ined Leaves (E d 4B) Patterns (B10) on Water Table hic Position (D2 Aquitard (D3) tral Test (D5) ht Mounds (D6) ave Hummocks	<u>ore required)</u> 39) (MLRA 1, 6 (C2) fial Imagery (C 2) 9 (LRR A) (D7)
Remarks: IYDROLO Wetland H Primary Inc — Surfac — High W Vater Vater — Sedim — Orift D — Algal M — Algal M — Iron Do Surface W Water Tab Saturation (includes c Describe F	DGY ydrology Indicators <u>ficators (minimum of</u> e Water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) the Soil Cracks (B6) ation Visible on Aerial ely Vegetated Concar ervations: fater Present? le Present? Present? Present?	I Imagery (ve Surface Yes Yes Yes	Water-St MLR/ Salt Crus Aquatic I Voxidized Presence Recent I Stunted (B7) Other (E (B8) No Depth (No Depth (ained Lear A 1, 2, 4A, st (B11) nvertebrat n Sulfide C Rhizosph e of Reduc or Reduc or Stresse xplain in R 	and 4B) es (B13) Door (C1) eres alon ced Iron (C tion in Till d Plants (temarks)	g Living Ro C4) led Soils (C D1) (LRR /	<u>Secon</u> √ V √ U C _ C	ndary Inc Vater-Sta 4A, an Drainage Dry-Sease aturation Seomorpi Shallow A Gaised Al Frost-Hea	licators (2 or m ined Leaves (E d 4B) Patterns (B10) on Water Table hic Position (D2 Aquitard (D3) tral Test (D5) ht Mounds (D6) ave Hummocks	<u>ore required)</u> 39) (MLRA 1, 6 (C2) fial Imagery (C 2) 9 (LRR A) (D7)
Remarks: IYDROLO Wetland H Primary Inc Surfac High W Satura Water Satura Drift D Algal M Iron Do Surface Field Obse Surface W Water Tab Saturation	DGY ydrology Indicators <u>ficators (minimum of</u> e Water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) the Soil Cracks (B6) ation Visible on Aerial ely Vegetated Concar ervations: fater Present? le Present? Present? Present?	I Imagery (ve Surface Yes Yes Yes	Water-St MLR/ Salt Crus Aquatic I Voxidized Presence Recent I Stunted (B7) Other (E (B8) No Depth (No Depth (ained Lear A 1, 2, 4A, st (B11) nvertebrat n Sulfide C Rhizosph e of Reduc or Reduc or Stresse xplain in R 	and 4B) es (B13) Door (C1) eres alon ced Iron (C tion in Till d Plants (temarks)	g Living Ro C4) led Soils (C D1) (LRR /	<u>Secon</u> √ V √ U C _ C	ndary Inc Vater-Sta 4A, an Drainage Dry-Sease aturation Seomorpi Shallow A Gaised Al Frost-Hea	licators (2 or m ined Leaves (E d 4B) Patterns (B10) on Water Table hic Position (D2 Aquitard (D3) tral Test (D5) ht Mounds (D6) ave Hummocks	<u>ore required)</u> 39) (MLRA 1, 6 (C2) fial Imagery (C 2) 9 (LRR A) (D7)

Project/Site: <u>CRVF</u> Applicant/Owner: <u>Shell</u> P5 R	City/County: What com Sampling Date: 15 May 2013
Investigator(s): Hamidi, Kidder	State: WA Sampling Point: <u>Sr-R'</u> Section, Township, Range: 3, 34N, 2E
Landform (hillslope, terrace, etc.):	Local relief (concave, convex, none): Slope (%): Z
Subragion (LBP): A	
Soil Map Unit Name: Bow gravely loam	NWI classification: <u><u>JEMB</u></u>
Are climatic / hydrologic conditions on the site typical for this time of Are Vegetation, Soil, or Hydrology significa	of year? Yes No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology naturally	y problematic? N_0 (If needed, explain any answers in Remarks.)
Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes No	is the Sampled Area
Wetland Hydrology Present? Yes V No Remarks: photo: 47-49	
VEGETATION – Use scientific names of plants.	

		Dominant Indi	
Tree Stratum (Plot size:)	<u>% Cover</u>	Species? Sta	
1			That Are OBL, FACW, or FAC: (A)
2			Total Number of Dominant
3.			Species Across All Strata: (B)
4.			
	6	= Total Cover	Percent of Dominant Species
Sapling/Shrub Stratum (Plot size:5m)			That Are OBL, FACW, or FAC: 106 (A/B)
1			Prevalence Index worksheet:
2			Total % Cover of: Multiply by:
			OBL species x 1 =
3			FACW species x 2 =
4			FAC species 95 x 3 = 265
5			FACU species x 4 =
2	=	= Total Cover	
Herb Stratum (Plot size:Z m)	-		
1. <u>Alopecurus pratensis</u>		V FI	
2. Trifolium repens	<u> </u>	FA	
3. Festuca arundinacea	10	FA	C Hydrophytic Vegetation Indicators:
4. Holeus lanatus	20 15	FA	
5. Agrostis capillaris	2015	FA	
6. <u>Poa pratense</u>	20	V FA	
7. Vicia sativa		UP	
		<u></u>	4 - Morphological Adaptations" (Provide supporting
8. Lotus corniculatus		<u>Fa</u>	
9			5 - Wetland Non-Vascular Plants ¹
10			Problematic Hydrophytic Vegetation ¹ (Explain)
11			¹ Indicators of hydric soil and wetland hydrology must
_	99 =	Total Cover	be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 2 m)			
1			Hydrophytic
			Vegetation (
	6	Total Cover	Present? Yes V No
% Bare Ground in Herb Stratum	=	i utai Cover	
Remarks:			

Profile Desc	ription: (Describe	to the dep	oth needed to docur			or confirm	the absence	of indicators.)
Depth	Matrix		Redo	x Feature		<u> </u>	Tablana	Domodra
(inches)	Color (moist)	- <u>%</u> -	Color (moist) 10YR 3/3	2	Type ¹		<u>Texture</u>	Remarks
0-5	10YR3/1.5				<u> </u>	<u> </u>	loam	10% gravel
5-10	10YR 3/1.5	95	10YR3/3	5	<u> </u>	<u>M</u>	loam	20 % gravel
10-18	5 5/1.5	80	7.5 YR 4/6	20	<u> </u>	<u>M</u>	Sandy loam	10% gravel
							·	
			· <u> </u>					
						· <u> </u>		
						·		
			=Reduced Matrix, CS			ed Sand Gi		cation: PL=Pore Lining, M=Matrix. rs for Problematic Hydric Solls ³ :
-		able to all	LRRs, unless othe		lea.)			
Histosol	(A1) bipedon (A2)		Sandy Redox (n Muck (A10) I Parent Material (TF2)
Black Hi			Loamy Mucky I		1) (excep	t MLRA 1)		y Shallow Dark Surface (TF12)
	n Sulfide (A4)		Loamy Gleyed					er (Explain in Remarks)
Depleted	d Below Dark Surfac	æ (A11)	Depleted Matrix					
	ark Surface (A12)		Redox Dark Su					ors of hydrophytic vegetation and
	Nucky Mineral (S1)		Depleted Dark	•	•			nd hydrology must be present, s disturbed or problematic.
	Bleyed Matrix (S4)		Redox Depress	1011S (FO)				
Type:	Layor (in prosont).							
Depth (inc	ches):	<u> </u>					Hydric Soil	Present? Yes No
Remarks:		-						
rtomanto.								
HYDROLO								
	drology Indicators:						_	
		one require	d; check all that appl					ndary Indicators (2 or more required)
	Water (A1)		Water-Sta		• • •	except	<u>v</u> v	Vater-Stained Leaves (B9) (MLRA 1, 2,
	iter Table (A2)		MLRA Salt Crust	1, 2, 4A,	and 4B)			4 A, and 4B) Drainage Patterns (B10)
Saturatio	larks (B1)		Sait Crust	•	ae (813)			Dry-Season Water Table (C2)
	nt Deposits (B2)		Hydrogen			12		aturation Visible on Aerial Imagery (C9)
	posits (B3)					Living Roo		Geomorphic Position (D2)
	at or Crust (B4)		Presence					shallow Aguitard (D3)
	oosits (B5)					ed Soils (Ce	5)F	AC-Neutral Test (D5)
Surface	Soil Cracks (B6)		Stunted or	r Stressed	d Plants ([01) (LRR A) _ R	aised Ant Mounds (D6) (LRR A)
Inundatio	on Visible on Aerial	Imagery (B	7) Other (Ex	plain in R	emarks)		F	rost-Heave Hummocks (D7)
Sparsely	Vegetated Concav	e Surface ((B8)					
Field Obser			1					
Surface Wate	er Present?	(es						
Water Table	Present?			ches):				1
Saturation P		(es	No V Depth (in	ches):		Wetl	and Hydrolog	y Present? Yes _V No
<u>(includes cap</u> Describe Red		n daude, m	onitoring well, aerial	photos, n	revious in	spections)	if available:	
2000/120110		, gauge,		p				
Remarks:							<u></u>	
<u> </u>								

Project/Site: CRUF		City/Cou	nty: <u> </u>	tic	Sampling Date: 15 May 2013
Applicant/Owner: Shell PSR				State:	_ Sampling Point: <u>5P-RZ</u>
Investigator(s): Hamili Kinder		Section,	Township, Ra		
Landform (hillslope, terrace, etc.):					
Subregion (LRR):	Lat:		•	Long:	Datum: NAD 83
Soil Map Unit Name: Bow gravelly)	nom			NWI classifi	cation: VPLAND
Are climatic / hydrologic conditions on the site typical for this					
Are Vegetation, Soil, or Hydrology sig					
Are Vegetation, Soil, or Hydrology na			,		•
SUMMARY OF FINDINGS – Attach site map s				-	·
Hydrophytic Vegetation Present? Yes Yes No					·, ······
Hydric Soil Present? Yes No			the Sampied		
Wetland Hydrology Present? Yes No		w	ithin a Wetla	nd? Yes	NoX
Remarks:					
				photos	50-52
VEGETATION – Use scientific names of plant	s.	-			
	Absolute % Cover		Int Indicator S? Status	Dominance Test worl	
1.	70 COVEL	<u>. Shacia:</u>	<u>otatus</u>	Number of Dominant S That Are OBL, FACW,	
2					、 ,
3				Total Number of Domin Species Across All Stra	**
4					,
Carling (Charle Charles (Charles San	_0	= Total (Cover	Percent of Dominant S That Are OBL, FACW,	
Sapling/Shrub Stratum (Plot size: 5 m)				Prevalence Index wor	rksheet:
1 2				Total % Cover of:	Multiply by:
3				OBL species	x1=
4				FACW species	x2=
5				FAC species 92	
9		= Total (Cover	FACU species	×4=
<u>Herb Stratum</u> (Plot size: $\chi \sim$)	6		UPL	UPL species Column Totals:	$\frac{1}{5}$ x 5 = $\frac{1}{346}$ (B)
1. <u>Vicia sativa</u> 2. <u>Vicia hirsuta</u>	8		NL		(*) (*)
3. Alopecurus pratensis	20		FAC		x = B/A = #3.26
4. <u>Pea pratense</u> 40	36 30	-	FAC	Hydrophytic Vegetati	
5. Initolium repens	20	Ĵ	FAC	$\sqrt{\frac{1 - \text{Rapid Test for }}{2 - \text{Dominance Test}}}$	Hydrophytic Vegetation
6. Festuca arundinacea	10		FAC	3 - Prevalence Ind	
7. Holcus labatus	2		FAC		Adaptations ¹ (Provide supporting
8				data in Remark	s or on a separate sheet)
9				5 - Wetland Non-V	ascular Plants ¹
10					phytic Vegetation ¹ (Explain)
11				¹ Indicators of hydric so be present, unless dist	il and wetland hydrology must
Woody Vine Stratum (Plot size: 2 m)	106	= Total C	over		
1				I had an a second	
2.				Hydrophytic Vegetation	j l
	• •	- Total C	over	Present? Ye	s No
% Bare Ground in Herb Stratum0					
Remarks:					

SOIL						Sampling Point: SP-R2
Profile Description: (Describe to the dep	th needed to docum	ent the In	dicator	or confirm	the absence o	of indicators.)
Depth Matrix		Features				
(inches) Color (moist) %	Color (moist)	%	Type ¹	Loc ²		Remarks
0-9 10483/2 100					Loan	158 gravel
9-14 104R 4/25 100					Loam.	15% gravel
14-18 25548 \$12 900	104R 4/6	10	Ċ	<u> </u>	Loan	2020 grund
					·	
¹ Type: C=Concentration, D=Depletion, RM	=Reduced Matrix, CS	=Covered	or Coate	d Sand Gr		ation: PL=Pore Lining, M=Matrix.
Hydric Soil indicators: (Applicable to all	LRRs, unless other	wise note	d.)		Indicator	s for Problematic Hydric Soils ³ :
Histosol (A1)	Sandy Redox (S	•				Muck (A10)
Histic Epipedon (A2)	Stripped Matrix					Parent Material (TF2)
Black Histic (A3)	Loamy Mucky M			MLRA 1)		Shallow Dark Surface (TF12)
Hydrogen Sulfide (A4)	Loamy Gleyed M					r (Explain in Remarks)
Depleted Below Dark Surface (A11) Thick Dark Surface (A12)	Depleted Matrix Redox Dark Sur				³ Indicator	s of hydrophytic vegetation and
Sandy Mucky Mineral (S1)	Depleted Dark S		n			d hydrology must be present,
Sandy Gleyed Matrix (S4)	Redox Depressi		,			disturbed or problematic.
Restrictive Layer (if present):						
Type:						
Depth (inches):					Hydric Soil F	Present? Yes No K
Remarks:					ingune com	
HYDROLOGY						
Wetland Hydrology Indicators:	di abaali all that anni	•			Secon	dary Indicators (2 or more required)
Primary Indicators (minimum of one require			(20) (1400 A.	
Surface Water (A1)	Water-Stai			хсерт	vva	ater-Stained Leaves (B9) (MLRA 1, 2,
High Water Table (A2)		1, 2, 4A, ar	na 48)		D -	4A, and 4B)
Saturation (A3)	Salt Crust	• •	(042)			ainage Patterns (B10)
Water Marks (B1)	Aquatic Inv		· ·			y-Season Water Table (C2)
Sediment Depösits (B2)	Hydrogen \$			Lister - Dee		Ituration Visible on Aerial Imagery (C9)
Drift Deposits (B3)	Oxidized R	•	-	A 100 Test		eomorphic Position (D2)
Algal Mat or Crust (B4)	Presence of					allow Aquitard (D3)
Iron Deposits (B5)	Recent Iron					C-Neutral Test (D5)
Surface Soil Cracks (B6)	Stunted or			1) (LKK A		aised Ant Mounds (D6) (LRR A)
Inundation Visible on Aerial Imagery (B		an n ken	narks)		Fro	ost-Heave Hummocks (D7)
Sparsely Vegetated Concave Surface (D0)					
Field Observations:						
Surface Water Present? Yes		:hes):		_		
Water Table Present? Yes		:hes):		_		\sim
Saturation Present? Yes (includes capillary fringe) Describe Recorded Data (stream gauge, m	No <u>X</u> Depth (inc	•				Present? Yes No

Remarks:

Project/Site: CRUF City/County: Skagit Applicant/Owner:Shell PJR State: Investigator(s):, L;, Kidder Section, Township, Range:344	WA Sampling Point: 5P - 5.1
Investigator(s): Hamidi, Kidder Section Township Dance: 3 34	
	(N, 2E
Landform (hillslope, terrace, etc.):	concave Slope (%): 2%
Subregion (LRR): A Lat: Long:	Datum: A/AD 83
soil Map Unit Name: Bow gravely 10am NV	Wi classification: PEM next to PEO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes $$ No (If no, ex	
Are Vegetation, Soil, or Hydrology significantly disturbed? N_0 Are "Normal Circum	
Are Vegetation, Soil, or Hydrology naturally problematic? N_o (If needed, explain a	
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, tr	
Hydrophytic Vegetation Present? Yes No	
Hydric Soil Present? Ves / No Is the Sampled Area	1
Wetland Hydrology Present? Yes No within a Wetland?	Yes No
Remarks: photos 40-43 plot located in Fenced grazed field. Part	t of larger Forested wetland
complex inside refinery tence	
VEGETATION – Use scientific names of plants.	
Absolute Dominant Indicator Dominance	Test worksheet:
<u>Tree Stratum</u> (Plot size: 10 m) 1. <u>lopulus</u> <u>fremuloides</u> <u>7</u> <u>J</u> <u>Status</u> Number of Dominance Tree Stratum (Plot size: 10 m) Status That Are OBL	ominant Species
	L, FACW, or FAC: 2 (A)
	r of Dominant
3 Species Acro	biss All Strata:3(B)
4 Percent of Do	ominant Species
Sapling/Shrub Stratum (Plot size: 2 m)	L, FACW, or FAC: <u>66</u> (A/B)
I	ndex worksheet:
Z	Cover of: Multiply by:
3 OBL species	
7	
5 FAC species FACU species	
2 Vicin string	2021
	nce Index = B/A = 73.8 1
A Astronomic destruction 34	Vegetation Indicators:
	Test for Hydrophytic Vegetation
6 Requestly as side	nance Test is >50%
- Holey hast	lence Index is ≤3.0 ¹
	nological Adaptations ¹ (Provide supporting n Remarks or on a separate sheet)
	nd Non-Vascular Plants ¹
	atic Hydrophytic Vegetation ¹ (Explain)
11 ¹ Indicators of I	hydric soil and wetland hydrology must
Woody Vine Stratum (Plot size: 2,m))	nless disturbed or problematic.
1	
2 Hydrophytic Vegetation	/
O = Total Cover Present?	Yes No
% Bare Ground in Herb Stratum	

		the second se	x Feature		Loc ²	T	e Remarks
(inches) Color (moist)	<u>%</u>	Color (moist)	- <u>%</u> _ 30	<u>Type</u> ¹	1. A. A. A.	Textur	
59-165 511	70	104R 5/6			<u>-M</u>	loam	10% gravel
6-9 10YR3/1	95	10YR 4/4	5	C	M,P	logn	20% grave
¹ Type: C=Concentration, D=Dep Hydric Soil Indicators: (Applic Histosol (A1)	oletion, RM cable to all	=Reduced Matrix, C LRRs, uniess othe Sandy Redox (rwise not	d or Coat ed.)	ed Sand Gr	indi	² Location: PL=Pore Lining, M=Matrix icators for Problematic Hydric Soils 2 cm Muck (A10)
 Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) 		Stripped Matrix Loamy Mucky Loamy Gleyed	Mineral (F Matrix (F2		ot MLRA 1)		Red Parent Material (TF2) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)
 Depleted Below Dark Surface Thick Dark Surface (A12) Sandy Mucky Mineral (S1) 	ce (A11)	✓ Depleted Matri ✓ Redox Dark Su ─ Depleted Dark	urface (F6) Surface (I	F7)		١	licators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
Sandy Gleyed Matrix (S4)		Redox Depres	sions (F8)				
Restrictive Layer (if present):		8 - C - B					
Type:						Hydric	Soli Present? Yes No _
Depth (inches):							
Remarks:							
Remarks: HYDROLOGY Wetland Hydrology Indicators							
Remarks: IYDROLOGY Wetland Hydrology Indicators Primary Indicators (minimum of						<u>\$</u>	Secondary Indicators (2 or more requi
Remarks: HYDROLOGY Wetland Hydrology Indicators Primary Indicators (minimum of Surface Water (A1)		Water-St	ained Leav		except	<u>\$</u>	Vater-Stained Leaves (B9) (MLR
Remarks: HYDROLOGY Wetland Hydrology Indicators Primary Indicators (minimum of Surface Water (A1) High Water Table (A2)		Water-Sta MLRA	ained Leav 1, 2, 4A,		except	§	Water-Stained Leaves (B9) (MLR, 4A, and 4B)
Remarks: HYDROLOGY Wetland Hydrology Indicators Primary Indicators (minimum of 		Water-Sta MLRA Salt Crus	ained Leav \ 1, 2, 4A, it (B11)	and 4B)	except	<u>\$</u> 	 Water-Stained Leaves (B9) (MLR. 4A, and 4B) Drainage Patterns (B10)
Remarks: HYDROLOGY Wetland Hydrology Indicators Primary Indicators (minimum of 		Water-Sta MLRA Salt Crus Aquatic II	ained Leav A 1, 2, 4A, It (B11) nvertebrat	and 4B) es (B13)	except	<u>§</u> <u>§</u>	 Water-Stained Leaves (B9) (MLR. 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2)
Remarks: HYDROLOGY Wetland Hydrology Indicators Primary Indicators (minimum of 		Water-St MLRA Salt Crus Aquatic II Hydrogen	ained Leav A 1, 2, 4A, It (B11) nvertebrat n Sulfide C	and 4B) es (B13) Odor (C1)		<u>א</u> 	Water-Stained Leaves (B9) (MLR 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Image
Remarks: HYDROLOGY Wetland Hydrology Indicators Primary Indicators (minimum of		Water-St MLRA Salt Crus Aquatic II Hydrogea Oxidized	ained Leav A 1, 2, 4A, it (B11) nvertebrat n Sulfide C Rhizospho	and 4B) es (B13) Odor (C1) eres along	g Living Ro	<u>א</u> 	 Water-Stained Leaves (B9) (MLR. 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2)
Remarks: HYDROLOGY Wetland Hydrology Indicators Primary Indicators (minimum of		Water-St MLRA Salt Crus Aquatic II Hydrogen Oxidized Presence	ained Leav A 1, 2, 4A, It (B11) nvertebrat n Sulfide C Rhizosph e of Reduc	and 4B) es (B13) Odor (C1) eres along red Iron (C	g Living Roo C4)	 - - ots (C3)	 ✓ Water-Stained Leaves (B9) (MLR. 4A, and 4B) _ Drainage Patterns (B10) _ Dry-Season Water Table (C2) _ Saturation Visible on Aerial Image ✓ Geomorphic Position (D2)
Remarks: HYDROLOGY Wetland Hydrology Indicators Primary Indicators (minimum of		Water-Sta MLRA Salt Crus Aquatic In Hydrogen Oxidized Presence Recent In	ained Leav A 1, 2, 4A, it (B11) nvertebrate n Sulfide C Rhizosphe e of Reduct ron Reduct	and 4B) es (B13) Odor (C1) eres along ed Iron (C tion in Till	g Living Ro	<u>)</u> - - ots (C3) - - 6)	 Water-Stained Leaves (B9) (MLR. 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Image Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Remarks: HYDROLOGY Wetland Hydrology Indicators Primary Indicators (minimum of	:: one require	Water-St: MLRA Salt Crus Salt Crus Aquatic II Hydrogen ✓ Oxidized Presence Recent In Stunted c Stunted c Other (E)	ained Leav A 1, 2, 4A, it (B11) nvertebration Sulfide C Rhizospho e of Reduct ron Reduct or Stressed	and 4B) es (B13) Odor (C1) eres along ed Iron (C tion in Till d Plants (g Living Roo C4) ed Soils (Cl	<u>)</u> - - ots (C3) - - 6)	 Water-Stained Leaves (B9) (MLR. 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Image Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5)
Remarks: HYDROLOGY Wetland Hydrology Indicators Primary Indicators (minimum of 	:: one require	Water-St: MLRA Salt Crus Salt Crus Aquatic II Hydrogen ✓ Oxidized Presence Recent In Stunted c Stunted c Other (E)	ained Leav A 1, 2, 4A, it (B11) nvertebration Sulfide C Rhizospho e of Reduct ron Reduct or Stressed	and 4B) es (B13) Odor (C1) eres along ed Iron (C tion in Till d Plants (g Living Roo C4) ed Soils (Cl	<u>)</u> - - ots (C3) - - 6)	 Water-Stained Leaves (B9) (MLR. 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Image Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Remarks: HYDROLOGY Wetland Hydrology Indicators Primary Indicators (minimum of	:: one require I Imagery (f ve Surface	Water-St: MLRA Salt Crus Aquatic II Hydroger ✓ Oxidized Presence Recent II Stunted c Stunted c Other (E: (B8)	ained Leav A 1, 2, 4A, it (B11) nvertebration Sulfide C Rhizospho e of Reduct for Reduct for Reduct for Stressed xplain in R	and 4B) es (B13) Odor (C1) eres along ed Iron (C tion in Till d Plants (emarks)	g Living Rod 24) ed Soils (C D1) (L RR A	<u>)</u> - - ots (C3) - - 6)	 Water-Stained Leaves (B9) (MLR. 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Image Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Remarks: HYDROLOGY Wetland Hydrology Indicators Primary Indicators (minimum of 	:: one require I Imagery (I ve Surface Yes	Water-St MLRA Salt Crus Aquatic In Hydrogen Hydrogen Recent In Recent In Recent In Stunted (5) (B8) Other (E)	ained Leav 1, 2, 4A, it (B11) nvertebrate n Sulfide C Rhizosphi e of Reduct or Reduct or Stressed xplain in R 	and 4B) es (B13) Odor (C1) eres along ed Iron (C tion in Till d Plants (emarks)	g Living Rod C4) ed Soils (Cd D1) (L RR A	<u>)</u> - - ots (C3) - - 6)	 Water-Stained Leaves (B9) (MLR. 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Image Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Remarks: HYDROLOGY Wetland Hydrology Indicators Primary Indicators (minimum of 	:: one require I Imagery (f ve Surface	Water-St: MLRA Salt Crus Aquatic II Hydrogen Oxidized Presence Recent In Stunted c Other (E: (B8) Depth (i	ained Leav A 1, 2, 4A, it (B11) nvertebration Sulfide C Rhizospho e of Reduct for Reduct for Reduct for Stressed xplain in R	and 4B) es (B13) Odor (C1) eres along ed Iron (C tion in Till d Plants (emarks)	g Living Rod C4) ed Soils (C D1) (L RR A	- - - ots (C3) - 6) - - - - - -	 Water-Stained Leaves (B9) (MLR. 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Image Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Remarks: HYDROLOGY Wetland Hydrology Indicators Primary Indicators (minimum of 	:: one require l Imagery (f ve Surface Yes Yes Yes	Water-St: MLRA Salt Crus Aquatic In Hydrogen Oxidized Presence Recent In Stunted of B8) Other (E) No No No No Depth (i No	ained Leav A 1, 2, 4A, it (B11) nvertebrate n Sulfide C Rhizosphi e of Reduct or Reduct or Stressed xplain in R inches): inches):	and 4B) es (B13) Odor (C1) eres along ed Iron (C tion in Till d Plants (emarks)	g Living Rod C4) ed Soils (Cd D1) (LRR A	- - - ots (C3) - 6) - - - - - - - - - - - - - - - - -	✓ Water-Stained Leaves (B9) (MLR. 4A, and 4B)
Remarks: HYDROLOGY Wetland Hydrology Indicators Primary Indicators (minimum of 	I Imagery (F ve Surface Yes Yes Yes m gauge, n	Water-St: MLRA Salt Crus Aquatic II Hydrogen Oxidized Presence Recent In Stunted of B7) Mo Depth (i No Depth (i No	ained Leav A 1, 2, 4A, it (B11) nvertebrate n Sulfide C Rhizosphe of Reduce or Reduce or Stressee xplain in R inches): inches): inches): inches):	and 4B) es (B13) Odor (C1) eres along ed Iron (C tion in Till d Plants (emarks) previous in	g Living Rod C4) ed Soils (CC D1) (LRR A wet nspections)	- -	✓ Water-Stained Leaves (B9) (MLR. 4A, and 4B)

6	
Project/Site: CRUF	_ City/County: _ Skagit Sampling Date: 15 May 2013
Applicant/Owner: Shell PSR	State: WA Sampling Point: 5P-52
Investigator(s): Hamidi, Kidder	Section, Township, Range: <u>3, 34N, 2</u>
Landform (hillslope, terrace, etc.):	_ Local relief (concave, convex, none): _ دوردماد Slope (%): _2
Subregion (LRR): A Lat: Soil Map Unit Name: Bow gravely 10am	
Soil Map Unit Name: Bow growelly 10am	NWI classification:VPLAND
Are climatic / hydrologic conditions on the site typical for this time of y	rear? Yes√ No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly	y disturbed? № Are "Normal Circumstances" present? Yes No
Are Vegetation, Soil, or Hydrology naturally p	roblematic? N_{\bullet} (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing	g sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No	

Hydric Soil Present? Wetland Hydrology Present?	Yes No Yes No Yes No	is the Sampled Area within a Wetland?	Yes No
Remarks: photos 44-46			

VEGETATION - Use scientific names of plants.

	Absolute		t Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0 m</u>)		Species?		Number of Dominant Species
1				That Are OBL, FACW, or FAC: (A)
2				
3				Total Number of Dominant Species Across All Strata:
4				Species Across All Strata: (B)
				Percent of Dominant Species
Sapling/Shrub Stratum (Plot size: 5 m)		= Total Co	over	That Are OBL, FACW, or FAC: 100 (A/B)
				Prevalence Index worksheet:
1			·	Total % Cover of: Multiply by:
2				
3				OBL species x 1 =
4				FACW species $x 2 = $
5	_			FAC species $\frac{\partial 2}{\partial 2}$ x 3 = $\frac{246}{2}$
_	0	= Total Co	ver	FACU species x 4 =
Herb Stratum (Plot size: <u>2 m</u>)				UPL species <u>23</u> x 5 = <u>115</u>
1 Pestuca arundimicea	20	<u> </u>	FAC	Column Totals: <u>106</u> (A) <u>365</u> (B)
2. Vizia sativa		1963	UPL	Prevalence index = B/A = #3,44
3. Taraxacum officinale			FACU	Hydrophytic Vegetation Indicators:
4. Vicia hirsta	8		VPL	
5Trifolium repens	2		FAC	
6. Holcus lanatus	10		FAC	▲ 2 - Dominance Test is >50%
7. Poa pratensis	50	<u> </u>	FAC	3 - Prevalence Index is ≤3.0 ¹
8		_ <u>v</u>	The	 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
9				5 - Wetland Non-Vascular Plants ¹
10			·	Problematic Hydrophytic Vegetation ¹ (Explain)
11				¹ Indicators of hydric soil and wetland hydrology must
	106			be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size:2m)		= Total Cov	/er	
1		<u> </u>		Hydrophytic
2				Vegetation Present? Yes <u>V</u> No
% Bare Ground in Herb Stratum0	<u> </u>	= Total Cov	/er	
Remarks:		<u> </u>		

Profile Desc	ription: (Describe	to the dep	th needed to docum		maioacor			·
Depth	Matrix			<u>k Feature</u>		Loc ²	Texture	Remarks
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	<u>Type'</u>			
0-12	10 TR3/2	100						15% gravel
12-16	2,5Y 5/ 1	85	10YR 4/6	15	<u> </u>	<u>M</u>	silt bam	-
1.12							00	
	·····						<u> </u>	
						<u> </u>	<u> </u>	
						<u> </u>		
							·	
¹ Tvpe: C=Co	oncentration, D=Dep	letion, RM=	=Reduced Matrix, CS	S=Covere	d or Coate	d Sand G	rains. ²	Location: PL=Pore Lining, M=Matrix.
Hydric Soil I	ndicators: (Applic	able to ali	LRRs, unless other	wise no	ted.)		indic	ators for Problematic Hydric Soils ³ :
Histosol	(A1)		Sandy Redox (S	S5)				cm Muck (A10)
Histic Ep	pipedon (A2)		Stripped Matrix					Red Parent Material (TF2)
Black His	stic (A3)		Loamy Mucky N			MLRA 1)		/ery Shallow Dark Surface (TF12)
	n Sulfide (A4)		Loamy Gleyed I		2)		_ (Other (Explain in Remarks)
	Below Dark Surfac	æ (A11)	Depleted Matrix		、		³ India	ators of hydrophytic vegetation and
	ark Surface (A12)		Redox Dark Su	•	-			ations of hydrology must be present,
	lucky Mineral (S1) ileyed Matrix (S4)		Redox Depress					less disturbed or problematic.
	_ayer (if present):							
								,
Type:								
Type: Depth (in	ches).						Hydric S	ioii Present? Yes No
•• —	ches):						Hydric S	oii Present? Yes No _/
Depth (ind Remarks:							Hydric S	ioii Present? Yes No _V
Depth (ind Remarks:	GY						Hydric S	ioii Present? Yes <u>No V</u>
Depth (ind Remarks: IYDROLO Wetland Hyd	GY drology indicators	10 10						
Depth (ind Remarks: IYDROLO Wetland Hyd Primary India	GY drology Indicators cators (minimum of	10 10	d; check all that appl		Nes (89) (d	sycent		condary Indicators (2 or more required)
Depth (ind Remarks: IYDROLO Wetland Hyd Primary India Surface	GY drology Indicators cators (minimum of Water (A1)	10 10	id; check all that appl Water-Sta	ined Lea		xcept		condary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2
Depth (ind Remarks: IYDROLO Wetland Hyd Primary India Surface High Wa	GY drology Indicators cators (minimum of Water (A1) ater Table (A2)	10 10	<u>id; check all that appl</u> Water-Sta MLRA	ined Lea 1, 2, 4A,	ves (B9) (6 and 4B)	except		econdary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B)
Depth (ind Remarks: IYDROLO Wetland Hyd Primary India Surface High Wa Saturatia	GY drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3)	10 10	id; check all that appl Water-Sta MLRA Salt Crust	ined Lea 1, 2, 4A, (B11)	and 4B)	xcept	<u>Se</u>	econdary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B) Drainage Patterns (B10)
Depth (ind Remarks: IYDROLO Wetland Hyd Primary India Surface High Wa Saturatia Water M	GY drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1)	10 10	d; check all that appl Water-Sta MLRA Salt Crust Aquatic In	ined Lea 1, 2, 4A, (B11) vertebrat	and 4B) es (B13)	except	<u>Se</u>	econdary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2)
Depth (ind Remarks: IYDROLO Wetland Hyd Primary India Surface High Wa Saturatio Water N Sedimen	GY drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2)	10 10	d; check all that appl Water-Sta MLRA Salt Crust Aquatic In Hydrogen	ined Lea 1, 2, 4A, (B11) vertebrat Sulfide (and 4B) es (B13) Odor (C1)		<u>Se</u>	econdary 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 (C3
Depth (ind Remarks: IYDROLO Wetland Hyd Primary India Surface High Wa Saturatio Water M Sedimen Drift De	GY drology Indicators cators (minimum of o Water (A1) ater Table (A2) on (A3) 1arks (B1) nt Deposits (B2) posits (B3)	10 10	td; check all that appl Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized F	ined Lea 1, 2, 4A, (B11) vertebrat Sulfide (Rhizosph	and 4B) es (B13) Odor (C1) eres along	Living Ro	<u>Se</u>	Condary 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 (C3 Geomorphic Position (D2)
Depth (ind Remarks: IYDROLO Wetland Hyd Primary India Surface High Wa Saturatia Saturatia Water M Sedimed Drift Dep Algal Ma	GY drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4)	10 10	d; check all that appl Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized F Presence	ined Lea 1, 2, 4A, (B11) vertebrat Sulfide C Rhizosph of Reduc	and 4B) es (B13) Odor (C1) eres along ced Iron (C	Living Ro 4)	<u>Se</u> 	econdary 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 (C3
Depth (ind Remarks: IYDROLO Wetland Hyd Primary India Surface High Wa Saturatia Vater M Sedimed Drift Dep Algal Ma Iron Dep	GY drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5)	10 10	id; check all that appl Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized F Presence Recent Inc	ined Lea 1, 2, 4A, (B11) vertebrat Sulfide C Rhizosph of Reduc	and 4B) res (B13) Odor (C1) eres along ced Iron (C tion in Tille	Living Ro 4) ed Soils (C	<u>Se</u> ots (C3) 6)	econdary 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 (C3 Geomorphic Position (D2) Shallow Aquitard (D3)
Depth (ind Remarks: IYDROLO Wetland Hyu <u>Primary India</u> Surface High Wa Saturatia Vater M Sedimel Drift Dep Algal Ma Iron Dep Surface	GY drology Indicators cators (minimum of r Water (A1) ater Table (A2) on (A3) flarks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6)	one require	d; check all that appl Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized F Presence Recent Irc Stunted out	ined Lea 1, 2, 4A, (B11) vertebrat Sulfide C Rhizosph of Reduc on Reduc r Stresse	and 4B) es (B13) Odor (C1) eres along ced Iron (C tion in Tille d Plants (I	Living Ro 4) ed Soils (C	<u>Se</u> ots (C3) 6)	econdary 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 (C4 Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5)
Depth (ind Remarks: IYDROLO Wetland Hyd Primary India Surface High Wa Saturatii Water M Sedimen Drift Dep Algal Ma Iron Dep Surface Inundati	GY drology Indicators cators (minimum of r Water (A1) ater Table (A2) on (A3) flarks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) ion Visible on Aerial	: one require	d; check all that appl Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized F Presence Recent Inc Stunted of Stunted of To ther (Excented of the second secon	ined Lea 1, 2, 4A, (B11) vertebrat Sulfide C Rhizosph of Reduc on Reduc r Stresse	and 4B) es (B13) Odor (C1) eres along ced Iron (C tion in Tille d Plants (I	Living Ro 4) ed Soils (C	<u>Se</u> ots (C3) 6)	econdary 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 (C4 Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Depth (ind Remarks: IYDROLO Wetland Hy Primary India Surface High Wa Saturation Water N Sedimen Drift Dep Algal Ma Iron Dep Surface Inundati Sparsel	GY drology Indicators cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) ion Visible on Aerial y Vegetated Concav	: one require	d; check all that appl Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized F Presence Recent Inc Stunted of Stunted of To ther (Excented of the second secon	ined Lea 1, 2, 4A, (B11) vertebrat Sulfide C Rhizosph of Reduc on Reduc r Stresse	and 4B) es (B13) Odor (C1) eres along ced Iron (C tion in Tille d Plants (I	Living Ro 4) ed Soils (C	<u>Se</u> ots (C3) 6)	econdary 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 (C4 Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Depth (ind Remarks: IYDROLO Wetland Hyd Primary India Surface High Wa Saturatia Saturatia Vater M Sedimed Sedimed Sedimed Surface Iron Dep Surface Inundati Sparsel Field Obser	GY drology Indicators cators (minimum of o Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) ion Visible on Aerial y Vegetated Concav vations:	: one require lmagery (E ve Surface (d: check all that appl Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized F Presence Recent Irc Stunted of 37) Other (Exp (B8)	ined Lea 1, 2, 4A, (B11) vertebrat Sulfide C Rhizosph of Reduc on Reduc r Stresse plain in R	and 4B) es (B13) Ddor (C1) eres along ced Iron (C tion in Tille d Plants (I Remarks)	Living Ro 4) ed Soils (C 01) (LRR /	<u>Se</u> ots (C3) 6)	econdary 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 (C4 Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Depth (ind Remarks: IYDROLO Wetland Hyu <u>Primary India</u> Surface High Wa Saturatii Vater M Sedimen Drift Dep Algal Ma Iron Dep Surface Inundati Sparsel Field Obser Surface Wat	GY drology Indicators cators (minimum of r Water (A1) ater Table (A2) on (A3) flarks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) ion Visible on Aerial y Vegetated Concav vations: ter Present?	: one require Imagery (B ve Surface (Yes	Id: check all that appl Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized F Presence Recent Inc Stunted of 37) Other (Exp (B8)	ined Lea 1, 2, 4A, (B11) vertebrat Sulfide C Rhizosph of Reduc of Reduc r Stresse plain in R aches):	and 4B) ees (B13) Odor (C1) eres along ced Iron (C tion in Tille d Plants (E Remarks)	Living Ro 4) ed Soils (C D1) (LRR /	<u>Se</u> ots (C3) 6)	econdary 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 (C4 Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Depth (ind Remarks: IYDROLO Wetland Hy Primary India Surface High Wa Saturation Water N Sedimen Algal Ma Iron Dep Algal Ma Surface Inundati Sparsel Field Obser Surface Water Water Table	GY drology Indicators cators (minimum of r Water (A1) ater Table (A2) on (A3) flarks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) ion Visible on Aerial y Vegetated Concav vations: ter Present?	Imagery (E ve Surface (Yes Yes	Ad; check all that appl — Water-Sta MLRA — Salt Crust — Aquatic In — Hydrogen — Oxidized F — Presence — Recent Irc — Stunted on 37) — Other (Exp (B8) No X Depth (in No Depth (in	ined Lea 1, 2, 4A, (B11) vertebrat Sulfide (Rhizosph of Reduc on Reduc r Stresse plain in R uches): uches):	and 4B) ees (B13) Odor (C1) eres along ced Iron (C tion in Tille d Plants (I Remarks)	Living Ro 4) 2d Soils (C D1) (LRR /	<u>Se</u> 	econdary 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 (C4 Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Depth (ind Remarks: IYDROLO Wetland Hyu <u>Primary India</u> Surface High Wa Saturatia Vater M Sedimen Nater M Sedimen Nater M Sedimen Sedimen Surface Iron Dep Surface Inundati Sparsel Field Obser Surface Water Saturation F (includes ca	GY drology Indicators cators (minimum of o Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) ion Visible on Aerial y Vegetated Concav vations: ter Present? Present? pillary fringe)	Imagery (E ve Surface (Yes Yes Yes	ad; check all that appl	ined Lea 1, 2, 4A, (B11) vertebrat Sulfide (Rhizosph of Reduc on Reduc r Stresse plain in R uches): nches):	and 4B) res (B13) Odor (C1) eres along ced Iron (C tion in Tille d Plants (C Remarks)	Living Ro 4) 2d Soils (C 01) (LRR /	<u>Se</u> 	econdary 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 (C1 Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Depth (ind Remarks: IYDROLO Wetland Hyu Primary India Surface High Wa Saturatia Water N Sedimer Algal Ma Iron Dep Algal Ma Iron Dep Surface Surface Surface Water Surface Water Saturation P (includes ca	GY drology Indicators cators (minimum of o Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) ion Visible on Aerial y Vegetated Concav vations: ter Present? Present? pillary fringe)	Imagery (E ve Surface (Yes Yes Yes	Ad; check all that appl — Water-Sta MLRA — Salt Crust — Aquatic In — Hydrogen — Oxidized F — Presence — Recent Irc — Stunted on 37) — Other (Exp (B8) No X Depth (in No Depth (in	ined Lea 1, 2, 4A, (B11) vertebrat Sulfide (Rhizosph of Reduc on Reduc r Stresse plain in R uches): nches):	and 4B) res (B13) Odor (C1) eres along ced Iron (C tion in Tille d Plants (C Remarks)	Living Ro 4) 2d Soils (C 01) (LRR /	<u>Se</u> 	econdary 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 (C1 Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Depth (ind Remarks: IYDROLO Wetland Hyu Primary India Surface High Wa Saturatia Water N Sedimer Algal Ma Iron Dep Algal Ma Iron Dep Surface Inundati Sparsel Field Obser Surface Water Saturation P (includes ca	GY drology Indicators cators (minimum of o Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) ion Visible on Aerial y Vegetated Concav vations: ter Present? Present? pillary fringe)	Imagery (E ve Surface (Yes Yes Yes	ad; check all that appl	ined Lea 1, 2, 4A, (B11) vertebrat Sulfide (Rhizosph of Reduc on Reduc r Stresse plain in R uches): nches):	and 4B) res (B13) Odor (C1) eres along ced Iron (C tion in Tille d Plants (C Remarks)	Living Ro 4) 2d Soils (C 01) (LRR /	<u>Se</u> 	econdary 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 (C1 Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)

223

Project/Site:CRVF	City/County: Sampling Date: 15 May 2013
Applicant/Owner:	Sampling Date: Sampling Date: Sampling Date: State: Sampling Point:
	State: <u>~7</u> Sampling Point: <u>J7 []</u> Section, Township, Range: <u>34, 35 N, 26</u>
Landform (hillslope, terrace, etc.):	Local relief (concave, convex, none):
Subregion (LRR): A Lat:	Long: Datum: //AD @3
Soil Map Unit Name: Bow growelly) Dam	NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of Are Vegetation, Soil, or Hydrology signification, Soil, or Hydrology naturally	of year? Yes \checkmark No (If no, explain in Remarks.) antly disturbed? \bigwedge Are "Normal Circumstances" present? Yes \checkmark No y problematic? \bigwedge (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map show	ving sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes V No Hydric Soil Present? Yes V No Wetland Hydrology Present? Yes V No Remarks: Pholos 53-55	is the Sampled Area
pro-53 25-59	
VEGETATION – Use scientific names of plants.	
1. <u>Alnus rubra</u> 7	IntermediateDominance Test worksheet: ver Species?Status V FAC Number of Dominant Species FAC That Are OBL, FACW, or FAC: I

1			<u> </u>	I hat Are OBL, FACW, or FAC: (A)
2. Acer macrophyllum (growing on huanock 3		<u> </u>	ACV_	Total Number of Dominant
				Species Across All Strata:
4				Percent of Dominant Species
	27	= Total Cover		That Are OBL, FACW, or FAC:(A/B)
Sapling/Shrub Stratum (Plot size: 5 m)				That Are OBL, FACW, of FAC: (A/B)
1. Rubus spectabilis	30	J F/	12	Prevalence Index worksheet:
2. Jambucas racemosa	20	J	CV	Total % Cover of:Multiply by:
3. Oemlaría cerasiformis	15		KU	OBL species x 1 =
4. Marus Fusco	2		4C	FACW species x 2 =/0
		· <u>· / /</u>	4 -	FAC species 10^2 x 3 = $3^{\circ}6$
5	/#			FACU species 7 x 4 = 284
Herb Stratum (Plot size: 2 m)	63	_ = Total Cover		UPL species x 5 =
1 Ranum culus repens	75	./ =	Ac	
2 Athyrium filix-femina	<u>ح</u>	1 a factor		
	28		4<	Prevalence Index = B/A = 3,37
	79.0		C	Hydrophytic Vegetation Indicators:
			<u>ICW</u>	1 - Rapid Test for Hydrophytic Vegetation
5 Tellima grandiflora	15		<u>4</u> 2 U	✓ 2 - Dominance Test is >50%
6 Poa pratense	25	<u> </u>	40	3 - Prevalence Index is ≤3.0 ¹
7. Glechoma hederacea		F)	gev	4 - Morphological Adaptations ¹ (Provide supporting
8				data in Remarks or on a separate sheet)
9		<u></u>		5 - Wetland Non-Vascular Plants ¹
10				Problematic Hydrophytic Vegetation ¹ (Explain)
11				¹ indicators of hydric soil and wetland hydrology must
	884	= Total Cover		be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size:2 m)			ŀ	
1				
2				Hydrophytic Vegetation /
				Present? Yes <u>No</u> No
% Bare Ground in Herb Stratum	0	= Total Cover		
Remarks:		· _ · · · · · · · · · · · · · · · · · ·		

Depth Matrix			x Features				of indicators.)
Depth <u>Matrix</u> (inches) Color (moist)	%	Color (moist)		Type ¹	Loc ²	Texture	Remarks
0-10 10YR3/1	98	10YR3/3	2	С	MP	siff loan	15% gravel
10-16 2.544/2	85	10YR 4/4	15	٢	M	loam	30 % grave
		<u></u>	· <u> </u>		·		
			. <u> </u>		· <u> </u>		
			·		·		· · · · · · · · · · · · · · · · · · ·
Type: C=Concentration, D=De	pletion, RM	=Reduced Matrix, CS	S=Covered	or Coat	ed Sand Gr		cation: PL=Pore Lining, M=Matrix.
Hydric Soil Indicators: (Appli	cable to all			d.)			rs for Problematic Hydric Solis ³ :
Histosol (A1)		Sandy Redox (S					n Muck (A10) I Parent Material (TF2)
Histic Epipedon (A2)		Stripped Matrix		(0×00)			y Shallow Dark Surface (TF12)
Black Histic (A3)		Loamy Mucky M		(excat	n wi⊏rvA 1)		er (Explain in Remarks)
Hydrogen Sulfide (A4) Depleted Below Dark Surfa	ce (A11)	Depleted Matrix					
Thick Dark Surface (A12)		Redox Dark Su				³ Indicate	ors of hydrophytic vegetation and
Sandy Mucky Mineral (S1)		Depleted Dark		"			ind hydrology must be present,
Sandy Gleyed Matrix (S4)		Redox Depress	ions (F8)			unles	s disturbed or problematic.
Restrictive Layer (if present):							
Туре:		<u> </u>					
Depth (inches):						Hydric Soi	Present? Yes V No
Remarks:		ted from cat	ı. I				
		<u></u>					
		<u></u>					
Wetland Hydrology Indicators		with sheck all that ann				Seco	ndary Indicators (2 or more required)
Wetland Hydrology Indicators Primary Indicators (minimum of				s (BQ) /			ndary Indicators (2 or more required) Nater-Stained Leaves (B9) (MLRA 1, 2
Wetland Hydrology Indicators <u>Primary Indicators (minimum of</u> Surface Water (A1)		Water-Sta	ined Leave		except		Vater-Stained Leaves (B9) (MLRA 1, 2,
High Water Table (A2)		Water-Sta MLRA	iined Leave 1, 2, 4A, ai		except		Vater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
Wetland Hydrology Indicators Primary Indicators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3)		Water-Sta MLRA Salt Crust	iined Leave 1, 2, 4A, ai (B11)	nd 4B)	except	\ \	Vater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10)
Wetland Hydrology Indicators Primary Indicators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1)		Water-Sta MLRA Salt Crust Aquatic In	ined Leave 1, 2, 4A, au (B11) wertebrates	n d 4B) i (B13)	except	· ` ` ` ` ` ` `	Vater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
Wetland Hydrology Indicators <u>Primary Indicators (minimum of</u> Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2)		Water-Sta MLRA Salt Crust Aquatic In Hydrogen	ined Leave 1, 2, 4A, au (B11) overtebrates Sulfide Od	nd 4B) (B13) or (C1)		 	Vater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2)
Wetland Hydrology Indicators Primary Indicators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3)		Water-Sta MLRA Salt Crust Aquatic In Hydrogen ∕ Oxidized I	ined Leave 1, 2, 4A, au (B11) wertebrates	nd 4B) (B13) or (C1) es alon	g Living Ro	ots (C3)	Vater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9
Wetland Hydrology Indicators Primary Indicators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Algal Mat or Crust (B4)		Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized I Presence	ined Leave 1, 2, 4A, a (B11) wertebrates Sulfide Od Rhizosphere	nd 4B) (B13) or (C1) es alon d Iron (C	g Living Ro	ots (C3)	Vater-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)
Wetland Hydrology Indicators Primary Indicators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3)		Water-Sta MLRA Salt Crust Aquatic In Hydrogen Presence Recent In	ined Leave 1, 2, 4A, au (B11) overtebrates Sulfide Od Rhizosphere of Reduced	nd 4B) or (B13) or (C1) es alon d Iron (C on in Till	g Living Ro C4) ed Soils (C	ots (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9 Geomorphic Position (D2) Shallow Aquitard (D3)
Wetland Hydrology Indicators Primary Indicators (minimum of 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)	<u>one require</u>	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized I Presence Recent In Stunted o	ined Leave 1, 2, 4A, an (B11) wertebrates Sulfide Od Rhizosphere of Reduced on Reduction r Stressed I	nd 4B) or (C1) es alon d Iron (C on in Till Plants (g Living Ro C4) ed Soils (C	ots (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9 Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5)
Wetland Hydrology Indicators Primary Indicators (minimum of 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)	<u>fone require</u> I Imagery (E	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized I Presence Recent In Stunted o 37) Other (Ex	ined Leave 1, 2, 4A, an (B11) wertebrates Sulfide Od Rhizosphere of Reduced on Reduction r Stressed I	nd 4B) or (C1) es alon d Iron (C on in Till Plants (g Living Ro C4) ed Soils (C	ots (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9 Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Wetland Hydrology Indicators Primary Indicators (minimum of 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 Aeria	<u>fone require</u> I Imagery (E	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized I Presence Recent In Stunted o 37) Other (Ex (B8)	ined Leave 1, 2, 4A, a (B11) ivertebrates Sulfide Od Rhizosphere of Reduced on Reduction r Stressed I plain in Rer	nd 4B) or (C1) es alon d Iron (C on in Till Plants (marks)	g Living Ro C4) ed Soils (C D1) (LRR A	ots (C3) $\mathbf{V}_{(2)}^{(1)}$	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)
Wetland Hydrology Indicators Primary Indicators (minimum of 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 Aeria Sparsely Vegetated Conca	<u>fone require</u> I Imagery (E	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized I Presence Recent In Stunted o 37) Other (Ex (B8)	ined Leave 1, 2, 4A, an (B11) wertebrates Sulfide Od Rhizosphere of Reduced on Reduction r Stressed I	nd 4B) or (C1) es alon d Iron (C on in Till Plants (marks)	g Living Ro C4) ed Soils (C D1) (LRR A	ots (C3) $\mathbf{V}_{(2)}^{(1)}$	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)
Wetland Hydrology Indicators Primary Indicators (minimum of	il Imagery (F ave Surface	Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized I Presence Recent Irc Stunted o 37)	ined Leave 1, 2, 4A, a (B11) ivertebrates Sulfide Od Rhizosphere of Reduced on Reduction r Stressed I plain in Rer	nd 4B) (B13) or (C1) es alon d Iron (C on in Till Plants (marks)	g Living Ro C4) ed Soils (C D1) (LRR A	$r(r)^{3}$	Vater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9 Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Wetland Hydrology Indicators Primary Indicators (minimum of 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 Aeria Sparsely Vegetated Conca Field Observations: Surface Water Present? Water Table Present? Saturation Present? (includes capillary frince)	il Imagery (E ave Surface Yes Yes Yes	Water-Star MLRA Salt Crust Aquatic In Hydrogen Oxidized I Presence Recent Irc Stunted o 37) ✓ Mo No Depth (ir No No Depth (ir No	ined Leave 1, 2, 4A, and (B11) ivertebrates Sulfide Odi Rhizospheric of Reduced on Reduction r Stressed I plain in Rer mches): nches): nches):	nd 4B) is (B13) or (C1) es alon d Iron (C on in Till Plants (marks)	g Living Ro C4) ed Soils (C D1) (LRR A	$rint^{s}$	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)
Wetland Hydrology Indicators Primary Indicators (minimum of 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 Aeria Sparsely Vegetated Conca Field Observations: Surface Water Present? Water Table Present?	il Imagery (E ave Surface Yes Yes Yes	Water-Star MLRA Salt Crust Aquatic In Hydrogen Oxidized I Presence Recent Irc Stunted o 37) ✓ Mo No Depth (ir No No Depth (ir No	ined Leave 1, 2, 4A, and (B11) ivertebrates Sulfide Odi Rhizospheric of Reduced on Reduction r Stressed I plain in Rer mches): nches): nches):	nd 4B) is (B13) or (C1) es alon d Iron (C on in Till Plants (marks)	g Living Ro C4) ed Soils (C D1) (LRR A	$rint^{s}$	Vater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9 Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Wetland Hydrology Indicators Primary Indicators (minimum of 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 Aeria Sparsely Vegetated Conca Field Observations: Surface Water Present? Water Table Present? Saturation Present? (includes capillary frince)	il Imagery (E ave Surface Yes Yes Yes	Water-Star MLRA Salt Crust Aquatic In Hydrogen Oxidized I Presence Recent Irc Stunted o 37) ✓ Mo No Depth (ir No No Depth (ir No	ined Leave 1, 2, 4A, and (B11) ivertebrates Sulfide Odi Rhizospheric of Reduced on Reduction r Stressed I plain in Rer mches): nches): nches):	nd 4B) is (B13) or (C1) es alon d Iron (C on in Till Plants (marks)	g Living Ro C4) ed Soils (C D1) (LRR A	$rint^{s}$	Vater-Stained Leaves (B9) (MLRA 1, 2 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C4 Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)

Project/Site:CRUF	(City/County:	The	Impling Date: 15 May 201					
Applicant/Owner:	\	City/County							
		State: <u>WA</u> Sampling Point: <u>5P-T2</u> _ Section, Township, Range: 3Y, 35 N, 2 E							
Landform (hillslope, terrace, etc.):									
A				Stope (%): Datum: <u>NAD 93</u>					
Soil Map Unit Name: Bow grave	ly loam		NWI classificatio						
Are climatic / hydrologic conditions on the site typic				n: <u> </u>					
Are Vegetation, Soil, or Hydrology _ Are Vegetation, Soil, or Hydrology _									
		• 0-	eeded, explain any answers ir						
SUMMARY OF FINDINGS – Attach site		sampling point i	ocations, transects, in	nportant features, etc.					
	No <u>X</u>	is the Sampled Area							
		within a Wetla		No X					
Bomorkey	No <u></u>								
photos 56-58									
<u> </u>									
VEGETATION – Use scientific names of	of plants.			······					
Tree Stratum (Plot size: 10 m)		Dominant Indicator	Dominance Test workshe						
1. Acer macrophyllum		Species? Status	Number of Dominant Speci						
2. Thuja plicata	<u> </u>	FAC	That Are OBL, FACW, or FA	AC: (A)					
3. Malus Fusca	15		Total Number of Dominant						
	10	<u> </u>	Species Across All Strata:	<u> </u>					
4. <u>Alous cubra</u>		Fac	Percent of Dominant Specie	os - 17					
Sapling/Shrub Stratum (Plot size: 5 m		= Total Cover	That Are OBL, FACW, or FA						
1. Dembria cerasitormis	40	J FACU	Prevalence Index worksho						
2. Symphonicarpas albus	18	V FACU	Total % Cover of:	Multiply by:					
3. Rubus spectabilis	17	FAC	OBL species 0	_ x1=					
4			FACW species	_ x2=					
5.			FAC species 60	_ x3= <u>180</u>					
	65	= Total Cover	FACU species 148	_ x4= <u>592</u>					
Herb Stratum (Plot size: 2 m)		- I DIAI COVEI	UPL species	x5=_0					
1. <u>Poa pratense</u>	20	J <u>FAC</u>	Column Totals: 20 8	_(A) <u>772</u> (B)					
2 Tellima granditiora	25	V FACU	Prevalence Index = B	80 -1					
3			Hydrophytic Vegetation In						
4									
5			1 - Rapid Test for Hydro 2 - Dominance Test is >						
6									
7			3 - Prevalence Index is						
8			4 - Morphological Adapt data in Remarks or c	ations' (Provide supporting					
9			5 - Wetland Non-Vascul						
10			Problematic Hydrophytic						
11		······································	¹ Indicators of hydric soil and						
		Total Cover	be present, unless disturbed	or problematic.					
Woody Vine Stratum (Plot size: 2m)									
1. Rubus unsinus		V FACU	Hydrophytic						
			Vegetation	1					
2			vegeration						
2 8 Bare Ground in Herb Stratum	10 =	Total Cover	Present? Yes	No					

Sampling Point: SP-72

SUL								
Profile Desc	cription: (Describe	to the depti	n needed to docur	nent the in	dicator o	or confirm	the absence of Indi	cators.)
Depth	<u>Matrix</u>	%	Redo Color (moist)	<u>x Features</u> %	Type ¹	Loc ²	Texture	Remarks
(inches)	<u>Color (moist)</u> 104R 3/1,5	. <u>~~</u> - /00			<u> </u>		Loam	155 gravel
<u>0-6</u> 6-18		· <u> </u>				<u> </u>	Sandy boam	202 gravel
6-18	<u>104R 413</u>	/∞		· ·			- and want	
	·			• •		<u> </u>		
	. <u> </u>					<u> </u>	<u> </u>	
							<u> </u>	
				·			<u> </u>	
				<u> </u>		<u> </u>		
			_			<u> </u>		
¹ Type: C=C	oncentration, D=Dep	letion, RM=	Reduced Matrix, C	S=Covered	or Coate	d Sand Gr		PL=Pore Lining, M=Matrix.
Hydric Soll	Indicators: (Applic	able to all L	RRs, unless othe	rwise note	d.)		Indicators for	Problematic Hydric Solls ³ :
Histoso	I (A1)	_	Sandy Redox (S5)			2 cm Muck	• •
Histic E	pipedon (A2)	-	Stripped Matrix	• •				t Material (TF2)
	listic (A3)	-	Loamy Mucky I			MLRA 1)		bw Dark Surface (TF12)
	en Sulfide (A4)		Loamy Gleyed					lain in Remarks)
	d Below Dark Surfac	e (A11)	Depleted Matrix Redox Dark Su				³ Indicators of h	ydrophytic vegetation and
	ark Surface (A12) Mucky Mineral (S1)	-	Depleted Dark	• •	n			rology must be present,
	Gleyed Matrix (S4)	-	Redox Depress	•	,		-	rbed or problematic.
	Layer (if present):							
Type:								
· · _	nches):						Hydric Soll Prese	nt? Yes No
Remarks:				<u> </u>			<u> </u>	V V V V
-								
HYDROLO					<u> </u>	ė.		
	/drology indicators:	<u> </u>						<u> </u>
	icators (minimum of c		check all that app	Iv)			Secondary I	ndicators (2 or more required)
	Water (A1)			ined Leave	es (B9) (e	xcept	Water-S	tained Leaves (B9) (MLRA 1, 2,
	ater Table (A2)			1, 2, 4A, a		3	4A, a	and 4B)
	ion (A3)		Salt Crust				Drainag	e Patterns (B10)
	Marks (B1)		Aquatic Ir	vertebrates	s (B13)		Dry-Sea	ason Water Table (C2)
	ent Deposits (B2)		Hydrogen	Sulfide Od	or (C1)		Saturati	on Visible on Aerial Imagery (C9)
	eposits (B3)		Oxidized	Rhizospher	es along	Living Ro	ots (C3) Geomo	rphic Position (D2)
Algal M	lat or Crust (B4)		Presence	of Reduce	d Iron (C	4)	Shallow	Aquitard (D3)
Iron De	posits (B5)		Recent Ire	on Reductio	on in Tille	d Soils (C	•	eutral Test (D5)
Surface	e Soil Cracks (B6)		Stunted o	r Stressed	Plants (C	1) (LRR A	•	Ant Mounds (D6) (LRR A)
	tion Visible on Aerial		· ·	plain in Rei	marks)		Frost-H	eave Hummocks (D7)
Sparse	ly Vegetated Concav	e Surface (E	38)					
Field Obse	rvations:		4					
Surface Wa	iter Present?	/es 1	No $\underline{\mathcal{X}}$ Depth (in	nches):				
Water Table	e Present?	/es		n ches):				
Saturation F	Present?	/es I	No <u> </u>	1ches):		Wet	land Hydrology Pres	ent? Yes No <u>X</u>

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

Remarks:

1

(includes capillary fringe)

WETLAND DETERMINATION DA	ATA FOR	M – W	estern Mou	ntains, Valleys, and	Coast Region	
Project/Site: Crude by Rail		City/Cou	Inty ANOIC	ostes /skeait	Sampling Date: 5/P	/13
Applicant/Owner: Shell PSR		ಿಗ್ರಾಂಕಿಕ	inty. <u>24.7(010</u>	State:A	Sampling Point: 5/0-	ul
Investigator(s): P. Hamidi, B. Fletcher		Section	Townshin Ra	34,35N,	2F	
Landform (hillslop) terrace, etc.):						2
Subregion (LRR): _A Soil Map Unit Name: _18-Bow gravelly (Lal	·		_ Long	Datum:	
Č I						
Are climatic / hydrologic conditions on the site typical for th						
Are Vegetation, Soil, or Hydrology						°
Are Vegetation, Soil, or Hydrology						
SUMMARY OF FINDINGS – Attach site map	showing	samp	ling point l	ocations, transects,	, important feature	s, etc.
	lo	1-				
Hydric Soil Present? Yes X	lo		s the Sampled vithin a Wetlar	nd? Yes X	No	
Wetland Hydrology Present? Yes X	NO					
Remarks: Grazed pasture.						
Photos 59-61						
VEGETATION – Use scientific names of plan	nts.					
Tree Stratum (Plot size: 30)	Absolute	Domina	ant Indicator	Dominance Test works	sheet:	
1. <u><i>N</i></u> A				Number of Dominant Sp		
2				That Are OBL, FACW, o	r FAU:	(A)
3				Total Number of Domina Species Across All Strat		(B)
4						
Sapling/Shrub Stratum (Piot size: 15)		= Total	Cover	Percent of Dominant Sp That Are OBL, FACW, o		(A/B)
1A			53	Prevalence Index work	sheet:	
2				Total % Cover of:	Multiply by:	- 1
3					x1=	-
4		0	15 1963	FACW species		-
5				FAC species <u>ID[1</u> , FACU species	x3= <u>30</u>	2
Herb Stratum (Plot size: 5)		= Total	Cover	UPL species	<u> </u>	-
<u>Herb Stratum</u> (Plot size: <u>)</u> 1. <u>Tri-falium</u> repens	4D	У	FAC		2(A)	– (B)
2. Alopecurus pratensis	30		FAC			_ (=/
3. Agrostil capitlaris	40	Y	FAC	Prevalence Index Hydrophytic Vegetation		
4. Guranium the sp.			-		ydrophytic Vegetation	
5. Cerestium glomeration			FACU	\underline{X} 2 - Dominance Test		
6				3 - Prevalence Index		
7					daptations ¹ (Provide supp	porting
8					or on a separate sheet)	
9		<u> </u>		5 - Wetland Non-Va		_
10					hytic Vegetation ¹ (Explain and wetland hydrology m	·
11	107	= Total 0		be present, unless distu		เมอเ
Woody Vine Stratum (Plot size: 15-	104		JUVEI			+
1. <u>N/A</u>				Hydrophytic		
2					× No	
% Bare Ground in Herb Stratum		= Total C	Cover	Present? Yes	<u> </u>	
Remarks:				l		

.

Profile Desc	ription: (Describe	to the depth				or confirm	the absence	of Indica	ators.)	
Depth	Matrix			x Features	Type ¹	Loc ²	Texture		Remarks	
(inches)	Color (moist) (DYR 3/2	<u>%</u> 95 0	$\frac{Color (moist)}{O(R4/3)}$		<u>Type</u>		,	5%		
		<u>- 73 - 0</u>				~	Loan			
9-16	9.217/7	or u	10784/4	90	<u> </u>	\sim	CILO	13%	grarel	
		. <u> </u>								
										
						۲				
		· , , ,								
	- <u> </u>									
	·			·						
¹ Type: C=C	oncentration, D=Dep	letion, RM=R	educed Matrix, CS	S=Covered	or Coate	d Sand Gra			L=Pore Lining, M	
•	Indicators: (Applic	able to all LF			id.)				oblematic Hydri	ic 30115":
Histosol	• •		Sandy Redox (S Stripped Matrix					n Muck (A	A10) Aaterial (TF2)	
Black Hi	oipedon (A2) stic (A3)		Stripped Matrix Loamy Mucky N	• •) (excent	MIRA 1)			Dark Surface (T	F12)
	en Sulfide (A4)		_ Loamy Gleyed I						in in Remarks)	· · - ,
	i Below Dark Surfac	e (A11) 🗍	Depleted Matrix					2	,	
	ark Surface (A12)	1	🖉 Redox Dark Su	rface (F6)				•	rophytic vegetati	
	lucky Mineral (S1)	_	Depleted Dark		7)			-	logy must be pre	
	eleyed Matrix (S4)		_ Redox Depress	ions (F8)	_		unles	s disturb	ed or problemation	3.
	Layer (if present):									
⊤ype:								Brecert	? Yes X	No
Depth (inc	cnes):		<u></u>				Hydric Soil	rresent		No
Remarks:										
HYDROLO	GY									
Wetland Hy	drology Indicators:	e ⁿⁱ		8	2		-			
Primary Indic	ators (minimum of c	one required;	check all that appl	v)			Seco	ndary Ind	icators (2 or mor	e required)
Surface	Water (A1)		Water-Stai	ined Leave	es (B9) (e	xcept	v	Vater-Stai	ined Leaves (B9)) (MLRA 1, 2,
	iter Table (A2)		MLRA	1, 2, 4A, a	nd 4B)			4A, and	d 4B)	
Saturatio	on (A3)		Salt Crust						Patterns (B10)	
Water M	arks (B1)		Aquatic In						on Water Table (0	
	nt Deposits (B2)		Hydrogen				77	aturation	Visible on Aeria	l Imagery (C9)
· — ·	oosits (B3)		<u> </u>	•	-	-	• • • • • • • • • • • • • • • • • • • •		nic Position (D2)	
	t or Crust (B4)		Presence						quitard (D3)	
· — ·	osits (B5)					d Soils (C6	. —		ral Test (D5)	
	Soil Cracks (B6)					1) (LRR A)			it Mounds (D6) (I ve Hummocks (D	•
	on Visible on Aerial			Jain III Ke	marks)		F	ivat-ritea	VE HUMMOCKS (L	~)
Field Obser	Vegetated Concav		<i></i>							
			Depth (in	chee).						
Surface Wate			Depth (in Depth (in							
Water Table							and Hydrolog		nt? Yes <u>X</u>	No
Saturation Provide Saturation Provided Action (includes cap		es N	Depth (in	unes):				y F18380		
Describe Re	corded Data (stream	gauge, mon	itoring well, aerial	photos, pr	evious ins	pections),	if available:			
Remarks:								· · · ·		

Project/Site: Crude by Rail	City/County: Anacortes/Skagit Sampling Date: 5-8-13
Applicant/Owner: <u>Shell PSR</u>	State: <u>wA</u> Sampling Point: <u>UZ</u>
Investigator(s): P. Hamidi, B. Fletcher	Section, Township, Range: <u>34, 35N, 2E</u>
Landform (hillslope, terrace, etc.): 94424 Tryvala	Local relief (concave, convex, none):Con J ck Slope (%):
Subregion (LRR): Lat:	Long: Datum:
Soil Map Unit Name: 18- Bow grately loan	NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of ye	
Are Vegetation, Soil, or Hydrology significantly	disturbed? N/ Are "Normal Circumstances" present? Yes X No
Are Vegetation, Soil, or Hydrology naturally pro	oblematic? N (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes	No <u>K</u> No <u>K</u> No <u>K</u>	is the Sampled Area within a Wetland?	Yes	No_ <u>K_</u>
Remarks: Photos 62-64					

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>30</u>)	Absolute	Dominant		Dominance Test worksheet:
		Species?		Number of Dominant Species
1				That Are OBL, FACW, or FAC: (A)
2				
3				Total Number of Dominant Z (B)
4	•			Species Across All Strata: (B)
[*]	·	<u> </u>		Percent of Dominant Species
Sapling/Shrub Stratum (Plot size: 15-		= Total Co	ver	That Are OBL, FACW, or FAC:(A/B)
				Prevalence Index worksheet:
2				Total % Cover of: Multiply by:
				OBL species x 1 =
3				FACW species x 2 =
4			<u> </u>	FAC species 70 x 3 = 2/0
5				FACU species x4 =
Herb Stratum (Plot size: 5)		= Total Co	ver	
Hero Stratum (Plot size:)	20		m .	
1. restura grundingreg	20		FAC	Column Totals: 106 (A) 379 (B)
2. Aquostis Callleris	40		FAC	Prevalence Index = B/A = 3,58
3. Trifolium Subterraneum	25	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	UPL	Hydrophytic Vegetation Indicators:
4. Taraxacum officinals	8		FACU	_
5. Circium arunsz	5		PAC	1 - Rapid Test for Hydrophytic Vegetation
				2 - Dominance Test is >50%
			FACU	3 - Prevalence Index is ≤3.0 ¹
7. Ald PECUrus Prateusis			FAC	4 - Morphological Adaptations ¹ (Provide supporting
8				data in Remarks or on a separate sheet)
9				5 - Wetland Non-Vascular Plants ¹
10				Problematic Hydrophytic Vegetation ¹ (Explain)
11				¹ Indicators of hydric soil and wetland hydrology must
	106 =	= Total Cov		be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 15)				
1				Livedno e buikte
2				Hydrophytic Vegetation
				Present? Yes No X
% Bare Ground in Herb Stratum	=	= I otal Cov	er	
Remarks:		··		·
grazad Pasture				
0				

Profile Desc	ription: (Describe	to the depth	needed to document the indicator or co	onfirm the	absence of Ind	licators.)
Depth	<u>Matrix</u>		Redox Features Color (moist) % Type ¹ Lo	.oc ² 1	Fexture	Remarks
(inches)	<u>Color (moist)</u>	%			LOan	258 grave
0-10	104R 3/2				-van	419
10-16	10/R 4/2	5 100 _		<u> </u>	Nery Logm	402 graves
	1			<u> </u>		
					a e	247 - 10
	<u> </u>					
	<u> </u>			—		
					<u> </u>	
				<u> </u>		
	ncentration D=De	– – – – oletion. RM=R	educed Matrix, CS=Covered or Coated Sa	and Grains	a. ² Location:	PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators: (Appli	cable to all Li	RRs, unless otherwise noted.)		Indicators for	Problematic Hydric Solis ³ :
Histosol			_ Sandy Redox (S5)		2 cm Muc	k (A10)
	pipedon (A2)	_	Stripped Matrix (S6)			nt Material (TF2)
Black Hi		_	Loamy Mucky Mineral (F1) (except ML	.RA 1)		llow Dark Surface (TF12)
Hydroge	en Sulfide (A4)	_	Loamy Gleyed Matrix (F2)		Other (Ex	plain in Remarks)
Depleted	d Below Dark Surfa	ce (A11) _	_ Depleted Matrix (F3)		3	
	ark Surface (A12)	_	_ Redox Dark Surface (F6)			hydrophytic vegetation and
	lucky Mineral (S1)	_	_ Depleted Dark Surface (F7)		•	drology must be present, urbed or problematic.
	Bleyed Matrix (S4)		Redox Depressions (F8)			
	Layer (If present):					
Type:			—	u	ludria Sail Pros	ent? -Yes No
Depth (in	ches):		<u> </u>			
Remarks:						
			9			
HYDROLO	GY					
						· ····
	drology Indicators		check of that apply	2.5	Secondary	Indicators (2 or more required)
		one required:	check all that apply)			Stained Leaves (B9) (MLRA 1, 2,
1	Water (A1)		Water-Stained Leaves (B9) (exce	spi		and 4B)
	ater Table (A2)		MLRA 1, 2, 4A, and 4B)			ge Patterns (B10)
Saturati			Salt Crust (B11)			ason Water Table (C2)
	Marks (B1)		Aquatic Invertebrates (B13)			tion Visible on Aerial Imagery (C9)
I —	nt Deposits (B2)		Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living	ina Roots (i		orphic Position (D2)
	posits (B3) at as Crust (B4)		Oxidized Rhizospheres along Livit			w Aquitard (D3)
	at or Crust (B4)		Recent Iron Reduction in Tilled Sc	oils (C6)		leutral Test (D5)
	posits (B5) Soil Cracks (B6)		Recent from Reduction in Timed Sc Stunted or Stressed Plants (D1) (I			I Ant Mounds (D6) (LRR A)
	Soil Cracks (B6)	l Imageny (P7)				Heave Hummocks (D7)
	ion Visible on Aeria y Vegetated Conca					
Field Obser			<i>,</i>	T		
			o Depth (inches):			
Surface Wat						
Water Table			o <u>K</u> Depth (inches):	Metterd	Ludrology Bro	sent? Yes No <u>/ /</u>
Saturation P	Present? pillary fringe)	res N	o _ 🔨 Depth (inches):	vveuand	nyululugy rfe	aonti 163 NU _/
Describe Re	corded Data (strea	m gauge, mor	itoring well, aerial photos, previous inspec	ctions), if a	vailable:	
Remarks:					· · · · · · · · · · · · · · · · · · ·	
Torrando.						
1					- /	

Project/Site: <u>Erude by Rail</u>	City/County: Anacortes/Skagit Sampling Date: 5/8/13
Applicant/Owner. Shell PSR	State: <u><i>V</i></u> Sampling Point: <i>S V</i>
Investigator(s): P. Hamidi, B. Fletche	Section, Township, Range: 34, 35N, 2E
Landform (hillslope, terrace, etc.):	Local relief concave, convex, none): Slope (%): _ 3
Subregion (LRR): Lat	t Long: Datum:
Soil Map Unit Name: 18-Bon gravelly los	NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time	
Are Vegetation, Soil, or Hydrology signific	cantly disturbed? Are "Normal Circumstances" present? Yes No
	ally problematic? M (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map show	wing sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No	
Hydric Soil Present? Yes X No	
Wetland Hydrology Present? Yes X No No	
Remarks: Grazed Pasture,	
Photos 53-55	
VEGETATION – Use scientific names of plants.	
	solute Dominant Indicator Dominance Test worksheet:
1A	Cover Species? Status Number of Dominant Species Image: Cover Species Image:
2	
3	
4	
Sapling/Shrub Stratum (Plot size: 15)	= Total Cover Percent of Dominant Species That Are OBL, FACW, or FAC: (0.0 (A/B)
1A	Prevalence Index worksheet:
2 3	
4	FACW species x 2 =
5	FAC species $105 \times 3 = 315$
	= Total Cover FACU species 2 × 4 = 3
Herb Stratum (Plot size: 5 ⁻)	UPL species x5 =
1. Trifolium repens 4	
	$\frac{1}{20} \times \frac{FAc}{FAc}$ Prevalence Index = B/A = 3.02
3. Agrostis capillaris 3. 4. Cerastiun glomesatum	P FAC Hydrophytic Vegetation Indicators: FAC Hydrophytic Vegetation Indicators:
5. 109 pratensis	
7	
8	
9	
10	
11	¹ Indicators of hydric soil and wetland hydrology must
	= Total Cover be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size:)	
1. N/A	
2	Total Cover Vegetation Present? Yes X No
% Bare Ground in Herb Stratum	= Total Cover
Remarks:	

SOIL

Sampling Point: SA-VI

Depth <u>Matri</u>	· · · · · · · · · · · · · · · · · · ·		Features					_	
(inches) Color (moist	%	<u>Color (moist)</u>	<u> </u>	Type'			- 601	Rema	
0-7 107R3/	<u>+ 97</u>	<u>104R4/3</u>	<u> </u>	<u> </u>	M,PL	Loga		gran	
7-16 595/	1 80	104R 5/6	20		M	CILO	25%	grave	1,10%000
			0						
·		<u> </u>							·
		20 Fi			·	·			
					030	<u></u>	<u> </u>		
			·······		• •••••••			···	<u></u>
Type: C=Concentration, D=					ed Sand Gr				g, M=Matrix.
lydric Soll Indicators: (Ap	licable to all	LRRs, unless other	wise note	ed.)		Indicato	ors for Pro	blematic H	lydric Soils ³ :
Histosol (A1)		Sandy Redox (S					n Muck (A		
Histic Epipedon (A2)	с .	Stripped Matrix (aterial (TF2	•
_ Black Histic (A3)		Loamy Mucky M			ot MLRA 1)			Dark Surfac	
Hydrogen Sulfide (A4)		Loamy Gleyed N		č/		Oth	er (Explair	In Remark	s)
_ Depleted Below Dark Su		A Depleted Matrix				31			_4_4*
_ Thick Dark Surface (A12)		Redox Dark Sur	• •	7\			•	ophytic veg	
Sandy Mucky Mineral (S Sandy Gleyed Matrix (S4	•	Depleted Dark S Redox Depressi		()			•	gy must be d or probler	• •
Lestrictive Layer (if present					,	Unies	susune		nauc.
and and the second states of the state of the second states of the secon	an means and				and to cantor				
Type:						1	-		/
Depth (inches):	<i>W</i>	<u></u>				Hydric Soil	Present?	Yes	No
		anada na Uran B							
YDROLOGY	rs:	5							
YDROLOGY Vetland Hydrology Indicato Primary Indicators (minimum			-			Secor	ndary Indic	ators (2 or	more required)
YDROLOGY Vetland Hydrology Indicato Primary Indicators (minimum Surface Water (A1)		Water-Stair	ned Leave		except			and the second second	<u>more required)</u> (B9) (MLRA 1, 2,
YDROLOGY Vetland Hydrology Indicato Primary Indicators (minimum Surface Water (A1) High Water Table (A2)		Water-Stair	-		except	W	/ater-Stain 4A, and	ed Leaves 4B)	(B9) (MLRA 1, 2,
YDROLOGY Vetland Hydrology Indicato <u>Primary Indicators (minimum</u> Surface Water (A1) High Water Table (A2) Saturation (A3)		Water-Stain MLRA 1 Salt Crust (ned Leave , 2, 4A, ar B11)	nd 4B)	except	W	/ater-Stain 4 A, and rainage Pa	ed Leaves 4B) attems (B10	(B9) (MLRA 1, 2,
YDROLOGY Vetland Hydrology Indicato Inimary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1)		Water-Stain MLRA 1 Salt Crust (Aquatic Inv	ned Leave , 2, 4A, ar B11) ertebrates	nd 4B) ; (B13)	except	W D D	/ater-Stain 4 A, and rainage Pa ry-Season	ed Leaves 4B) attems (B10 Water Tab	(B9) (MLRA 1, 2,)) le (C2)
YDROLOGY Vetland Hydrology Indicato Inimary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) SedIment Deposits (B2)		Water-Stair MLRA 1 Salt Crust (Aquatic Inv	ned Leave , 2, 4A, ar B11) ertebrates Sulfide Odd	nd 4B) ; (B13) or (C1)		W D D S	/ater-Stain 4 A, and rainage Pa ry-Season aturation N	ed Leaves 4B) atterns (B10 Water Tab /Isible on A	(B9) (MLRA 1, 2,)) le (C2) erial imagery (C9
YDROLOGY Vetland Hydrology Indicato Vimary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3)		Water-Stair MLRA 1 Salt Crust (Aquatic Inv Hydrogen S Oxidized R	ned Leave , 2, 4A, ar B11) ertebrates Sulfide Odd hizosphere	nd 4B) 5 (B13) or (C1) es along	Living Roo	W D S ts (C3) X G	/ater-Stain 4A, and rainage Pa ry-Season aturation N eomorphic	ed Leaves 4B) atterns (B10 Water Tab /Isible on A c Position (I	(B9) (MLRA 1, 2,)) le (C2) erial imagery (C9
YDROLOGY Vetland Hydrology Indicator 'rimary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) SedIment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4)		Water-Stair MLRA 1 Salt Crust (Aquatic Inv Hydrogen S X Oxidized Ri Presence o	ned Leave , 2, 4A, ar B11) ertebrates Sulfide Odd hizosphere f Reduced	nd 4B) i (B13) or (C1) es along i Iron (C	Living Roo 4)	W D D s ts (C3) X G S	/ater-Stain 4A, and rainage Pa ry-Season aturation N eomorphic hallow Aqu	ed Leaves 4B) atterns (B10 Water Tab /Isible on A > Position (I uitard (D3)	(B9) (MLRA 1, 2,)) le (C2) erial imagery (C9
YDROLOGY Vetland Hydrology Indicato <u>'rimary Indicators (minimum</u> Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) SedIment Deposits (B2) Drift Deposits (B3)		Water-Stair MLRA 1 Salt Crust (Aquatic Inv Hydrogen S Oxidized R	ned Leave , 2, 4A, ar B11) ertebrates Sulfide Odd hizosphere f Reduced	nd 4B) i (B13) or (C1) es along i Iron (C	Living Roo 4)	W D D s ts (C3) X G S	/ater-Stain 4A, and rainage Pa ry-Season aturation N eomorphic hallow Aqu	ed Leaves 4B) atterns (B10 Water Tab /Isible on A c Position (I	(B9) (MLRA 1, 2,)) le (C2) erial imagery (C9
YDROLOGY Vetland Hydrology Indicato Yrimary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) SedIment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5)		Water-Stair MLRA 1 Salt Crust (Aquatic Inv Hydrogen S X Oxidized Ri Presence o	ned Leave , 2, 4A, ar B11) ertebrates Sulfide Odd hizosphere f Reduced n Reduction	nd 4B) ; (B13) or (C1) es along f Iron (C n In Tille	Living Roo 4) ed Soils (C6	W D S ts (C3) X G S) F	/ater-Stain 4A, and rainage Pa ny-Season aturation N eomorphic hallow Aqu AC-Neutra	ed Leaves 4B) atterns (B10 Water Tab /Isible on A > Position (I uitard (D3)	(B9) (MLRA 1, 2,)) le (C2) erial Imagery (C9)2)
YDROLOGY Vetland Hydrology Indicator (rimary Indicators (minimum) 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)	of one required	Water-Stair MLRA 1 Salt Crust (Aquatic Inv Hydrogen S X Oxidized R Presence o Recent Iron Stunted or	ned Leave , 2, 4A, ar B11) ertebrates Sulfide Odd hizosphere f Reduced Reduction Stressed F	nd 4B) 5 (B13) or (C1) es along 1 Iron (C n In Tille Plants (D	Living Roo 4) ed Soils (C6	W D S ts (C3) X G S) F	Ater-Stain 4A, and rainage Pa ry-Season aturation N eomorphic hallow Aqu AC-Neutra aised Ant	ed Leaves 4B) attems (B10 Water Tab /Isible on A > Position (I uitard (D3) I Test (D5)	(B9) (MLRA 1, 2,)) le (C2) erial imagery (C9)2) 6) (LRR A)
YDROLOGY Vetland Hydrology Indicato rimary Indicators (minimum 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)	of one required	Water-Stain MLRA 1 Salt Crust (Aquatic Inv Hydrogen S X Oxidized R Presence o Recent Iron Stunted or Other (Expl	ned Leave , 2, 4A, ar B11) ertebrates Sulfide Odd hizosphere f Reduced Reduction Stressed F	nd 4B) 5 (B13) or (C1) es along 1 Iron (C n In Tille Plants (D	Living Roo 4) ed Soils (C6	W D S ts (C3) X G S) F	Ater-Stain 4A, and rainage Pa ry-Season aturation N eomorphic hallow Aqu AC-Neutra aised Ant	ed Leaves 4B) attems (B10 Water Tab /Isible on A > Position (I uitard (D3) I Test (D5) Mounds (D	(B9) (MLRA 1, 2,)) le (C2) erial imagery (C9)2) 6) (LRR A)
YDROLOGY Vetland Hydrology Indicato Primary Indicators (minimum 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 Aer Sparsely Vegetated Cond	of one required	Water-Stain MLRA 1 Salt Crust (Aquatic Inv Hydrogen S X Oxidized R Presence o Recent Iron Stunted or Other (Expl	ned Leave , 2, 4A, ar B11) ertebrates Sulfide Odd hizosphere f Reduced Reduction Stressed F	nd 4B) 5 (B13) or (C1) es along 1 Iron (C n In Tille Plants (D	Living Roo 4) ed Soils (C6	W D S ts (C3) X G S) F	Ater-Stain 4A, and rainage Pa ry-Season aturation N eomorphic hallow Aqu AC-Neutra aised Ant	ed Leaves 4B) attems (B10 Water Tab /Isible on A > Position (I uitard (D3) I Test (D5) Mounds (D	(B9) (MLRA 1, 2,)) le (C2) erial imagery (C9)2) 6) (LRR A)
YDROLOGY Vetland Hydrology Indicator Yrimary Indicators (minimum 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 Aer Sparsely Vegetated Cond ield Observations:	of one required al Imagery (B7 ave Surface (E	Water-Stain MLRA 1 Salt Crust (Aquatic Inv Hydrogen S X Oxidized R Presence o Recent Iron Stunted or Other (Expl	ned Leave , 2, 4A, ar B11) ertebrates Sulfide Odd hizosphere f Reduced Reduction Stressed F ain in Rem	nd 4B) 5 (B13) or (C1) es along 1 Iron (C n In Tille Plants (D	Living Roo 4) ed Soils (C6	W D S ts (C3) X G S) F	Ater-Stain 4A, and rainage Pa ry-Season aturation N eomorphic hallow Aqu AC-Neutra aised Ant	ed Leaves 4B) attems (B10 Water Tab /Isible on A > Position (I uitard (D3) I Test (D5) Mounds (D	(B9) (MLRA 1, 2,)) le (C2) erial imagery (C9)2) 6) (LRR A)
YDROLOGY Vetland Hydrology Indicato Primary Indicators (minimum 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 Aer Sparsely Vegetated Cond Tield Observations: Surface Water Present?	of one required al Imagery (B7 ave Surface (B Yes N	Water-Stair MLRA 1 Salt Crust (Aquatic Inv Hydrogen S Oxidized Ri Presence o Recent Iron Stunted or 3 Stunted or 3 Other (Expl B)	ned Leaves , 2, 4A, ar B11) ertebrates Sulfide Odd hizosphere f Reduced Reduction Stressed F ain in Rem	nd 4B) 6 (B13) or (C1) es along 1 Iron (C n In Tille Plants (C narks)	Living Roo 4) ed Soils (C6	W D S ts (C3) X G S) F	Ater-Stain 4A, and rainage Pa ry-Season aturation N eomorphic hallow Aqu AC-Neutra aised Ant	ed Leaves 4B) attems (B10 Water Tab /Isible on A > Position (I uitard (D3) I Test (D5) Mounds (D	(B9) (MLRA 1, 2,)) le (C2) erial imagery (C9)2) 6) (LRR A)
YDROLOGY Vetland Hydrology Indicato Primary Indicators (minimum 	of one required al Imagery (B7 ave Surface (E Yes N Yes N	Water-Stair MLRA 1 Salt Crust (Aquatic Inv Hydrogen S Oxidized Ri Presence o Recent Iron Stunted or 3 Other (Expl 88)	ned Leave , 2, 4A, ar B11) ertebrates Sulfide Odd hizosphere f Reduced Reduction Stressed F ain in Ren hes):	nd 4B) 6 (B13) or (C1) es along 1 Iron (C n In Tille Plants (C narks)	Living Roo 4) d Soils (C6 01) (LRR A)	W D S ts (C3) X G S) F F	/ater-Stain 4A, and rainage Pa ry-Season aturation N eomorphie hallow Aqu AC-Neutra aised Ant rost-Heave	ed Leaves 4B) attems (B10 Water Tab (Islble on A Position (I Jitard (D3) I Test (D5) Mounds (D1 Hummock	(B9) (MLRA 1, 2,)) le (C2) erial imagery (C9)2) 6) (LRR A) s (D7)
YDROLOGY Vetland Hydrology Indicato Primary Indicators (minimum 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 Aer Sparsely Vegetated Cond Field Observations: Surface Water Present? Vater Table Present? Saturation Present? Saturation Present?	of one required al Imagery (B7 ave Surface (E Yes N Yes N Yes N	Water-Stair MLRA 1 Salt Crust (Aquatic Inv Hydrogen S X Oxidized Ri Presence o Recent Iron Stunted or 3 Other (Expl 8) X Depth (incl No X Dept	hed Leaves , 2, 4A, ar B11) ertebrates Sulfide Odd hizosphere f Reduced n Reduction Stressed F ain in Rem hes): hes):	nd 4B) 6 (B13) or (C1) es along 1 Iron (C n In Tille Plants (C narks)	Living Roo 4) d Soils (C6 01) (LRR A)	W D S ts (C3) X G S) F F F	/ater-Stain 4A, and rainage Pa ry-Season aturation N eomorphie hallow Aqu AC-Neutra aised Ant rost-Heave	ed Leaves 4B) attems (B10 Water Tab (Islble on A Position (I Jitard (D3) I Test (D5) Mounds (D1 Hummock	(B9) (MLRA 1, 2,)) le (C2) erial imagery (C9)2) 6) (LRR A)
YDROLOGY Vetland Hydrology Indicato Primary Indicators (minimum 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 Aer Sparsely Vegetated Cond Field Observations: Surface Water Present? Vater Table Present? Saturation Present? Saturation Present?	of one required al Imagery (B7 ave Surface (E Yes N Yes N Yes N	Water-Stair MLRA 1 Salt Crust (Aquatic Inv Hydrogen S X Oxidized Ri Presence o Recent Iron Stunted or 3 Other (Expl 8) X Depth (incl No X Dept	hed Leaves , 2, 4A, ar B11) ertebrates Sulfide Odd hizosphere f Reduced n Reduction Stressed F ain in Rem hes): hes):	nd 4B) 6 (B13) or (C1) es along 1 Iron (C n In Tille Plants (C narks)	Living Roo 4) d Soils (C6 01) (LRR A)	W D S ts (C3) X G S) F F F	/ater-Stain 4A, and rainage Pa ry-Season aturation N eomorphie hallow Aqu AC-Neutra aised Ant rost-Heave	ed Leaves 4B) attems (B10 Water Tab (Islble on A Position (I Jitard (D3) I Test (D5) Mounds (D1 Hummock	(B9) (MLRA 1, 2,)) le (C2) erial imagery (C9)2) 6) (LRR A) s (D7)
YDROLOGY Vetland Hydrology Indicato Primary Indicators (minimum 	of one required al Imagery (B7 ave Surface (E Yes N Yes N Yes N	Water-Stair MLRA 1 Salt Crust (Aquatic Inv Hydrogen S X Oxidized Ri Presence o Recent Iron Stunted or 3 Other (Expl 8) X Depth (incl No X Dept	hed Leaves , 2, 4A, ar B11) ertebrates Sulfide Odd hizosphere f Reduced n Reduction Stressed F ain in Rem hes): hes):	nd 4B) 6 (B13) or (C1) es along 1 Iron (C n In Tille Plants (C narks)	Living Roo 4) d Soils (C6 01) (LRR A)	W D S ts (C3) X G S) F F F	/ater-Stain 4A, and rainage Pa ry-Season aturation N eomorphie hallow Aqu AC-Neutra aised Ant rost-Heave	ed Leaves 4B) attems (B10 Water Tab (Islble on A Position (I Jitard (D3) I Test (D5) Mounds (D1 Hummock	(B9) (MLRA 1, 2,)) le (C2) erial imagery (C9)2) 6) (LRR A) s (D7)
YDROLOGY Vetland Hydrology Indicato Primary Indicators (minimum 	of one required al Imagery (B7 ave Surface (E Yes N Yes N Yes N	Water-Stair MLRA 1 Salt Crust (Aquatic Inv Hydrogen S X Oxidized Ri Presence o Recent Iron Stunted or 3 Other (Expl 8) X Depth (incl No X Dept	hed Leaves , 2, 4A, ar B11) ertebrates Sulfide Odd hizosphere f Reduced n Reduction Stressed F ain in Rem hes): hes):	nd 4B) 6 (B13) or (C1) es along 1 Iron (C n In Tille Plants (C narks)	Living Roo 4) d Soils (C6 01) (LRR A)	W D S ts (C3) X G S) F F F	/ater-Stain 4A, and rainage Pa ry-Season aturation N eomorphie hallow Aqu AC-Neutra aised Ant rost-Heave	ed Leaves 4B) attems (B10 Water Tab (Islble on A Position (I Jitard (D3) I Test (D5) Mounds (D1 Hummock	(B9) (MLRA 1, 2,)) le (C2) erial imagery (C9)2) 6) (LRR A) s (D7)
YDROLOGY Vetland Hydrology Indicato Primary Indicators (minimum 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 Aer Sparsely Vegetated Cond Tield Observations: Surface Water Present? Vater Table Present? Vater Table Present? Saturation Present? Includes capillary fringe) Describe Recorded Data (street	of one required al Imagery (B7 ave Surface (E Yes N Yes N Yes N	Water-Stair MLRA 1 Salt Crust (Aquatic Inv Hydrogen S X Oxidized Ri Presence o Recent Iron Stunted or 3 Other (Expl 8) X Depth (incl No X Dept	hed Leaves , 2, 4A, ar B11) ertebrates Sulfide Odd hizosphere f Reduced n Reduction Stressed F ain in Rem hes): hes):	nd 4B) 6 (B13) or (C1) es along 1 Iron (C n In Tille Plants (C narks)	Living Roo 4) d Soils (C6 01) (LRR A)	W D S ts (C3) X G S) F F F	/ater-Stain 4A, and rainage Pa ry-Season aturation N eomorphie hallow Aqu AC-Neutra aised Ant rost-Heave	ed Leaves 4B) attems (B10 Water Tab (Islble on A Position (I Jitard (D3) I Test (D5) Mounds (D1 Hummock	(B9) (MLRA 1, 2,)) le (C2) erial imagery (C9)2) 6) (LRR A) s (D7)
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 Aer	of one required al Imagery (B7 ave Surface (E Yes N Yes N Yes N	Water-Stair MLRA 1 Salt Crust (Aquatic Inv Hydrogen S X Oxidized Ri Presence o Recent Iron Stunted or 3 Other (Expl 8) X Depth (incl No X Dept	hed Leaves , 2, 4A, ar B11) ertebrates Sulfide Odd hizosphere f Reduced n Reduction Stressed F ain in Rem hes): hes):	nd 4B) 6 (B13) or (C1) es along 1 Iron (C n In Tille Plants (C narks)	Living Roo 4) d Soils (C6 01) (LRR A)	W D S ts (C3) X G S) F F F	/ater-Stain 4A, and rainage Pa ry-Season aturation N eomorphie hallow Aqu AC-Neutra aised Ant rost-Heave	ed Leaves 4B) attems (B10 Water Tab (Islble on A Position (I Jitard (D3) I Test (D5) Mounds (D1 Hummock	(B9) (MLRA 1, 2,)) le (C2) erial imagery (C9)2) 6) (LRR A) s (D7)

Project/Site: Crude 54 Rail	City/County: A oa/	ortes Skagit Samplin	: n Date: 5/#/13
Applicant/Owner. Shell PSR		State: <u>\</u> Samplin	
Investigator(s): P. Hamid: B. Fletch	er Section Township R	ange: 34, 35N, ZF	ground <u></u>
Landform (nillslope) terrace, etc.):		• • • • • • • • • • • • • • • • • • • •	
Subregion (LRR). 21	Lac	Long:	Datum:
Soil Map Unit Name: 18-Bow gravelly			
Are climatic / hydrologic conditions on the site typical for this			
Are Vegetation, Soil, or Hydrology s			
Are Vegetation, Soil, or Hydrology r	naturally problematic? \mathcal{N} (If r	needed, explain any answers in Ren	narks.)
SUMMARY OF FINDINGS – Attach site map	showing sampling point	locations, transects, impo	rtant features, etc.
Hydrophytic Vegetation Present? Yes X N	10		<u>ي</u>
	lo X Is the Sample		V
	lo X within a Wetla	and? Yes No	Δ_{-}
Remarks: Grazed pasture	a		
Photos 56-5P			
VEGETATION - Use scientific names of plan	its.		
Tree Stratum (Plot size: 30-)	Absolute Dominant Indicator % Cover Species? Status		•
		Number of Dominant Species That Are OBL, FACW, or FAC:	
2			(A)
3		Total Number of Dominant Species Across All Strata:	ð m
4	er v. Saladan eriter met v. han her	a state a second state on the cardinal state of the construction	(B)
15-	= Total Cover	Percent of Dominant Species That Are OBL, FACW, or FAC:	100
Sapling/Shrub Stratum (Plot size:)		Prevalence index worksheet:	(A/B)
1. N/A		Total % Cover of:	Multiply by:
2		OBL species x	
3			2 =
4	- [*]		3= 288
.			4=
Herb Stratum (Plot size: 5)	= Total Cover	UPL species x	5 =
1. Trifolium repens	50 Y FAC	Column Totals:(A)- <u>304</u> (B)
2. Alopecurus pratensis	10 FAC	Prevalence Index = B/A =	3,04
3. Cerastium glomarata	40 FACY	Hydrophytic Vegetation Indica	
4. Agrost's capillaris	35 7 FAL	1 - Rapid Test for Hydrophy	
5. Geranium		. 2 - Dominance Test is >50%	
6		. 3 - Prevalence Index is ≤3.0	
7		4 - Morphological Adaptation	rs ^t (Provide supporting
8		data in Remarks or on a	separate sheet)
9		5 - Wetland Non-Vascular P	
10		Problematic Hydrophytic Ve	
11		¹ Indicators of hydric soil and wet be present, unless disturbed or p	and hydrology must
Woody Vine Stratum (Plot size:)	100_= Total Cover		
1. <u>N/A</u>		lindbidt-	
2		Hydrophytic Vegetation	8
2	= Total Cover	Present? Yes X	No
% Bare Ground in Herb Stratum		*	
Remarks:			
			1

Sampling Point:

	cription: (Describe	to the de	pth needed to docu	nent the indicator o	r confirm the abse	nce of indicators.)	
Depth	Matrix			x Features			
(inches)	Color (moist)	%	Color (moist)	<u>% Type1</u>	Loc ² Texture		
0-5	104R 3/2	100			109	<u>~ 202 «</u>	Wave
5-14	104× 3,5/3	100		102	Sand	y Loan 708	Svavel
							0
				• •	<u> </u>		
			<u></u>				
		• ——			·		
			•				
				18			8 1 1
					······································		
		lotion Dh	In Deduced Metric Of			2	
			/I=Reduced Matrix, C: II LRRs, unless othe			² Location: PL=Pore Lining cators for Problematic H	
	• • • •			-		141 AT	yaric Solis :
Histosol	pipedon (A2)		Sandy Redox (Stripped Matrix	•		2 cm Muck (A10) Red Parent Material (TF2)	
	lstic (A3)			Mineral (F1) (except		Very Shallow Dark Surface	
	en Sulfide (A4)		Loamy Gleyed		· · ·	Other (Explain in Remarks	
	d Below Dark Surfac	e (A11)	Depleted Matrix				,
Thick D	ark Surface (A12)		Redox Dark Su	rface (F6)	^o Indi	cators of hydrophytic vege	tation and
	Mucky Mineral (S1)		Depleted Dark		w	etland hydrology must be	present,
	Gleyed Matrix (S4)		Redox Depress	ions (F8)	U	nless disturbed or problem	atic.
	Layer (if present):		1111111111111		to and an important diffe		
	NON						~
Depth (in	ches):	251			Hydric S	Soll Present? Yes	No
Remarks:							
-	drology Indicators:					¥	
		ne require	ed; check all that appl			condary Indicators (2 or m	
	Water (A1)			ined Leaves (B9) (ex	cept	_ Water-Stained Leaves (I	39) (MLRA 1, 2,
*	ater Table (A2)			1, 2, 4A, and 4B)		4A, and 4B)	
Saturati	states and states and states.		Salt Crust		55 I 5 7 75 <u>79</u>	_ Drainage Patterns (810)	
	larks (B1)			vertebrates (B13)		Dry-Season Water Table	• •
	nt Deposits (B2)			Sulfide Odor (C1)		Saturation Visible on Ae	rial Imagery (C9) i
	posits (B3)						
	at as Coust (BA)				081	_ Geomorphic Position (D)	
	at or Crust (84)		Presence	of Reduced Iron (C4)		Shallow Aquitard (D3)	
Iron Dep	oosits (B5)		Presence Recent Iro	of Reduced Iron (C4) n Reduction in Tilled	Soils (C6)	Shallow Aquitard (D3) FAC-Neutral Test (D5)	2)
Iron Dep Surface	oosits (B5) Soil Cracks (B6)	mageny (F	Presence Recent Iro Stunted or	of Reduced Iron (C4) n Reduction in Tilled Stressed Plants (D1	Soils (C6)	Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6)	2)) (LRR A)
Iron Dep Surface Inundati	oosits (B5) Soil Cracks (B6) ion Visible on Aeriai I		Presence of Recent Iro	of Reduced Iron (C4) n Reduction in Tilled	Soils (C6)	Shallow Aquitard (D3) FAC-Neutral Test (D5)	2)) (LRR A)
Iron Der Surface Inundati	oosits (B5) Soil Cracks (B6) on Visible on Aeriai I y Vegetated Concave		Presence of Recent Iro	of Reduced Iron (C4) n Reduction in Tilled Stressed Plants (D1	Soils (C6)	Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6)	2)) (LRR A)
Iron Dep Surface Inundati Sparsely	oosits (B5) Soil Cracks (B6) on Visible on Aeriai I y Vegetated Concave vations:	Surface	Presence (Recent Iro Stunted or (B8)	of Reduced Iron (C4) n Reduction in Tilled Stressed Plants (D1 Ilain in Remarks)	Soils (C6)) (LRR A)	Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6)	2)) (LRR A)
Iron Der Surface Inundati Sparsel Fleid Obser Surface Wat	oosits (B5) Soil Cracks (B6) Ion Visible on Aeriai I y Vegetated Concave vations: Iver Present? Y	es	Presence of Recent Iro Stunted or S7) Other (Exp (B8) No X Depth (ind	of Reduced Iron (C4) n Reduction in Tilled Stressed Plants (D1 lain in Remarks) thes):	Soils (C6)) (LRR A)	Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6)	2)) (LRR A)
Iron Der Surface Inundati Sparsel Fleid Obser Surface Wate Water Table	oosits (B5) Soil Cracks (B6) on Visible on Aeriai I y Vegetated Concave vations: ter Present? Present? Y	es es	Presence of Recent Iro Stunted or 37) Other (Exp (B8) NoX_ Depth (ind NoX_ Depth (ind	of Reduced Iron (C4) n Reduction in Tilled Stressed Plants (D1 plain in Remarks) phes):	Soils (C6)) (LRR A) 	Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) Frost-Heave Hummocks	2)) (LRR A) (D7)
Iron Der Surface Inundati Sparsel Fleld Obser Surface Wate Water Table Saturation P	oosits (B5) Soil Cracks (B6) Ion Visible on Aeriai I y Vegetated Concave vations: ter Present? Present? Yresent?	es es	Presence of Recent Iro Stunted or S7) Other (Exp (B8) No X Depth (ind	of Reduced Iron (C4) n Reduction in Tilled Stressed Plants (D1 plain in Remarks) phes):	Soils (C6)) (LRR A) 	Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6)	2)) (LRR A) (D7)
Iron Der Surface Inundati Sparsely Fleid Obser Surface Wate Water Table Saturation P (includes ca	oosits (B5) Soil Cracks (B6) on Visible on Aeriai I y Vegetated Concave vations: ter Present? Present? Viresent? Viresent? Viresent? Viresent?	es es es	Presence of Recent Iro Stunted or 37) Other (Exp (B8) NoX_ Depth (ind NoX_ Depth (ind	of Reduced Iron (C4) n Reduction in Tilled Stressed Plants (D1 plain in Remarks) ches): ches):	Soils (C6)) (LRR A) Wetland Hydrol	Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) Frost-Heave Hummocks	2)) (LRR A) (D7)
Iron Der Surface Inundati Sparsely Fleid Obser Surface Wate Water Table Saturation P (includes ca	oosits (B5) Soil Cracks (B6) on Visible on Aeriai I y Vegetated Concave vations: ter Present? Present? Viresent? Viresent? Viresent? Viresent?	es es es	Presence of Recent Iro Stunted or 37) Other (Exp (B8) NoX Depth (ind NoX Depth (ind NoX Depth (ind	of Reduced Iron (C4) n Reduction in Tilled Stressed Plants (D1 plain in Remarks) ches): ches):	Soils (C6)) (LRR A) Wetland Hydrol	Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) Frost-Heave Hummocks	2)) (LRR A) (D7)
Iron Der Surface Inundati Sparsely Fleid Obser Surface Wate Water Table Saturation P (includes ca	oosits (B5) Soil Cracks (B6) on Visible on Aeriai I y Vegetated Concave vations: ter Present? Present? Viresent? Viresent? Viresent? Viresent?	es es es	Presence of Recent Iro Stunted or 37) Other (Exp (B8) NoX Depth (ind NoX Depth (ind NoX Depth (ind	of Reduced Iron (C4) n Reduction in Tilled Stressed Plants (D1 plain in Remarks) ches): ches):	Soils (C6)) (LRR A) Wetland Hydrol	Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) Frost-Heave Hummocks	2)) (LRR A) (D7)
Iron Der Surface Inundati Sparsely Fleid Obser Surface Wate Water Table Saturation P (includes caj Describe Re	oosits (B5) Soil Cracks (B6) on Visible on Aeriai I y Vegetated Concave vations: ter Present? Present? Viresent? Viresent? Viresent? Viresent?	es es es	Presence of Recent Iro Stunted or 37) Other (Exp (B8) NoX Depth (ind NoX Depth (ind NoX Depth (ind	of Reduced Iron (C4) n Reduction in Tilled Stressed Plants (D1 plain in Remarks) ches): ches):	Soils (C6)) (LRR A) Wetland Hydrol	Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) Frost-Heave Hummocks	2)) (LRR A) (D7)
Iron Der Surface Inundati Sparsely Fleid Obser Surface Wate Water Table Saturation P (includes caj Describe Re	oosits (B5) Soil Cracks (B6) on Visible on Aeriai I y Vegetated Concave vations: ter Present? Present? Viresent? Viresent? Viresent? Viresent?	es es es	Presence of Recent Iro Stunted or 37) Other (Exp (B8) NoX Depth (ind NoX Depth (ind NoX Depth (ind	of Reduced Iron (C4) n Reduction in Tilled Stressed Plants (D1 plain in Remarks) ches): ches):	Soils (C6)) (LRR A) Wetland Hydrol	Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) Frost-Heave Hummocks	2)) (LRR A) (D7)
Iron Der Surface Inundati Sparsely Fleid Obser Surface Wate Water Table Saturation P (includes caj Describe Re	oosits (B5) Soil Cracks (B6) on Visible on Aeriai I y Vegetated Concave vations: ter Present? Present? Viresent? Viresent? Viresent? Viresent?	es es es	Presence of Recent Iro Stunted or 37) Other (Exp (B8) NoX Depth (ind NoX Depth (ind NoX Depth (ind	of Reduced Iron (C4) n Reduction in Tilled Stressed Plants (D1 plain in Remarks) ches): ches):	Soils (C6)) (LRR A) Wetland Hydrol	Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) Frost-Heave Hummocks	2)) (LRR A) (D7)
Iron Der Surface Inundati Sparsely Fleid Obser Surface Wate Water Table Saturation P (includes caj Describe Re	oosits (B5) Soil Cracks (B6) on Visible on Aeriai I y Vegetated Concave vations: ter Present? Present? Viresent? Viresent? Viresent? Viresent?	es es es	Presence of Recent Iro Stunted or 37) Other (Exp (B8) NoX Depth (ind NoX Depth (ind NoX Depth (ind	of Reduced Iron (C4) n Reduction in Tilled Stressed Plants (D1 plain in Remarks) ches): ches):	Soils (C6)) (LRR A) Wetland Hydrol	Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) Frost-Heave Hummocks	2)) (LRR A) (D7)

WETLAND DETERMINATION D	DATA FORM -	Western Mou	intains, Valleys, and Coast Region
Project/Site: Crude by Rail	Citv/C	County Agac	ortes/skayit Sampling Date: 5/ P/13
Applicant/Owner Shell PSR			$\underline{\qquad} \text{State:} \underline{\qquad} \mathcal{M} \underbrace{\qquad} \text{Sampling Date:} \underbrace{\mathcal{M}} \underbrace{\mathcal{M}} \underbrace{\qquad} \text{Sampling Point:} \underbrace{\mathcal{M}} \underbrace{\mathcal{M}} \underbrace{\mathcal{M}} \underbrace{\qquad} \mathcal{M} $
Investigator(s): P. Hanidi, B. Fletc	her south	on Townshis Da	
Landform (hillslope, terrace, etc.)		ton, rownship, Ra	ponvex, none): Slope (%):
Soil Man Linit Name: 19 - Raha El avalle	Lac		_ Long: Datum:
Soil Map Unit Name: <u>19 - Bow fravelly</u>	104 m		NWI classification: PF OC
Are climatic / hydrologic conditions on the site typical for t	his time of year? Y	'es <u>X</u> No _	(If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology	significantly distur	bed? // Are	"Normal Circumstances" present? Yes No
Are Vegetation, Soil, or Hydrology			
	p showing san	pling point'l	ocations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes X	No 0		8
Hydric Soil Present? Yes X Wetland Hydrology Present? Yes X	No	is the Sampled within a Wetla	
Remarks:			
Remarks: Cattle trampled			
Photos 46-49			
VEGETATION – Use scientific names of pla	nts.		
		ninant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: <u>30</u>)	% Cover Spe	cies? <u>Status</u>	Number of Dominant Species
1. Salix scouteriana		<u>FAC</u>	That Are OBL, FACW, or FAC: (A)
2			Total Number of Dominant
3			Species Across All Strata:/ (B)
	- 70 = Tot	tal Cover	Percent of Dominant Species
Sapling/Shrub Stratum (Plot size: 15)		al Cover	That Are OBL, FACW, or FAC: (A/B)
1. Revous spectabilis	<u> </u>	FAL	Prevalence index worksheet:
2. Demlariq cerasaformis		FALY	<u>Totai % Cover of:</u> <u>Multiply by:</u>
3. Lonicera involucrata	<u> </u>	FAC	OBL species x 1 = FACW species x 2 =
4			FAC species $1/2$ $x_3 = 336$
0	37_=To		FAGU species x 4 =44
Herb Stratum (Plot size: 5)		al Cover	UPL species x 5 =
-1. Atherium Filix - Ceming		Y PAC	Column Totals: 123 (A) 380 (B)
2. Tellima grandiflora	a a station	FACU	Prevalence Index = B/A = 73.09
3			Hydrophytic Vegetation Indicators:
4			1 - Rapid Test for Hydrophytic Vegetation
5			¥ 2 - Dominance Test is >50%
6			3 - Prevalence Index is ≤3.0 ¹
7 8			4 - Morphological Adaptations ¹ (Provide supporting
89			data in Remarks or on a separate sheet)
9 10			5 - Wetland Non-Vascular Plants ¹
11			Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must
		I Cover	be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: / 5)			8
1. Rubus ursinus	<u> </u>	FACU	Hydrophytic
2			Vegetation
% Bare Ground in Herb Stratum 75	= Tota =	l Cover	Present? Yes <u>X</u> No
Remarks:			
Lack of reg. in herb stra	atom do	to scb	stantial cattle trampling
and Long duration Pondi	NG .		
	_ 		07

US Army Corps of Engineers

Western Mountains, Valleys, and Coast - Version 2.0

JUIL	S	0	11	
------	---	---	----	--

Sampling Point: ______

Depth	<u>Matrix</u>		<u> </u>	Features					
inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture		Remarks
-0						- <u> </u>		Litter	Layzy
0-9	loyR311	90	IOUR MM	10	_ <u>C</u>	m, PL	Silty clay	Loam	
7-16	101 4/1	70	7,54R56	30	C	m	Cluy Joan	1020 9	Yave)
				······		•			
	_ <u></u>						<u> </u>		
				<u> </u>		•*	<u> </u>		
	·	<u> </u>	·			·	0		
					11				
	Concentration D=De	nietion RM	=Reduced Matrix, CS	=Covered	or Coat	ed Sand Gr	ains. ² Loca	ation: PL=Por	e Lining, M=Matrix.
vdric Soll	indicators: (Appli	cable to all	LRRs, unless other	wise note	d.)		indicator		natic Hydric Soils ³ :
Histoso			Sandy Redox (S		•		2 cm	Muck (A10)	
	plpedon (A2)		Stripped Matrix	•			_	Parent Materia	ll (T F2)
	listic (A3)		Loamy Mucky M	ineral (F1) (excep	ot MLRA 1)			Surface (TF12)
	en Sulfide (A4)		🗶 Loamy Gleyed N		I		Othe	r (Explain in R	emarks)
	d Below Dark Surfa	ce (A11)	Depleted Matrix				3,		• · · 4 - 4• •
_	ark Surface (A12)		Kedox Dark Sur		71				ic vegetation and
	Mucky Mineral (S1) Gleved Matrix (S4)		Depleted Dark S Redox Depressi	•	()			a nyarology m s disturbed or p	ust be present, problematic.
	Gleyed Matrix (S4) Layer (if present):					····			
Type:	Clay too	~ lay	R		a				1. () - (a. () - () - () - () - () - () - () - ()
Depth (in	d. 11.						Hydric Soil	Present? V	es × No
Remarks:									
YDROLC	DGY		6 6 8						
)GY /drology indicators		2012 (012 - 2014) - F - 2014 - 2014 2014 2014 2014 2014 2014 2014	5			1		
Vetland Hy	drology indicators		d; check all that apply						s (2 or more required)
Vetland Hy Primary Indi	drology indicators		td: check all that apply Water-Stale		es (B9) (except			s (2 or more required) eaves (B9) (MLRA 1,
Vetland Hy Primary Indi Surface	drology indicators		Water-Stale MLRA 1	ned Leave I, 2, 4A, a		except	<u></u> ∡w	ater-Stained Lo 4A, and 4B)	eaves (B9) (MLRA 1,
Vetland Hy Primary Ind Surface High W Saturat	ydrology Indicators icators (minimum of Water (A1) ater Table (A2) ion (A3)		Water-Stain MLRA 1 Salt Crust (ned Leave I, 2, 4A, a (B11)	nd 4B)	except	<u>×</u> w	ater-Stained L 4A, and 4B) rainage Patterr	eaves (B9) (MLRA 1, ns (B10)-
Vetland Hy Primary Indi Surface High W Saturat	ydrology Indicators icators (minimum of 9 Water (A1) ater Table (A2) ion (A3) Marks (B1)		Water-Stall MLRA Salt Crust Aquatic Inv	ned Leave I , 2, 4A, a (B11) vertebrates	nd 4B) s (B13)	e D — o	<u></u> W	ater-Stained L 4A, and 4B) ralnage Patterr ry-Season Wat	eaves (B9) (MLRA 1, ns (B10)- er Table (C2)
Vetland Hy Primary Indi Surface High W Saturat Water M Sedime	ydrology Indicators icators (minimum of a Water (A1) ater Table (A2) ion (A3) Marks (B1) ent Deposits (B2)		Water-Stall MLRA Salt Crust (Aquatic Inv Hydrogen S	ned Leave I, 2, 4A, a (B11) rertebrates Sulfide Od	nd 4B) s (B13) lor (C1)	2) - 0) (2) - 0	Dr Dr Sa	Ater-Stained L 4A, and 4B) rainage Patterr ry-Season Wat aturation Visible	eaves (B9) (MLRA 1, ns (B10) er Table (C2) e on Aerial imagery (C
Vetland Hy <u>Primary Indi</u> Surface High W Saturat Water M Sedime Drift De	ydrology Indicators icators (minimum of a Water (A1) later Table (A2) ion (A3) Marks (B1) ant Deposits (B2) aposits (B3)		Water-Stall MLRA Salt Crust Aquatic Inv Hydrogen S	ned Leave I, 2, 4A, a (B11) rertebrates Sulfide Od hizospher	nd 4B) s (B13) for (C1) res along	g Living Roc	Dr Dr Sa Sa Sa	Vater-Stained L 4A, and 4B) rainage Patterr ry-Season Wat aturation Visible eornorphic Pos	eaves (B9) (MLRA 1, ns (B10) er Table (C2) e on Aerial imagery (C sition (D2)
Yetland Hy Primary Indi Surface High W Saturat Water ↑ Sedime Drift De Algal M	ydrology Indicators icators (minimum of a Water (A1) ater Table (A2) ion (A3) Marks (B1) ant Deposits (B2) aposits (B3) lat or Crust (B4)		Water-Stall MLRA Salt Crust (Aquatic Inv Hydrogen S X Oxidized R Presence c	ned Leave I, 2, 4A, a (B11) rertebrates Sulfide Od hizospher of Reduced	nd 4B) s (B13) for (C1) es along d Iron (C	g Living Roo 24)	Dr Dr Sa Sa Sa Sa Sa	ater-Stained L 4A, and 4B) rainage Patterr ry-Season Wat aturation Visible eomorphic Pos hallow Aquitard	eaves (B9) (MLRA 1, ns (B10)- er Table (C2) e on Aerial imagery (C idtion (D2) I (D3)
Vetland Hy <u>Primary Indi</u> Surface High W Saturat Water M Sedime Drift De Algal M Iron De	ydrology Indicators icators (minimum of a Water (A1) 'ater Table (A2) ion (A3) Marks (B1) ent Deposits (B2) eposits (B3) lat or Crust (B4) eposits (B5)		Water-Stall MLRA 1 Salt Crust (Aquatic Inv Hydrogen 3 XOxidized R Presence c Recent Iron	ned Leave I, 2, 4A, a (B11) vertebrates Sulfide Od hizospher of Reduced n Reductio	nd 4B) s (B13) lor (C1) res along d Iron (C on in Till	g Living Roo 24) ed Soils (C6	Dr Dr Dr Sa ots (C3) 「X Ga 工 Sr 5) F4	ater-Stained L 4A, and 4B) rainage Patterr ry-Season Wat aturation Visible eomorphic Pos hallow Aquitard AC-Neutral Tes	eaves (B9) (MLRA 1, ns (B10)
Vetland Hy Primary Indi Surface High W Saturat Water # Sedime Drift De Algal M Iron De Surface	ydrology Indicators icators (minimum of a Water (A1) ater Table (A2) ion (A3) Marks (B1) ent Deposits (B2) aposits (B3) lat or Crust (B4) aposits (B5) a Soli Cracks (B6)	<u>one require</u>	Water-Stall MLRA 1 Salt Crust (Aquatic Inv Hydrogen 3 X Oxidized R Presence c Recent Iron Stunted or	ned Leave (3, 2, 4A, a (811) vertebrates Sulfide Od hizospher of Reduced n Reductio Stressed (nd 4B) or (C1) es along d Iron (C on in Till Plants (I	g Living Roo 24)	Dr Dr Se ots (C3) Se St 5) F4) Ra	ater-Stained L 4A, and 4B) rainage Patterr ry-Season Wat aturation Visible eomorphic Pos hallow Aquitard AC-Neutral Tes aised Ant Mou	eaves (B9) (MLRA 1, ns (B10)- er Table (C2) e on Aerial imagery (C sition (D2) i (D3) st (D5) nds (D6) (LRR A)
Vetland Hy <u>Primary Indi</u> Surface High W Saturati Water ↑ Y Sedime Drift De Algal M Iron De Surface Inundati	ydrology Indicators icators (minimum of a Water (A1) ater Table (A2) ion (A3) Marks (B1) ant Deposits (B2) aposits (B3) lat or Crust (B4) aposits (B5) a Soll Cracks (B6) tion Visible on Aerial	one require	Water-Stall MLRA 1 Salt Crust (Aquatic Inv Hydrogen 3 Coxidized R Presence 0 Recent Iron Stunted or 37) Other (Exp	ned Leave (3, 2, 4A, a (811) vertebrates Sulfide Od hizospher of Reduced n Reductio Stressed (nd 4B) or (C1) es along d Iron (C on in Till Plants (I	g Living Roo 24) ed Soils (C6	Dr Dr Se ots (C3) Se St 5) F4) Ra	ater-Stained L 4A, and 4B) rainage Patterr ry-Season Wat aturation Visible eomorphic Pos hallow Aquitard AC-Neutral Tes	eaves (B9) (MLRA 1, ns (B10)- er Table (C2) e on Aerial imagery (C sition (D2) i (D3) st (D5) nds (D6) (LRR A)
Vetland Hy Primary Indi Surface High W Saturat Water ↑ Y Sedime Drift De Algal M Iron De Surface Inundat X Sparsel	ydrology Indicators icators (minimum of a Water (A1) later Table (A2) ion (A3) Marks (B1) ant Deposits (B2) aposits (B3) lat or Crust (B4) aposits (B5) a Soil Cracks (B6) tion Visible on Aerial by Vegetated Concar	one require	Water-Stall MLRA 1 Salt Crust (Aquatic Inv Hydrogen 3 Coxidized R Presence 0 Recent Iron Stunted or 37) Other (Exp	ned Leave (3, 2, 4A, a (311) vertebrates Sulfide Od hizospher of Reduced n Reductio Stressed (nd 4B) or (C1) es along d Iron (C on in Till Plants (I	g Living Roo 24) ed Soils (C6	Dr Dr Se ots (C3) Se St 5) F4) Ra	ater-Stained L 4A, and 4B) rainage Patterr ry-Season Wat aturation Visible eomorphic Pos hallow Aquitard AC-Neutral Tes aised Ant Mou	eaves (B9) (MLRA 1, ns (B10)- er Table (C2) e on Aerial imagery (C sition (D2) i (D3) st (D5) nds (D6) (LRR A)
Vetland Hy <u>Primary Indi</u> Surface High W Saturat Vater M Sedime Orift De Algal M Iron De Surface Inundat Sparsel Field Obse	ydrology Indicators icators (minimum of a Water (A1) 'ater Table (A2) ion (A3) Marks (B1) ent Deposits (B2) aposits (B3) lat or Crust (B4) aposits (B5) a Soll Cracks (B6) tion Visible on Aerial by Vegetated Concar rvations:	one require	Water-Stall MLRA 1 Salt Crust (Aquatic Inv Hydrogen 3 XOxidized R Presence c Recent Iron Stunted or 37)Other (Exp (88)	ned Leave i , 2, 4 A , a (B11) vertebrates Sulfide Od hizospher of Reduced n Reduction Stressed I lain in Rer	nd 4B) (a (B13) (ar (C1)) (as along d Iron (C on in Till Plants (I marks)	g Living Roc 24) ed Soils (C6 D1) (LRR A	Dr Dr Se ots (C3) Se St 5) F4) Ra	ater-Stained L 4A, and 4B) rainage Patterr ry-Season Wat aturation Visible eomorphic Pos hallow Aquitard AC-Neutral Tes aised Ant Mou	eaves (B9) (MLRA 1, ns (B10)- er Table (C2) e on Aerial imagery (C sition (D2) i (D3) st (D5) nds (D6) (LRR A)
Vetland Hy Primary Indi Surface High W Saturat Vater ↑ Sodime Orift De Algal M Iron De Surface Field Obse	ydrology Indicators icators (minimum of a Water (A1) 'ater Table (A2) ion (A3) Marks (B1) ent Deposits (B2) aposits (B3) lat or Crust (B4) aposits (B5) a Soli Cracks (B6) tion Visible on Aerial ly Vegetated Concar rvations: iter Present?	one require Imagery (B ve Surface (Yes	Water-Stall MLRA 1 Salt Crust (Aquatic Inv Hydrogen 3 XOxidized R Presence c Recent Iron Stunted or 37)Other (Exp (88) NoDepth (inc	ned Leave 1, 2, 4A, a (B11) vertebrates Sulfide Od hizospher of Reduced n Reduction Stressed I lain in Rer thes):	nd 4B) s (B13) lor (C1) res along d Iron (C on in Till Plants (i marks)	g Living Roc 24) ed Soils (C6 D1) (LRR A	Dr Dr Se ots (C3) Se St 5) F4) Ra	ater-Stained L 4A, and 4B) rainage Patterr ry-Season Wat aturation Visible eomorphic Pos hallow Aquitard AC-Neutral Tes aised Ant Mou	eaves (B9) (MLRA 1, ns (B10)- er Table (C2) e on Aerial imagery (C sition (D2) i (D3) st (D5) nds (D6) (LRR A)
Perimary Indi	ydrology Indicators icators (minimum of a Water (A1) ater Table (A2) ion (A3) Marks (B1) ent Deposits (B2) eposits (B3) lat or Crust (B4) eposits (B5) a Soil Cracks (B6) tion Visible on Aerial ty Vegetated Concar rvations: tter Present? a Present?	one require	Water-Stall MLRA 1 Salt Crust (Aquatic Inv Aquatic Inv	ned Leave 1, 2, 4A, a (B11) vertebrates Sulfide Od hizospher of Reduced n Reduction Stressed I lain in Rer thes): thes):	nd 4B) s (B13) lor (C1) res along d Iron (C on in Till Plants (I marks)	g Living Roc 24) ed Soils (C6 D1) (LRR A	Dr Dr Sc Sc St Fr Fr	ater-Stained L 4A, and 4B) rainage Patterr ry-Season Wat aturation Visible eomorphic Pos hallow Aquitard AC-Neutral Tes aised Ant Mour rost-Heave Hur	eaves (B9) (MLRA 1, ns (B10)
Vetland Hy Primary Indi Surface High W Saturat Vater ↑ Sedime Drift De Algal M Iron De Iron De Iron De Surface Karace Surface Wa Water Table Saturation F	ydrology Indicators icators (minimum of a Water (A1) ater Table (A2) ion (A3) Marks (B1) ant Deposits (B2) aposits (B3) lat or Crust (B4) posits (B5) a Soll Cracks (B6) tion Visible on Aerial ly Vegetated Concar rvations: iter Present? Present?	one require	Water-Stall MLRA 1 Salt Crust (Aquatic Inv Hydrogen 3 XOxidized R Presence c Recent Iron Stunted or 37)Other (Exp (88) NoDepth (inc	ned Leave 1, 2, 4A, a (B11) vertebrates Sulfide Od hizospher of Reduced n Reduction Stressed I lain in Rer thes): thes):	nd 4B) s (B13) lor (C1) res along d Iron (C on in Till Plants (I marks)	g Living Roc 24) ed Soils (C6 D1) (LRR A	Dr Dr Se ots (C3) Se St 5) F4) Ra	ater-Stained L 4A, and 4B) rainage Patterr ry-Season Wat aturation Visible eomorphic Pos hallow Aquitard AC-Neutral Tes aised Ant Mour rost-Heave Hur	eaves (B9) (MLRA 1, ns (B10)
Wetland Hy Primary Indi Surface High W Saturati Water ↑ Y Sedime Drift De Algal M Iron De Surface Inundati X Sparsei Surface Wa Surface Saturation F Sturface Saturation F	ydrology Indicators icators (minimum of a Water (A1) ater Table (A2) ion (A3) Marks (B1) ant Deposits (B2) eposits (B3) lat or Crust (B4) eposits (B5) a Soil Cracks (B6) tion Visible on Aerial ty Vegetated Conca rvations: ter Present? a Present? Present? apillary fringe)	one require	Water-Stall MLRA 1 Salt Crust (Aquatic Inv Aquatic Inv	ned Leave , 2, 4A, a (B11) vertebrates Sulfide Od hizospher of Reduced n Reduction Stressed I lain in Rer thes): thes): thes):	nd 4B) s (B13) lor (C1) res along d Iron (C on in Till Plants (I marks)	g Living Roc 24) ed Soils (Cf D1) (LRR A	Dr Dr Sa Sa Sa Sa Fr Fr Fr Sa Fr	ater-Stained L 4A, and 4B) rainage Patterr ry-Season Wat aturation Visible eomorphic Pos hallow Aquitard AC-Neutral Tes aised Ant Mour rost-Heave Hur	eaves (B9) (MLRA 1, ns (B10)
Wetland Hy Primary Indi Surface High W Saturati Water ↑ Y Sedime Drift De Algal M Iron De Surface Inundati X Sparsei Surface Wa Surface Saturation F Sturface Saturation F	ydrology Indicators icators (minimum of a Water (A1) ater Table (A2) ion (A3) Marks (B1) ant Deposits (B2) eposits (B3) lat or Crust (B4) eposits (B5) a Soil Cracks (B6) tion Visible on Aerial ty Vegetated Conca rvations: ter Present? a Present? Present? apillary fringe)	one require	Water-Stall MLRA 1 Salt Crust (Aquatic Inv	ned Leave , 2, 4A, a (B11) vertebrates Sulfide Od hizospher of Reduced n Reduction Stressed I lain in Rer thes): thes): thes):	nd 4B) s (B13) lor (C1) res along d Iron (C on in Till Plants (I marks)	g Living Roc 24) ed Soils (Cf D1) (LRR A	Dr Dr Sa Sa Sa Sa Fr Fr Fr Sa Fr	ater-Stained L 4A, and 4B) rainage Patterr ry-Season Wat aturation Visible eomorphic Pos hallow Aquitard AC-Neutral Tes aised Ant Mour rost-Heave Hur	eaves (B9) (MLRA 1, ns (B10)
Wetland Hy Primary Indi Surface High W Saturat Vater f Sedime Algal M Iron De Surface Inundat Field Obse Surface Wa Water Table Saturation F Includes ca Describe Re	ydrology Indicators icators (minimum of a Water (A1) ater Table (A2) ion (A3) Marks (B1) ant Deposits (B2) eposits (B3) lat or Crust (B4) eposits (B5) a Soil Cracks (B6) tion Visible on Aerial ty Vegetated Conca rvations: ter Present? a Present? Present? apillary fringe)	one require	Water-Stall MLRA 1 Salt Crust (Aquatic Inv	ned Leave , 2, 4A, a (B11) vertebrates Sulfide Od hizospher of Reduced n Reduction Stressed I lain in Rer thes): thes): thes):	nd 4B) s (B13) lor (C1) res along d Iron (C on in Till Plants (I marks)	g Living Roc 24) ed Soils (Cf D1) (LRR A	Dr Dr Sa Sa Sa Sa Fr Fr Fr	ater-Stained L 4A, and 4B) rainage Patterr ry-Season Wat aturation Visible eomorphic Pos hallow Aquitard AC-Neutral Tes aised Ant Mour rost-Heave Hur	eaves (B9) (MLRA 1, ns (B10)
Wetland Hy Primary Indi Surface High W Saturati Water ↑ Y Sedime Drift De Algal M Iron De Surface Inundati X Sparsei Surface Wa Surface Wa Water Table Saturation F Includes ca Describe Re	ydrology Indicators icators (minimum of a Water (A1) ater Table (A2) ion (A3) Marks (B1) ant Deposits (B2) eposits (B3) lat or Crust (B4) eposits (B5) a Soil Cracks (B6) tion Visible on Aerial ty Vegetated Conca rvations: ter Present? a Present? Present? apillary fringe)	one require	Water-Stall MLRA 1 Salt Crust (Aquatic Inv	ned Leave , 2, 4A, a (B11) vertebrates Sulfide Od hizospher of Reduced n Reduction Stressed I lain in Rer thes): thes): thes):	nd 4B) s (B13) lor (C1) res along d Iron (C on in Till Plants (I marks)	g Living Roc 24) ed Soils (Cf D1) (LRR A	Dr Dr Sa Sa Sa Sa Fr Fr Fr	ater-Stained L 4A, and 4B) rainage Patterr ry-Season Wat aturation Visible eomorphic Pos hallow Aquitard AC-Neutral Tes aised Ant Mour rost-Heave Hur	eaves (B9) (MLRA 1, ns (B10)
Vetland Hy Primary Indi	ydrology Indicators icators (minimum of a Water (A1) ater Table (A2) ion (A3) Marks (B1) ant Deposits (B2) eposits (B3) lat or Crust (B4) eposits (B5) a Soil Cracks (B6) tion Visible on Aerial ty Vegetated Conca rvations: ter Present? a Present? Present? apillary fringe)	one require	Water-Stall MLRA 1 Salt Crust (Aquatic Inv	ned Leave , 2, 4A, a (B11) vertebrates Sulfide Od hizospher of Reduced n Reduction Stressed I lain in Rer thes): thes): thes):	nd 4B) s (B13) lor (C1) res along d Iron (C on in Till Plants (I marks)	g Living Roc 24) ed Soils (Cf D1) (LRR A	Dr Dr Sa Sa Sa Sa Fr Fr Fr	ater-Stained L 4A, and 4B) rainage Patterr ry-Season Wat aturation Visible eomorphic Pos hallow Aquitard AC-Neutral Tes aised Ant Mour rost-Heave Hur	eaves (B9) (MLRA 1, ns (B10)
Primary Indi Surface High W Saturati Water M Sedime Drift De Algal M Iron De Surface Inundati Sparsei Fleid Obse Surface Wa Water Table Saturation F (Includes ca	ydrology Indicators icators (minimum of a Water (A1) ater Table (A2) ion (A3) Marks (B1) ant Deposits (B2) eposits (B3) lat or Crust (B4) eposits (B5) a Soil Cracks (B6) tion Visible on Aerial ty Vegetated Conca rvations: ter Present? a Present? Present? apillary fringe)	one require	Water-Stall MLRA 1 Salt Crust (Aquatic Inv	hed Leave , 2, 4A, a (B11) vertebrates Sulfide Od hizospher of Reduced n Reduction Stressed I lain in Rer thes): thes): thes):	nd 4B) s (B13) lor (C1) res along d Iron (C on in Till Plants (I marks)	g Living Roc 24) ed Soils (Cf D1) (LRR A	Dr Dr Sa Sa Sa Sa Fr Fr Fr	ater-Stained L 4A, and 4B) rainage Patterr ry-Season Wat aturation Visible eomorphic Pos hallow Aquitard AC-Neutral Tes aised Ant Mour rost-Heave Hur	eaves (B9) (MLRA 1, ns (B10)
Wetland Hy Primary Indi Surface High W Saturati Water ↑ Sedime Drift De Algal M Iron De Surface Inundat Keld Obse Surface Wa Water Table Saturation F Includes ca Describe Re	ydrology Indicators icators (minimum of a Water (A1) ater Table (A2) ion (A3) Marks (B1) ant Deposits (B2) eposits (B3) lat or Crust (B4) eposits (B5) a Soil Cracks (B6) tion Visible on Aerial ty Vegetated Conca rvations: ter Present? a Present? Present? apillary fringe)	one require	Water-Stall MLRA 1 Salt Crust (Aquatic Inv	hed Leave , 2, 4A, a (B11) vertebrates Sulfide Od hizospher of Reduced n Reduction Stressed I lain in Rer thes): thes): thes):	nd 4B) s (B13) lor (C1) res along d Iron (C on in Till Plants (I marks)	g Living Roc 24) ed Soils (Cf D1) (LRR A	Dr Dr Sa Sa Sa Sa Fr Fr Fr	ater-Stained L 4A, and 4B) rainage Patterr ry-Season Wat aturation Visible eomorphic Pos hallow Aquitard AC-Neutral Tes aised Ant Mour rost-Heave Hur	eaves (B9) (MLRA 1, ns (B10)

Project/Site: Crcde by Rail	City/County: Amortes/Skagi+	Sampling Date: S/P/13
Applicant/Owner. <u>21 ell F3 R</u>	states bra	Compliant Database 6 A . 1
Investigator(s): P. Hamidi, B. Fletcher	Section, Township, Range: 34, 35 N,	28
Landform (hillslope) terrace, etc.):	Local relief (concave, convex, none):	
Subregion (LRR): Lat:)	Datum:
Soll Map Unit Name: 19- Bow gravelly loam	NWI classifica	ation: UPland
Are climatic / hydrologic conditions on the site typical for this time of ye	ear? Yes X_ No (If no, explain in Re	emarks.)
Are Vegetation, Soil, or Hydrology significantly	disturbed? Are "Normal Circumstances" p	resent? Yes X No
Are Vegetation, Soil, or Hydrology naturally pro	oblematic? // (If needed, explain any answer	s in Remarks.)
		·

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

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes Yes Yes	No X No X No X	is the Sampled Area within a Wetland?	Yes NoX	
Remarks: Cattle + rampl	ed.				

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30-)	Absolute	Dominant indi	
1. <u>Pseudotsuda</u> <u>Menziesii</u>			Number of Dominant Species
1 Scorof Song Fleaziesi	10		That Are OBL, FACW, or FAC: (4)
2. Malus fusca	30		ten Tatal Number of Demission
3. Populus tremulaides		<u>F/</u>	Acy Species Across All Strata:
4. 5			(-/
Sapling/Shrub Stratum (Plot size: 15-)	60	= Total Cover	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>20</u> (A/B)
1. Rubus spectabilis	5	FA	Prevalence Index worksheet:
2. Symphonicarpos alba	15	Y FA	
3. Sorbas accupación	20		OBL species x1 =
4. Populus trendoidos	15		FACW species $30 \times 2 = 60$
5		<u></u>	FAC species x 3 = /5
	55	= Total Cover	FACU species70x4=280
Herb Stratum (Plot size: 5)			UPL species 20 x 5 = 100
1. Robus ursinus		FA	Column Totals: 125 (A) 455 (B)
2. Grass SP.	5	95	Brown Later and 214
3			Prevalence Index = B/A = <u>3,69</u> Hydrophytic Vegetation Indicators:
4	÷.		
5			
6	•		
7.			
7 8		<u></u>	data in Remarks or on a separate sheet)
9	·		5 - Wetland Non-Vascular Plants ¹
10			Problematic Hydrophytic Vegetation ¹ (Explain)
11			¹ Indicators of hydric soil and wetland hydrology must
	5	= Total Cover	be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 15)			
1. RUGUS USSINUS	10	Y FA	<u>< 4</u> Hydrophytic
2			Vegetation
	(0)	Total Cover	Present? Yes No X
% Bare Ground in Herb Stratum		- Total Cover	- W
Remarks:			
Herb stratum trampled by ra	111-		
a contract frampies 07 ca	TTIC.		
			ă.

S	O	11	
-	~		

Depth <u>Matrix</u>			firm the absence	
		Redox Features	<u></u>	
(inches) Color (moist)	+	Color (moist) % Type1 Loc		Remarks
0-5 104R 3	15100		Loum	
5-16 104R 3	3 100		Loan	15% grave
<u></u> <u></u>				
			<u> </u>	
		신		
¹ Type: C=Concentration, D=D	epletion, RM=	Reduced Matrix, CS=Covered or Coated San	d Grains. ² Lo	ocation: PL=Pore Lining, M=Matrix.
Hydric Soll Indicators: (App	licable to all L	.RRs, unless otherwise noted.)		ors for Problematic Hydric Solls ³ :
Histosol (A1)		Sandy Redox (S5)	2 0	m Muck (A10)
Histic Epipedon (A2)	-	Stripped Matrix (S6)		d Parent Material (TF2)
Black Histic (A3)	-	Loamy Mucky Mineral (F1) (except MLR		ry Shallow Dark Surface (TF12)
Hydrogen Sulfide (A4)		Loamy Gleyed Matrix (F2)		her (Explain in Remarks)
Depleted Below Dark Surf	face (A11)	Depleted Matrix (F3)		-
Thick Dark Surface (A12)	10104	Redox Dark Surface (F6)		tors of hydrophytic vegetation and
Sandy Mucky Mineral (S1		Depleted Dark Surface (F7)	wet	and hydrology must be present,
Sandy Gleyed Matrix (S4)		Redox Depressions (F8)	unle	ss disturbed or problematic.
Restrictive Layer (if present)):		an anna an ta	a and a second sec
Type: None	222.5			
Depth (inches):	4		Hydric So	ll Present? Yes No _X
Remarks:				· · · · · · · · · · · · · · · · · · ·
			<u> </u>	
	rs:			
HYDROLOGY Wetland Hydrology Indicato Primary Indicators (minimum c		; check all that apply)	Secc	ondary Indicators (2 or more required)
Wetland Hydrology Indicator Primary Indicators (minimum c		; check all that apply) Water-Stained Leaves (B9) (except		ondary Indicators (2 or more required) Water-Stained Leaves (B9) (MLRA 1, 2,
Wetland Hydrology Indicator Primary Indicators (minimum c Surface Water (A1)				
Wetland Hydrology Indicator <u>Primary Indicators (minimum c</u> Surface Water (A1) High Water Table (A2)		Water-Stained Leaves (B9) (except		Water-Stained Leaves (B9) (MLRA 1, 2,
Wetland Hydrology Indicator <u>Primary Indicators (minimum c</u> Surface Water (A1) High Water Table (A2) Saturation (A3)		Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)		Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
Wetland Hydrology Indicator Primary Indicators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1)		Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13)	1 2-21 (1200 <u></u> 1	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10)
Wetland Hydrology Indicator Primary Indicators (minimum of 		Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1)	1 1 2020 0 1000 <u>-0</u> 100 0 0000 00	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aeriai Imagery (C9)
Wetland Hydrology Indicator Primary Indicators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3)		Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living		Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aeriai Imagery (C9) Geomorphic Position (D2)
Wetland Hydrology Indicator Primary Indicators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4)		Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Presence of Reduced Iron (C4)	Roots (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aeriai Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3)
Wetland Hydrology Indicator Primary Indicators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5)		Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Solis	Roots (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aeriai Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5)
Wetland Hydrology Indicator Primary Indicators (minimum of 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)	of one required	Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils Stunted or Stressed Plants (D1) (LR	Roots (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aeriai Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Wetland Hydrology Indicator Primary Indicators (minimum of 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 Aeri	of one required	Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils Stunted or Stressed Plants (D1) (LR) Other (Explain in Remarks)	Roots (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aeriai Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5)
Wetland Hydrology Indicator Primary Indicators (minimum of 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 Aeri Sparsely Vegetated Conc	of one required	Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils Stunted or Stressed Plants (D1) (LR) Other (Explain in Remarks)	Roots (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aeriai Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Wetland Hydrology Indicator Primary Indicators (minimum of 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 Aeri Sparsely Vegetated Conc Field Observations:	of one required al Imagery (B7 ave Surface (E	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 Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils Stunted or Stressed Plants (D1) (LR) Other (Explain in Remarks) 18)	Roots (C3)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aeriai Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Wetland Hydrology Indicator Primary Indicators (minimum of 	of one required al Imagery (B7 ave Surface (E Yes N	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 Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils Stunted or Stressed Plants (D1) (LR) Other (Explain in Remarks) 88)	Roots (C3) s (C6) RR A)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aeriai Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Wetland Hydrology Indicator Primary Indicators (minimum of 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 Aeri Sparsely Vegetated Conc Field Observations:	of one required al Imagery (B7 ave Surface (E Yes N Yes N	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 Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils Stunted or Stressed Plants (D1) (LR) Other (Explain in Remarks) 88) 40 Depth (inches):	Roots (C3) s (C6) RR A)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10)- Dry-Season Water Table (C2) Saturation Visible on Aeriai Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Wetland Hydrology Indicator Primary Indicators (minimum of 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 Aeri Sparsely Vegetated Conc Field Observations: Surface Water Present? Water Table Present? Saturation Present?	of one required al Imagery (B7 ave Surface (E Yes N Yes N	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 Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils Stunted or Stressed Plants (D1) (LR) Other (Explain in Remarks) 88) 40 Depth (inches):	Roots (C3) s (C6) RR A)	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aeriai Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A)
Primary Indicators (minimum of 	of one required al Imagery (B7 ave Surface (E Yes N Yes N	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 Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils Stunted or Stressed Plants (D1) (LR) Other (Explain in Remarks) 88) 40 Depth (inches):	Roots (C3) s (C6) RR A) Wetland Hydrolog	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aeriai Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Wetland Hydrology Indicator Primary Indicators (minimum of 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 Aeri Sparsely Vegetated Conc Fleid Observations: Surface Water Present? Water Table Present? Saturation Present? (Includes capillary fringe)	of one required al Imagery (B7 ave Surface (E Yes N Yes N	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 Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils Stunted or Stressed Plants (D1) (LR) Other (Explain in Remarks) 88) 80 Depth (inches): 10 Depth (inches): 11	Roots (C3) s (C6) RR A) Wetland Hydrolog	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10)- Dry-Season Water Table (C2) Saturation Visible on Aeriai Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Wetland Hydrology Indicator Primary Indicators (minimum of 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 Aeri Sparsely Vegetated Conc Fleid Observations: Surface Water Present? Water Table Present? Saturation Present? (Includes capillary fringe)	of one required al Imagery (B7 ave Surface (E Yes N Yes N	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 Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils Stunted or Stressed Plants (D1) (LR) Other (Explain in Remarks) 88) 80 Depth (inches): 10 Depth (inches): 11	Roots (C3) s (C6) RR A) Wetland Hydrolog	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10)- Dry-Season Water Table (C2) Saturation Visible on Aeriai Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Wetland Hydrology Indicator Primary Indicators (minimum of 	of one required al Imagery (B7 ave Surface (E Yes N Yes N	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 Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils Stunted or Stressed Plants (D1) (LR) Other (Explain in Remarks) 88) 80 Depth (inches): 10 Depth (inches): 11	Roots (C3) s (C6) RR A) Wetland Hydrolog	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10)- Dry-Season Water Table (C2) Saturation Visible on Aeriai Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Wetland Hydrology Indicator Primary Indicators (minimum of 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 Soll Cracks (B6) Inundation Visible on Aeri Sparsely Vegetated Conc Field Observations: Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (streamed)	of one required al Imagery (B7 ave Surface (E Yes N Yes N	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 Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils Stunted or Stressed Plants (D1) (LR) Other (Explain in Remarks) 88) 80 Depth (inches): 10 Depth (inches): 11	Roots (C3) s (C6) RR A) Wetland Hydrolog	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aeriai Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)
Wetland Hydrology Indicator Primary Indicators (minimum of 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 Soll Cracks (B6) Inundation Visible on Aerit Sparsely Vegetated Conc Fleid Observations: Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (streat	of one required al Imagery (B7 ave Surface (E Yes N Yes N	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 Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils Stunted or Stressed Plants (D1) (LR) Other (Explain in Remarks) 88) 80 Depth (inches): 10 Depth (inches): 11	Roots (C3) s (C6) RR A) Wetland Hydrolog	Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) Drainage Patterns (B10)- Dry-Season Water Table (C2) Saturation Visible on Aeriai Imagery (C9) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7)

			untains, Valleys, and Coast Region
Applicant/Owner: Shell PSR			
			State: $\frac{nA}{22000}$ Sampling Point: $\underline{\sqrt{-2}}$
nvestigator(s): P. Ham: A: , B. Fletch	er	Section, Township, R	ange:
andform (hillslope) terrace, etc.): buch on ga	radual slupe	Local relief concave) convex, none): Siope (%):
Subregion (LRR):	Lat:		Long: Datum: NWI classification:
Soil Map Unit Name: (Pr Bow gravelly (ORM		NWI classification: PEM
ر re climatic / hydrologic conditions on the site typical f	or this time of ve	ar? Yes X No	(If no, explain in Remarks)
			"Normal Circumstances" present? Yes X No
re Vegetation, Soil, or Hydrology			
SUMMARY OF FINDINGS – Attach site n	nap showing	sampling point	locations, transects, important features, e
Hydrophytic Vegetation Present? Yes X			
	No	Is the Sample	~
	No	within a Wetla	and? Yes No
Remarks: Grazes pasture.			
Photos 40-42			
			<u></u>
EGETATION – Use scientific names of			
Tree Stratum (Plot size: <u>30</u> -)	Absolute	Dominant Indicator Species? Status	Dominance Test worksheet:
1. <u>M/A</u>	- % Cover	Species / Status	Number of Dominant Species
2			That Are OBL, FACW, or FAC: (A)
3			Total Number of Dominant
4			B) Species Across All Strata:
-		= Total Cover	Percent of Dominant Species
Sapling/Shrub Stratum (Plot size: 15)			That Are OBL, FACW, or FAC: (A/
1. <u>MA</u>			Prevalence Index worksheet:
2			Total % Cover of: Multiply by:
3			OBL species x 1 =
4. <u> </u>			FACW species $x_2 =$ FAC species 95 $x_3 = 285$
j			FAC species $1 \times 4 = 4$
Herb Stratum (Plot size: 5)		= Total Cover	
<u>terb Stratum</u> (Plot size: <u>)</u> . <u>Trifolium repens</u>	40	V EL	UPL species $1 \times 5 = 5$ Column Totals: 97 (A). 294 (E
Alopecurus fratensis	$-\frac{1}{1}$	\underline{X} <u>FAC</u>	
Por fratensis	<u> </u>	$\underline{\gamma}_{FA(}$	Prevalence Index = B/A =3.03
Agrostis capillaris	<u> </u>	Y FAC	Hydrophytic Vegetation Indicators:
Cerestium glameratum	<u> </u>	PA(U	1 - Rapid Test for Hydrophytic Vegetation
Geranium SP.			χ 2 - Dominance Test is >50%
Trifolium subterraneum	— <u> </u>		3 - Prevalence Index is ≤3.0 ¹
			4 - Morphological Adaptations ¹ (Provide supporti data in Remarks or on a separate sheet)
			5 - Wetland Non-Vascular Plants ¹
0			Problematic Hydrophytic Vegetation ¹ (Explain)
1			¹ Indicators of hydric soil and wetland hydrology must
	1	= Total Cover	be present, unless disturbed or problematic.
Noody Vine Stratum (Plot size: 15)			
n. <u>N</u> A			 Hydrophytic
2			Vegetation
			Dresent2 Vac V Na
% Bare Ground in Herb Stratum	:	= Total Cover	Present? Yes No

Sampling Point: <u>y-1</u>

Profile Desc	cription: (Describe t	o the dep	th needed to docum	ent the	indicator	or confirm	the absence of	of indicators.)	
Depth	Matrix			(Feature	<u>s</u>				
(inches)	Color (moist)	<u>%</u>	Color (moist)	<u>%</u>			<u>Texture</u>	Remarks	-
0-8	104R 3/1	92	104R 4/3	8	C_	PL, M	Loam	202 gravel	
8-16	104R 4/2	90	loyRy14	10	<u> </u>	<u>m</u>	LOam	208 gravel, Charcoe	¥↓
16-18	54 5/1.5	85	104R 4/4	15	C	M	Clay Loan	208 gravely	
	{				·				-
									-
					·				-
			<u>×</u>						-
									- 1
								0	_
	oncentration D=Depl	etion. RM	=Reduced Matrix, CS	=Covere	d or Coate	ed Sand Gra	ains. ² Loca	ation: PL=Pore Lining, M=Matrix.	_
Hydric Soil	Indicators: (Applica	able to all	LRRs, unless other	wise not	ed.)		Indicator	s for Problematic Hydric Soils ³ :	
Histosol			Sandy Redox (S				2 cm	Muck (A10)	
	pipedon (A2)		Stripped Matrix					Parent Material (TF2)	
Black Hi	istic (A3)		Loamy Mucky M	lineral (F	1) (except	t MLRA 1)		Shallow Dark Surface (TF12)	
	en Sulfide (A4)		Loamy Gleyed M		2)		Othe	r (Explain in Remarks)	
	d Below Dark Surface	e (A11)	Depleted Matrix				- + ؛ السريا 3	s of hydrophytic vegetation and	
	ark Surface (A12)		Redox Dark Sur Depleted Dark S	• •				d hydrology must be present,	
	/lucky Mineral (S1) Gleyed Matrix (S4)		Redox Depressi					disturbed or problematic.	
	aver (if present):								
Type:	none win	18"							
Depth (in							Hydric Soil	Present? Yes X No	_
Remarks:				·					
rtorrano.									
HYDROLO		.]
Wetland Hy	drology Indicators:								
Primary India	cators (minimum of o	ne require	d; check all that apply					dary Indicators (2 or more required)	
Surface	Water (A1)		Water-Stai			except	w	ater-Stained Leaves (B9) (MLRA 1, 2	2,
	ater Table (A2)			1, 2, 4A,	and 4B)		_	4A, and 4B)	
Saturati	• •		Salt Crust	• •				ainage Patterns (B10)	
2	larks (B1)		Aquatic Inv					y-Season Water Table (C2)	<u>, , , , , , , , , , , , , , , , , , , </u>
	nt Deposits (B2)		Hydrogen					aturation Visible on Aerial Imagery (C	,9)
	posits (B3)		Oxidized F	•		-	•	eomorphic Position (D2)	
	at or Crust (B4)		Presence					nallow Aquitard (D3) AC-Neutral Test (D5)	
	posits (B5)		Recent Iro					aised Ant Mounds (D6) (LRR A)	
	Soil Cracks (B6)	magany (F	Stunted or Stunted or S7) Other (Exp					ost-Heave Hummocks (D7)	
	ion Visible on Aerial I y Vegetated Concave		•		emarksy		• •		
Field Obser		Junaue							
Surface Wat		96	No X Depth (in	ches) [,]					
Water Table			No $\underline{\checkmark}$ Depth (in						
			No $\underline{\cancel{1}}$ Depth (in				and Hydrology	Present? Yes 🔏 No	
Saturation P (includes ca		es		ches).			and nyerology		
Describe Re	corded Data (stream	gauge, m	onitoring well, aerial	photos, p	revious in	spections),	if available:		
Remarks:				•					
dee	p rutting	from	rattle + "	equi	pnent		C. beautif	y Season (march-A	
Satura	ation exp	actro	a during a	carly	rart	- ot	y towing	y sea son (march-A	[vi]
6652	on 20115	1 Ve	y, + Lands	up	1021	VION,			

1

WETLAND DETERMINATIO	N DATA FORM - We	estern Mountains, Valleys, and Coast Region
		inty: <u>Anacortes/Skagit</u> Sampling Date: <u>5/8/13</u>
Applicant/Owner:hell P>K		Sinta lack and service
Investigator(s): P. Hamidi, B. Fletch	e C Section	Township Pance: 34.35N. 25
Landform (hillslope) terrace, etc.);		lief (concave, convex, none):
Subregion (LRR): A	Lotai le	Slope (%): Slope (%): Datum:
Soil Man Unit Name: (P-Bxk- Stavelly	Lat	Datum: Datum:
Are climatic / hydrologic conditions on the site hairs		NWI classification: Upland
Are climatic / hydrologic conditions on the site typical	for this time of year? Yes	
Are Vegetation, Soil, or Hydrology		
Are Vegetation, Soil, or Hydrology		
SUMMARY OF FINDINGS – Attach site	map showing sampl	ing point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes X		
Hydric Soil Present? Yes		the Sampled Area
Wetland Hydrology Present? Yes	<u>No X</u> w	ithIn a Wetland? Yes No
Remarks: Grazef Pasture.		
Photos 43-45		
/EGETATION – Use scientific names of		
	<u> </u>	
Tree Stratum (Plot size: <u>36</u>)	Absolute Domina <u>% Cover</u> Species	nt Indicator Dominance Test worksheet:
1~[A		Number of Dominant Species
.		Total Number of Data
3	×	Total Number of Dominant Species Across All Strata: (B)
4		
Sapling/Shrub Stratum (Plot size:)	= Total C	Cover Percent of Dominant Species That Are OBL, FACW, or FAC:(DO(A/B)
1 <i>M</i> /A		Brouglenge Index we det at
2		
3		
ł		FACW species x 2 =
5		FAC species $1/5$ $x_3 = 345$
Herb Stratum (Plot size:	= Total C	Cover $I = I = X = I = X = I = I = I = I = I = $
Trifolium (Plot size:	50 Y	PAC Column Totals: 119 (A) 367 (B)
Alopecurus protensis	<u> </u>	
Hypochaerus radiata		$\frac{1}{1000}$ Prevalence index = B/A =0
Taraxacum officionalle	<u> </u>	EA
Pag protensis	-15	
Cerastium glomeratum	3	$-\frac{PAc}{FAc} \underbrace{X}_{2} - \text{Dominance Test is } >50\%$
Agrostin Capillaris	30 4	- FAC 4 - Morphological Adaptations ¹ (Provide supporting
ee		data in Remarks or on a separate sheet)
·		5 - Wetland Non-Vascular Plants ¹
0		Problematic Hydrophytic Vegetation ¹ (Explain)
1	<u> </u>	¹ Indicators of hydric soil and wetland hydrology must
Voody Vine Stratum (Plot size: 15)	= Total Co	be present, unless disturbed or problematic.
·		Hydrophytic
	= Total Co	
6 Bare Ground in Herb Stratum		

Sampling Point: <u>5/2</u>

.

epth <u>Matri</u>			x Features	1 1 2	Th		Remarks	
nches) Color (moist)		Color (moist)		pe ¹ Loc ²	<u> </u>	30%	g save 1	
5-13 IOYR 3/2	<u>1 98</u>	104R 4/4						
-16 2.57 5/2	90	10×R 4/4	10 ((<u> </u>	Salo	20%	gravel	
						·		
						·		
						- <u> </u>		
ype: C=Concentration, D=	Depletion, RM	M=Reduced Matrix, C	S=Covered or (Coated Sand G			=Pore Lining, N	
dric Soil Indicators: (Ap	plicable to a	II LRRs, unless othe	erwise noted.)		indica	tors for Pro	blematic Hydr	ic Solls':
Histosol (A1)		Sandy Redox (cm Muck (A		
Histic Epipedon (A2)		Stripped Matrix	x (S6)				aterial (TF2)	
Black Histic (A3)			Minerai (F1) (e:	xcept MLRA 1)			Dark Surface (1	(F12)
Hydrogen Sulfide (A4)		Loamy Gleyed	l Matrix (F2)		0	her (Explai	n in Remarks)	
Depleted Below Dark Su	rface (A11)	Depleted Matri			3			tow and
Thick Dark Surface (A12		Redox Dark Su					ophytic vegetat	
Sandy Mucky Mineral (S	1)	Depleted Dark					ogy must be pre	
_ Sandy Gleyed Matrix (S4		Redox Depres	sions (F8)		uni		ed or problemati	<u>.</u>
estrictive Layer (if presen	t):							
Туре:		<u> </u>			Underla Sa	oil Present	? Yes	_ <u>No X</u>
Depth (inches):					Hydric Sc			
	G							
					·		<u></u>	
Vetiand Hydrology Indicat					Sec		icators (2 or mo	re required)
Vetland Hydrology Indicat rimary Indicators (minimum					Sec		icators (2 or mo	
Vetland Hydrology Indicat rimary Indicators (minimum Surface Water (A1)		Water-St	tained Leaves (<u>Sec</u>	Water-Sta	ined Leaves (BS	
Vetland Hydrology Indicat rimary Indicators (minimum Surface Water (A1) High Water Table (A2)		Water-St MLRA	tained Leaves (A 1, 2, 4A, and		<u>Ser</u>	Water-Sta 4A, and	ined Leaves (BS d 4B)	
Tetland Hydrology Indicat rimary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3)		Water-St MLRA Salt Crus	tained Leaves (A 1, 2, 4A, and st (B11)	4B)	<u>Ser</u>	Water-Sta 4A, and Drainage I	ined Leaves (BS d 4B) Patterns (B10)	9) (MLRA 1, 2
Vetiand Hydrology Indicat rimary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1)	<u>of one requi</u>	Water-St MLRA Salt Crus Aquatic I	tained Leaves (A 1, 2, 4A, and st (B11) Invertebrates (B	4B) 313)	<u>Ser</u>	Water-Sta 4A , and Drainage I Dry-Seaso	ined Leaves (B9 d 4B) Patterns (B10) on Water Table	9) (MLRA 1, 2 (C2)
Vetland Hydrology Indicat rimary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2)	<u>of one requi</u>	Water-St MLRA Salt Crus Aquatic I Hydrogel	tained Leaves (A 1, 2, 4A, and st (B11) Invertebrates (E n Sulfide Odor	4B) 313) (C1)		Water-Sta 4A, and Drainage I Dry-Seaso Saturation	ined Leaves (B§ d 4B) Patterns (B10) on Water Table Visible on Aeria	9) (MLRA 1, 2 (C2) al Imagery (C
Vetland Hydrology Indicat rimary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3)	<u>of one requi</u>	Water-St MLRA Salt Crus Aquatic I Hydroge Oxidized	tained Leaves (A 1, 2, 4A, and st (B11) Invertebrates (E n Sulfide Odor I Rhizospheres	4B) 313) (C1) along Living Ro		Water-Sta 4A, and Drainage I Dry-Seaso Saturation Geomorph	ined Leaves (BS d 4B) Patterns (B10) on Water Table Visible on Aeria hic Position (D2)	9) (MLRA 1, 2 (C2) al Imagery (C
Vetland Hydrology Indicators rimary Indicators (minimum Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4)	<u>of one requi</u>	Water-St MLRA Salt Crus Aquatic I Hydroge Oxidized Presence	tained Leaves (A 1, 2, 4A, and st (B11) Invertebrates (E In Sulfide Odor I Rhizospheres e of Reduced Ir	4 B) 313) (C1) along Living Ro ron (C4)		Water-Sta 4A, and Drainage I Dry-Seaso Saturation Geomorph Shallow A	ined Leaves (BS d 4B) Patterns (B10) on Water Table Visible on Aeria nic Position (D2) quitard (D3)	9) (MLRA 1, 2 (C2) al Imagery (C
Vetland Hydrology Indicators rimary Indicators (minimum 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)	<u>i of one requi</u>	Water-St MLRA Salt Crus Aquatic I Hydroge Oxidized Presence Recent In	tained Leaves (A 1, 2, 4A, and st (B11) Invertebrates (E In Sulfide Odor I Rhizospheres e of Reduced Ir ron Reduction i	4B) (C1) along Living Ro ron (C4) in Tilled Soils (C		Water-Sta 4A, and Drainage I Dry-Seaso Saturation Geomorph Shallow A FAC-Neut	ined Leaves (BS d 4B) Patterns (B10) on Water Table Visible on Aeria nic Position (D2) quitard (D3) ral Test (D5)	9) (MLRA 1, 2 (C2) al Imagery (C)
Tetland Hydrology Indicate rimary Indicators (minimum 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	i <u>of one requi</u>	Water-St MLRA Salt Crus Aquatic I Hydroge Oxidized Presence Recent II Stunted	tained Leaves (A 1, 2, 4A, and st (B11) Invertebrates (E In Sulfide Odor I Rhizospheres e of Reduced Ir ron Reduction i or Stressed Pla	4B) (C1) along Living Ro ron (C4) in Tilled Soils (C ants (D1) (LRR		Water-Sta 4A, and Drainage I Dry-Sease Saturation Geomorph Shallow A FAC-Neut Raised Ar	ined Leaves (BS d 4B) Patterns (B10) on Water Table Visible on Aeria nic Position (D2) quitard (D3) ral Test (D5) at Mounds (D6)	9) (MLRA 1, 2 (C2) al Imagery (C) (LRR A)
Vetiand Hydrology Indicate rimary Indicators (minimum 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 Ae	i <u>of one requi</u> ;) erial Imagery	Water-St MLRA Salt Crus Aquatic I Hydroge Oxidized Presence Recent II Stunted (B7) Other (E	tained Leaves (A 1, 2, 4A, and st (B11) Invertebrates (E In Sulfide Odor I Rhizospheres e of Reduced Ir ron Reduction i	4B) (C1) along Living Ro ron (C4) in Tilled Soils (C ants (D1) (LRR		Water-Sta 4A, and Drainage I Dry-Sease Saturation Geomorph Shallow A FAC-Neut Raised Ar	ined Leaves (BS d 4B) Patterns (B10) on Water Table Visible on Aeria nic Position (D2) quitard (D3) ral Test (D5)	9) (MLRA 1, 2 (C2) al Imagery (C) (LRR A)
Tetland Hydrology Indicat rimary Indicators (minimum 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 Ae Sparsely Vegetated Cor	i <u>of one requi</u> ;) erial Imagery	Water-St MLRA Salt Crus Aquatic I Hydroge Oxidized Presence Recent II Stunted (B7) Other (E	tained Leaves (A 1, 2, 4A, and st (B11) Invertebrates (E In Sulfide Odor I Rhizospheres e of Reduced Ir ron Reduction i or Stressed Pla	4B) (C1) along Living Ro ron (C4) in Tilled Soils (C ants (D1) (LRR		Water-Sta 4A, and Drainage I Dry-Sease Saturation Geomorph Shallow A FAC-Neut Raised Ar	ined Leaves (BS d 4B) Patterns (B10) on Water Table Visible on Aeria nic Position (D2) quitard (D3) ral Test (D5) at Mounds (D6)	9) (MLRA 1, 2 (C2) al Imagery (C) (LRR A)
Vetland Hydrology Indicat rimary Indicators (minimum 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 Ae Sparsely Vegetated Cor	i <u>of one requi</u> ;) erial Imagery	Water-St MLRA Salt Crus Aquatic I Hydroge Oxidized Oxidized Recent II Stunted (B7) Other (E	tained Leaves (A 1, 2, 4A, and st (B11) Invertebrates (E In Sulfide Odor I Rhizospheres e of Reduced Ir ron Reduction i or Stressed Pla Explain in Rema	4B) (C1) along Living Ro ron (C4) in Tilled Soils (C ants (D1) (LRR urks)		Water-Sta 4A, and Drainage I Dry-Sease Saturation Geomorph Shallow A FAC-Neut Raised Ar	ined Leaves (BS d 4B) Patterns (B10) on Water Table Visible on Aeria nic Position (D2) quitard (D3) ral Test (D5) at Mounds (D6)	9) (MLRA 1, 2 (C2) al Imagery (C) (LRR A)
Vetland Hydrology Indicat rimary Indicators (minimum 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 Aa Sparsely Vegetated Cor Teld Observations:	i) erial Imagery ncave Surfac	Water-St MLRA Salt Crus Aquatic I Hydroge Oxidized Oxidized Recent II Stunted (B7) Other (E	tained Leaves (A 1, 2, 4A, and st (B11) Invertebrates (E In Sulfide Odor I Rhizospheres e of Reduced Ir ron Reduction i or Stressed Pla	4B) (C1) along Living Ro ron (C4) in Tilled Soils (C ants (D1) (LRR urks)		Water-Sta 4A, and Drainage I Dry-Sease Saturation Geomorph Shallow A FAC-Neut Raised Ar	ined Leaves (BS d 4B) Patterns (B10) on Water Table Visible on Aeria nic Position (D2) quitard (D3) ral Test (D5) at Mounds (D6)	9) (MLRA 1, 2 (C2) al Imagery (C) (LRR A)
Vetland Hydrology Indicate rimary Indicators (minimum 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 Ae Sparsely Vegetated Cor Tield Observations: Surface Water Present?	i) erial Imagery ncave Surfac	Water-St MLRA Salt Crus Aquatic I Hydroge Oxidized Presence Recent II Stunted ((B7) Other (E se (B8)	tained Leaves (A 1, 2, 4A, and st (B11) Invertebrates (E In Sulfide Odor I Rhizospheres e of Reduced Ir ron Reduction i or Stressed Pla Explain in Rema	4B) (C1) along Living Ro ron (C4) in Tilled Soils (C ants (D1) (LRR irks)		Water-Sta 4A, and Drainage I Dry-Sease Saturation Geomorph Shallow A FAC-Neut Raised Ar	ined Leaves (BS d 4B) Patterns (B10) on Water Table Visible on Aeria nic Position (D2) quitard (D3) ral Test (D5) at Mounds (D6)	 (MLRA 1, 2 (C2) al Imagery (C (LRR A) (D7)
Vetiand Hydrology Indicat rimary Indicators (minimum 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 Ac Sparsely Vegetated Cor Field Observations: Surface Water Present? Nater Table Present? Saturation Present?	i) erial Imagery ncave Surface Yes Yes	Water-St MLRA Salt Crus Aquatic I Hydroge Oxidized Presence Recent II Stunted I (B7) Other (E se (B8) No Depth (No Depth (tained Leaves (A 1, 2, 4A, and st (B11) Invertebrates (E In Sulfide Odor I Rhizospheres e of Reduced Ir ron Reduction i or Stressed Pla Explain in Rema (inches): (inches):	4B) (C1) along Living RG ron (C4) in Tilled Soils (C ants (D1) (LRR rks)		Water-Sta 4A, and Drainage I Dry-Seaso Saturation Geomorph Shallow A FAC-Neut Raised Ar Frost-Hea	ined Leaves (BS d 4B) Patterns (B10) on Water Table Visible on Aeria nic Position (D2) quitard (D3) ral Test (D5) at Mounds (D6)	 (MLRA 1, 2 (C2) al Imagery (C (LRR A) (D7)
Vetland Hydrology Indicat Primary Indicators (minimum 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 Ae Sparsely Vegetated Cor Field Observations: Surface Water Present? Mater Table Present? Saturation Present?	i) erial Imagery ncave Surface Yes Yes	Water-St MLRA Salt Crus Aquatic I Hydroge Oxidized Presence Recent II Stunted I (B7) Other (E se (B8) No Depth (No Depth (tained Leaves (A 1, 2, 4A, and st (B11) Invertebrates (E In Sulfide Odor I Rhizospheres e of Reduced Ir ron Reduction i or Stressed Pla Explain in Rema (inches): (inches):	4B) (C1) along Living RG ron (C4) in Tilled Soils (C ants (D1) (LRR rks)		Water-Sta 4A, and Drainage I Dry-Seaso Saturation Geomorph Shallow A FAC-Neut Raised Ar Frost-Hea	ined Leaves (BS d 4B) Patterns (B10) on Water Table Visible on Aeria nic Position (D2) quitard (D3) ral Test (D5) nt Mounds (D6) ve Hummocks ((MLRA 1, 2) (C2) al Imagery (C) (LRR A) (D7)
Vetland Hydrology Indicat Primary Indicators (minimum 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 Ae Sparsely Vegetated Cor Field Observations: Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (st	i) erial Imagery ncave Surface Yes Yes	Water-St MLRA Salt Crus Aquatic I Hydroge Oxidized Presence Recent II Stunted I (B7) Other (E se (B8) No Depth (No Depth (tained Leaves (A 1, 2, 4A, and st (B11) Invertebrates (E In Sulfide Odor I Rhizospheres e of Reduced Ir ron Reduction i or Stressed Pla Explain in Rema (inches): (inches):	4B) (C1) along Living RG ron (C4) in Tilled Soils (C ants (D1) (LRR rks)		Water-Sta 4A, and Drainage I Dry-Seaso Saturation Geomorph Shallow A FAC-Neut Raised Ar Frost-Hea	ined Leaves (BS d 4B) Patterns (B10) on Water Table Visible on Aeria nic Position (D2) quitard (D3) ral Test (D5) nt Mounds (D6) ve Hummocks ((MLRA 1, 2 (C2) al Imagery (C (LRR A) (D7)
Vetland Hydrology Indicat Primary Indicators (minimum 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 Ae Sparsely Vegetated Cor Field Observations: Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (st	i) erial Imagery ncave Surface Yes Yes	Water-St MLRA Salt Crus Aquatic I Hydroge Oxidized Presence Recent II Stunted I (B7) Other (E se (B8) No Depth (No Depth (tained Leaves (A 1, 2, 4A, and st (B11) Invertebrates (E In Sulfide Odor I Rhizospheres e of Reduced Ir ron Reduction i or Stressed Pla Explain in Rema (inches): (inches):	4B) (C1) along Living RG ron (C4) in Tilled Soils (C ants (D1) (LRR rks)		Water-Sta 4A, and Drainage I Dry-Seaso Saturation Geomorph Shallow A FAC-Neut Raised Ar Frost-Hea	ined Leaves (BS d 4B) Patterns (B10) on Water Table Visible on Aeria nic Position (D2) quitard (D3) ral Test (D5) nt Mounds (D6) ve Hummocks ((MLRA 1, 2) (C2) al Imagery (C) (LRR A) (D7)
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 Ae	i) erial Imagery ncave Surface Yes Yes	Water-St MLRA Salt Crus Aquatic I Hydroge Oxidized Presence Recent II Stunted I (B7) Other (E se (B8) No Depth (No Depth (tained Leaves (A 1, 2, 4A, and st (B11) Invertebrates (E In Sulfide Odor I Rhizospheres e of Reduced Ir ron Reduction i or Stressed Pla Explain in Rema (inches): (inches):	4B) (C1) along Living RG ron (C4) in Tilled Soils (C ants (D1) (LRR rks)		Water-Sta 4A, and Drainage I Dry-Seaso Saturation Geomorph Shallow A FAC-Neut Raised Ar Frost-Hea	ined Leaves (BS d 4B) Patterns (B10) on Water Table Visible on Aeria nic Position (D2) quitard (D3) ral Test (D5) nt Mounds (D6) ve Hummocks ((MLRA 1, 2 (C2) al Imagery (C (LRR A) (D7)

.

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

Project/Site: Crude by Rail		City/County: Ang	cortes Skagit Sampling Date: 5/7/13
Applicant/Owner: <u>> 120</u> /> //			States Mr. A Sameline Data SA 71
Investigator(s): B. Fletcher, P. Hamiz	di 🗌	Section, Township, R	ange: 34,35N,26
Landform (hillslope, errace, etc.):		Local relief (concave	convex none):
Subregion (LRR):	Lat:		
Soil Map Unit Name: B- 18-Bon gravelly	1 log.	~	
Are climatic / hydrologic conditions on the site typical for the	is time of ve		
Are Vegetation, Soil, or Hydrology	significantly	disturbed?	"Normal Circumstances" present? Yes X No
Are Vegetation, Soil, or Hydrology	naturally on		leeded, explain any answers in Remarks.)
			locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes Yes Hydric Soil Present? Yes Yes Wetland Hydrology Present? Yes Yes	No No No	is the Sample within a Wetia	d Area Ind? Yes X No
Remarks: Grazed Pasture, cattle Photos 34-36	e hoo	f depressio.	ns. in mod
VEGETATION – Use scientific names of plar			
<u>Tree Stratum</u> (Plot size: <u>}0</u>) 1. <u>n/A</u> 2 3		Species? Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: Total Number of Dominant Species Across All Strate:
4			Percent of Deminant Species
Sapling/Shrub Stratum (Plot size: 15)		_ = Total Cover	That Are OBL, FACW, or FAC: <u>67</u> (A/B)
1. <u>N/A</u>			Prevalence Index worksheet:
2			Total % Cover of:Multiply by:
3			OBL species x 1 =
4			FACW species x 2 =
5			FAC species $70 \times 3 = 20$
Herb Stratum (Plot size: 5)		= Total Cover	FACU species x 4 = UPL species 30 x 5 = 150
1. Alopecurus pratens:s	50	X FAC	Column Totals: 100 (A) 360 (B)
2. Trifolium subterraneum	30	X UPL	
3. Agrostis Capillaria	20	X FAC	Prevalence Index = B/A = 3, 6 Hydrophytic Vegetation Indicators:
4			1 - Rapid Test for Hydrophytic Vegetation
5			2 - Dominance Test is >50%
6			3 - Prevalence Index is $\leq 3.0^{1}$
7			4 - Morphological Adaptations ¹ (Provide supporting
8		_	data in Remarks or on a separate sheet)
9	<u> </u>		5 - Wetland Non-Vascular Plants ¹
10			Problematic Hydrophytic Vegetation ¹ (Explain)
	100	= Total Cover	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
<u>Woody Vine Stratum</u> (Plot size: (5^{-})			
1. <u>A (A</u>			Hyd rophytic
۵			Vegetation Present? Yes X No
% Bare Ground in Herb Stratum5	⁼	 Total Cover 	Present? Yes <u>X</u> No
Remarks:			

Profile Desc	ription: (Describe	to the depth	needed to docum	ent the ir	dicator	or confirm	the absence	of Indicato	rs.)
Depth	Matrix		Redox	Features					Remarks
(inches)	Color (moist)	%	Color (moist)	%	<u>Type</u>	Loc ²	<u> </u>		
0-8	IDYR3/1	99	7.5 YR4/6		<u> </u>	M	<u> </u>		
8-13	10 YR3/1	90	7. 5YR	Vy to	<u> </u>	mpl	Loan	5%	gravel
13-18	5Y5/2	70 1	0 YR4/6	30	C	M	Salo		
		· •							
		·	·						
			<u> </u>						
								·	
	oncentration, D=Dep		educed Matrix, CS	=Covered	or Coate	d Sand Gra			Pore Lining, M=Matrix.
Hydric Soll	Indicators: (Applic	able to all LF	RRs, unless other	wise note	əd.)		Indicato		elematic Hydric Soils ³ :
Histosol			_ Sandy Redox (S					n Muck (A1	
	pipedon (A2)	_	_ Stripped Matrix					i Parent Ma	
	istic (A3)		Loamy Mucky N			t MLRA 1)			ark Surface (TF12)
	en Sulfide (A4)		_ Loamy Gleyed I)		Oth	er (Explain	in Remarks)
	d Below Dark Surface	ce (A11)	Depleted Matrix				³ Indicat	ors of hydro	phytic vegetation and
	ark Surface (A12)	4	Kedox Dark Su Depleted Dark S						gy must be present,
	Mucky Mineral (S1) Gleyed Matrix (S4)		_ Redox Depress		''				or problematic.
	Layer (if present):	<u> </u>							
	ense sandy	, loan	layer						\mathbf{V}
Denth (in	iches): 13						Hydric Sol	i Present?	Yes <u>×</u> No
Remarks:	<u> </u>								
IYDROLC									
	drology Indicators		check all that ann	lv)			Seco	ondary Indic	ators (2 or more required)
	icators (minimum of	<u>One lequilea,</u>	Water-Sta	ined Leav	(B9) (except			ed Leaves (B9) (MLRA 1, 2
	Water (A1)			1, 2, 4A,		CACCP!		4A, and	
	ater Table (A2)		Salt Crust		und 40)				atterns (B10)
Saturat		1	Aquatic Ir		es (B13)			_	Water Table (C2)
	Marks (B1) ent Deposits (B2)		Hydrogen					-	/isible on Aerial Imagery (C
	eposits (B3)		X Oxidized	Rhizosph	eres alon	g Living Ro	ots (C3) X	Geomorphi	c Position (D2)
	lat or Crust (B4)		Presence					Shallow Aq	uitard (D3)
	eposits (B5)					ed Soils (C	6)	FAC-Neutra	al Test (D5)
	e Soil Cracks (B6)					D1) (LRR 🖊		Raised Ant	Mounds (D6) (LRR A)
	tion Visible on Aeria	l Imagery (B7)					е С. <u>—</u>	Frost-Heav	e Hummocks (D7)
	ly Vegetated Conca								
Fleid Obse		· · ·							
	ater Present?	Yes N	lo <u> </u>	nches):					
Water Tabl			lo <u>X</u> Depth (ii						
Saturation	-		lo X Depth (ii			Wet	tland Hydrolo	gy Present	? Yes <u>X</u> No
Gooludes of	anillan/ fringe)		_						
Describe R	ecorded Data (strea	im gauge, moi	nitoring well, aeria	l photos, p	previous i	nspections)), if available:		
Remarks:									
the So	Fall Lat	her pres	bent on	recen	t fi	ield vi	sits ?	n Mara	chand April.
			-						

Project/Site: Crude 54 Rail		City/County: Anacon	rkes/Skeg + Sampling Date: 5/7/13
Applicant/Owner: Jhell PSR			show with any sul-22
Investigator(s): P. Hamidi, B. Fletch	er	Section, Township, Ra	ange: 34,35N, 2E
Landform (hillslope) terrace, etc.):		Local relief (concave.	convex (none); Slope (%);
Subregion (LRR):	Lat [.]		Long:
Soil Map Unit Name: 18- Bow gravelly log	~		
Are climatic / hydrologic conditions on the site typical for th	is time of ver	2 Vac V Na	
Are Vegetation Soil or Hydrology	significantiu		"Normal Circumstances" present? Yes X No
Are Vegetation, Soil, or Hydrology	naturaily prol	blematic? \sim (If n	eeded, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map	showing	sampling point	locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes			
Hydric Soil Present? Yes N		is the Sampled	
Wetland Hydrology Present? Yes N	10 <u>X</u>	within a Wetla	nd? Yes No
Remarks: Grazed Pastore.		<u>_</u>	
Rhotos 31-33			£
VEGETATION – Use scientific names of plan	its.		
Tree Stratum (Plot size: 30-)	Absolute	Dominant Indicator	Dominance Test worksheet:
	<u>% Cover</u>	Species? Status	Number of Dominant Species
1. <u>NA</u>			That Are OBL, FACW, or FAC: (A)
2			Total Number of Dominant
4.		· · · - · - · - ·	Species Across All Strata: (B)
Sapling/Shrub Stratum (Plot size: 15)	·	= Total Cover	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67</u> (A/B)
1. w/A			Prevalence Index worksheet:
2			Total % Cover of:Multiply by:
3			OBL species x 1 =
4			FACW species x 2 =
5			FAC species $45 \times 3 = 135$
~~	• •	= Total Cover	FACU species5 x 4 =20
Herb Stratum (Plot size:)			UPL species $50 \times 5 = 250$
1. Alopecurits pratensis	30	X FAC	Column Totals: 100 (A) 405 (B)
2. Trifolium subterreneem	50	X JPL	Prevalence Index = B/A =
3. Cerastium glomeratum 4. Agrostis Capillaris	<u> </u>	FACY	Hydrophytic Vegetation indicators:
	25	<u> </u>	1 - Rapid Test for Hydrophytic Vegetation
5			X 2 - Dominance Test is >50%
6			3 - Prevalence Index is ≤3.0 ¹
7			4 - Morphological Adaptations ¹ (Provide supporting
8			data in Remarks or on a separate sheet)
9			5 - Wetland Non-Vascular Plants ¹
10			Problematic Hydrophytic Vegetation ¹ (Explain)
11			¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: 1 5)	=	Total Cover	
1. <u>N/A</u>			Hadress for the
2			Hydrophytic Vegetation V
		Total Cover	Vegetation X Present? Yes No
% Bare Ground in Herb Stratum			
Remarks:		__	
MOSS (0%)			

US Army Corps of Engineers

Sampling Point:	2-2

Profile Deco	ription: (Describe)	to the den	th needed to docum	ent the	indicator of	or confirm	the absence o	f indicators	5.)	
Depth	Matrix			Feature						
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²			Remarks	
0-5	104R 3/2	930	169R 414	3	<u> </u>	m	Loam	202	grave	
5-14	TOYRY 3	92	loy RY/Y	8	C	\sim	Claye LOGN	<u>206</u>	quare	\
14-18	54 4/1	90	1048 414	10	C	m	clay las	M 208	CN, 202	coubh
11.0	-21-44		<u></u>							
		·								
		·	<u> </u>						·	
		- <u> </u>								
		- <u></u>					<u> </u>			<u> </u>
¹ Type: C=C	oncentration, D=Dep	letion, RM	=Reduced Matrix, CS	=Covere	ed or Coate	d Sand Gr			ore Lining, M=	
Hydric Soii	indicators: (Appiic	abie to aii	LRRs, unless other	wise no	ted.)		indicator		ematic Hydric	Solis":
Histosol	l (A1)		Sandy Redox (S					Muck (A10)		
	pipedon (A2)		Stripped Matrix		4) (Parent Mate	rk Surface (TF	12)
	istic (A3)		Loamy Mucky M					r (Explain in		,
	en Sulfide (A4) d Below Dark Surfac	e (A11)	Depleted Matrix		_)			·		
	ark Surface (A12)	~ (/ (/ / /	Redox Dark Su	•	i)				nytic vegetation	
	Mucky Mineral (S1)		Depleted Dark	Surface (F7)			-	must be prese	ent,
	Gleyed Matrix (S4)		Redox Depress	ions (F8))		unless	s disturbed o	or problematic.	
Restrictive	Layer (if present):									
Туре:	NONZ								Vaa	No X
Depth (in	iches):		······································				Hydric Soil	Present?	Yes	
Remarks:										
HYDROLO)GY	9	<u> </u>						<u> </u>	
	droiogy indicators	:								
			ed; check all that appl	y)					ors (2 or more	
	e Water (A1)				ves (B9) (except	v	ater-Stained	d Leaves (B9)	(MLRA 1, 2,
	ater Table (A2)		MLRA	1, 2, 4A,	, and 4B)			4A, and 4I		
	tion (A3)		Salt Crust					rainage Patt		
	Marks (B1)		Aquatic In						Vater Table (C	
Sedime	ent Deposits (B2)		Hydrogen	Sulfide	Odor (C1)				sible on Aerial	magery (C9)
Drift De	eposits (B3)						ots (C3) G			
	lat or Crust (B4)				ced Iron (C			hallow Aquit AC-Neutral		
	eposits (B5)				ction in Tille		•		ounds (D6) (Ll	RR A)
	e Soil Cracks (B6)				ed Plants (l		· —		Hummocks (D)	
	tion Visible on Aerial		· ·		(emarka)					
Field Obse			(130)							
		Vec	No X Depth (ir	ches):		25				
Water Tabl			No <u>K</u> Depth (ii							
			No K Depth (ii				tland Hydroiog	y Present?	Yes	No <u>×</u>
Saturation (includes ca	anillary fringe)	-								
Describe R	ecorded Data (stream	m gauge, n	nonitoring well, aerial	photos,	previous ir	spections)), if available:			
			<u> </u>				<u> </u>			
Remarks:									2222	
		<u> </u>					,			

APPENDIX D

WASHINGTON STATE DEPARTMENT OF ECOLOGY

WETLAND RATING FORMS AND MATRIX

Wetland	A	D	E	E3	E4	E5	E6	l1	12	J
Special Char.	none	Estuarine	none	none						
HGM Class	Depressional	Slope	Depressional							
Water Quality										
1.1	2	2	2	2	2	2	2	2	1	2
1.2	0	0	0	0	0	0	0	0	0	0
1.3	3	3	1	0	0	0	0	3	0	0
1.4	0	2	2	0	2	2	2	2		0
Total	5	7	5	2	4	4	4	7	1	2
2 (opp. Multiplier)	2	2	2	2	2	2	2	2	2	2
WQ Score	10	14	10	4	8	8	8	14	2	4
Hydrologic				-						
3.1	2	2	2	2	2	2	2	2	0	2
3.2	0	3	3	1	0	0	0	3	2	3
3.3	5	5	5	5	5	5	5	3	NA	5
Total	7	10	10	8	7	7	7	8	2	10
4 (opp. Multiplier)	1	1	1	1	1	1	1	1	1	1
Hydro Score	7	10	10	8	7	7	7	8	2	10
Habitat		•								
1.1	0	4	2	0	0	0	0	4	0	0
1.2	1	3	2	2	2	2	2	3	1	2
1.3	1	2	2	1	1	1	1	2	0	1
1.4	0	3	1	0	0	0	0	3	0	0
1.5	0	4	2	1	1	1	1	2	1	1
H-1 Total	2	16	9	4	4	4	4	14	2	4
2.1	2	2	2	2	2	2	2	2	2	2
2.2	1	1	1	1	1	1	1	1	1	1
2.3	1	4	3	0	0	0	0	3	1	0
2.4	3	3	3	3	3	3	3	3	3	3
H-2 Total	7	10	9	6	6	6	6	9	7	6
Habitat Score	9	26	18	10	10	10	10	23	9	10
Total Score	26	50	38	22	25	25	25	45	13	24
Wetland Rating	IV			IV	IV	IV	IV	45	IV	IV
kagit Co. Buffer (ft)	50	150	150	50	50	50	50	300	50	50
Wetland	A	D	E	E3	E4	E5	E6	I1	12	J
veilanu	A	U		ES	C4	EU	EU		IΖ	J

Shell PSR Crude by Rail East Gate Wetland Rating Matrix

Wetland	Ν	0	Q	R	S	Т	U	V	W	Y	Z
Special Char.	Estuarine	none	none								
HGM Class	Tidal Fringe	Depressional	Depressiona								
Water Quality											
1.1		3	2	2	2	3	2	2	2	2	2
1.2		0	0	0	0	0	0	0	0	0	0
1.3		5	5	0	5	5	0	0	5	0	1
1.4		4	4	0	4	4	2	0	4	0	0
Total		12	11	2	11	12	4	2	11	2	3
2 (opp. Multiplier)		2	2	2	2	2	2	2	2	2	2
WQ Score	NA	24	22	4	22	24	8	4	22	4	6
Hydrologic											
3.1		4	2	2	2	4	2	2	2	2	2
3.2		5	3	1	3	3	3	0	3	0	3
3.3		5	3	5	5	3	5	5	5	5	5
Total		14	8	8	10	10	10	7	10	7	10
4 (opp. Multiplier)		1	1	1	1	1	1	1	1	1	1
Hydro Score	NA	14	8	8	10	10	10	7	10	7	10
Habitat					•				-		-
1.1		0	1	0	4	1	0	0	1	0	1
1.2		0	1	1	2	1	2	2	1	1	1
1.3		0	2	1	2	1	1	1	1	1	1
1.4		0	1	0	2	0	0	0	2	0	1
1.5		1	1	1	4	2	1	1	2	1	1
H-1 Total		1	6	3	14	5	4	4	7	3	5
2.1		1	0	2	3	2	2	2	3	2	2
2.2		1	1	1	1	1	1	1	1	1	1
2.3		1	1	0	1	1	0	3	3	1	1
2.4		3	3	3	3	3	3	3	3	3	3
H-2 Total		6	5	6	8	7	6	9	10	7	7
Habitat Score	NA	7	11	9	22	12	10	13	17	10	12
Total Score	NA	45	41	21	54	46	28	24	49	21	28
Wetland Rating	II	III	III	IV	II	III	IV	IV	III	IV	IV
agit Co. Buffer (ft)	300	150	150	50	300	150	50	50	150	50	50
Wetland	N	0	Q	R	S	Т	U	V	W	Ý	Z

Wetland name or number A

§.

8 4

Updated Oct 2008 with th	ORM – WESTERN WASHINGTON crease accuracy and reproducibility among users are new WDFW definitions for priority habitats
Name of wetland (if known): Wetland	- 5hc11 PSR Date of site visit: $1-23-13$
Potodi P H. m. di	Date of site visit: $\frac{1-2}{5}$
Kated by 1^{i} $1^{$	Trained by Ecology? Yes $\not\in$ No Date of training $2 \cos 5$
SEC: 33 TWNSHP: 351 RNGE: 2E Is S	/T/R in Appendix D? YesNo X
Map of wetland unit: Figu	re Estimated size
SUMMA	RY OF RATING
Category based on EUNCTIONS	
Category based on FUNCTIONS prov	vided by wetland
Category 1 = Score >=70	Score for Water Quality Functions
Category II = Score 51-69 Category III = Score 50-50	Score for Hydrologic Functions 7
Category III = Score 30-50 Category IV = Score < 30	Score for Habitat Functions
	TOTAL score for Functions 26
Category based on SPECIAL CHARA	CTERISTICS of wotland
I II Does not Apply_ <u>×</u>	- Lieb rieb of wettand
	"highest" category from above)
Summary of basic inforn	nation about the wetland unit
Wetland Unit has Special Characteristics	Wetland HGM Class
Estuarine	Used for Rating

	used for Rating	
		<u> ×</u>
		X
		$\vdash \sim$
		<u> </u>
K	Check if unit has multiple HGM classes present	X
		used for Rating Depressional Riverine Lake-fringe Slope Flats Freshwater Tidal Check if unit has multiple HGM classes present

1

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

92

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

-1 15-

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

Classification of Wetland Units in Western Washington

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

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

NQ - 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 (Lagustri

YES – The wetland class is Lake-fringe (Lacustrine Fringe)

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

Wetland name or number *A*

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.

N ϕ - 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	Treat as ESTUARINE under
wetland	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 <u>A</u>

	WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to improve water quality	Points (only 1 score per box)				
D	D 1. Does the wetland unit have the potential to improve water quality?	(see p.38)				
D	D 1.1 Characteristics of surface water flows out of the wetland: Unit is a depression with no surface water leaving it (no outlet) 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 "flor" depression (O. 7)	Figure				
	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")	2				
	5 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS)					
D	definitions) points = 4 NO points = 0	0				
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class)	Figure				
D	γ we chand has persistent, ungrazed, vegetation $\geq = 95\%$ of area points = 5	· ·gui e				
υ	We than d has persistent, ungrazed, vegetation $> = 1/2$ of area points = 3					
	Wetland has persistent, ungrazed vegetation $> = 1/10$ of areapoints = 0Wetland has persistent, ungrazed vegetation <1/10 of area	3				
	Map of Cowardin vegetation classes D1.4 Characteristics of seasonal ponding or inundation.	Figure				
D	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.	1 igure				
	Area seasonally ponded is $> \frac{1}{2}$ total area of wetlandpoints = 4Area seasonally ponded is $> \frac{1}{4}$ total area of wetlandpoints = 2Area seasonally ponded is $< \frac{1}{4}$ total area of wetlandpoints = 0	\bigcirc				
\mathbf{r}	Total for D 1 Add the points in the base of the					
D	Add the points in the boxes above					
D	D 2. Does the wetland unit have the <u>opportunity</u> to improve water quality?					
	Answer TES II you know or believe there are pollutants in groundwater or surface water	(see p. 44)				
	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 soveral					
	sources, but any single source would qualify as opportunity.					
	Grazing in the wetland or within 150 ft Untreated stormwater discharges to wetland					
	— Tilled fields or orchards within 150 G - for site it					
	A stream or culvert discharges into wetland that drains developed areas residential areas					
	 Residential, urban areas, golf courses are within 150 ft of wetland 	multiplier				
	 Wetland is fed by groundwater high in phosphorus or nitrogen Other 					
	YES multiplier is 2 NO multiplier is 1	2				
、						
)	<u>TOTAL</u> - Water Quality Functions Multiply the score from D1 by D2 Add score to table on p. 1	10				

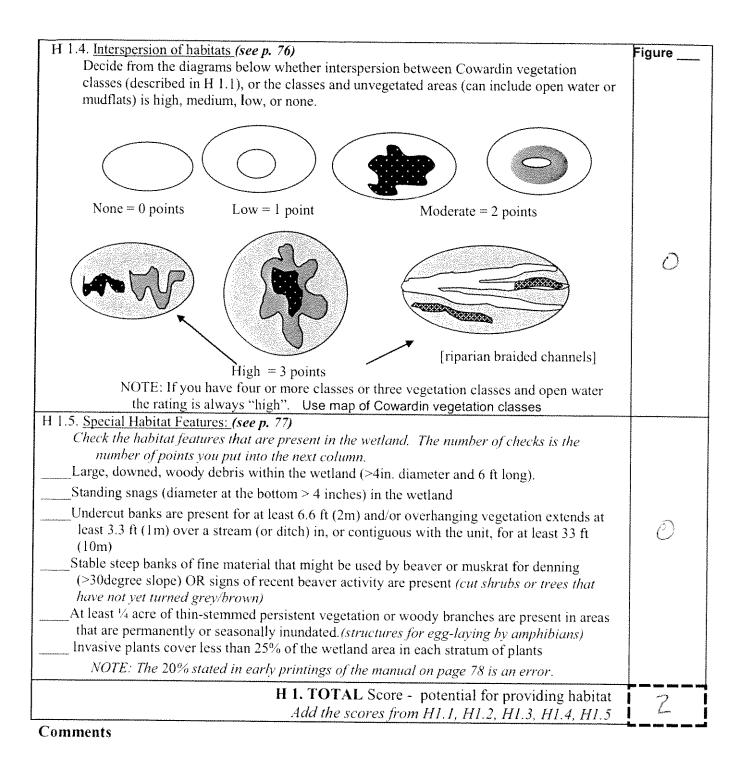
D	Depressional and Flats Wetlands HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation	Points (only 1 score per box)
	D 3. Does the wetland unit have the <u>potential</u> to reduce flooding and erosion?	(see p.46)
D	D 3.1 Characteristics of surface water flows out of the wetland unit 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 If ditch is not permanently flowing treat unit as "intermittently flowing") Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0	2
D	D 3.2 Depth of storage during wet periodsEstimate the height of ponding above the bottom of the outlet. For units with no outletmeasure 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 outletpoints = 7The wetland is a "headwater" wetland"marks of ponding between 2 ft to < 3 ft from surface or bottom of outletpoints = 5Marks are at least 0.5 ft to < 2 ft from surface or bottom of outletunit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trapwaterMarks of ponding less than 0.5 ftD 2.2 Contribution of outlet	0
D	D 3.3 Contribution of wetland unit to storage in the watershedEstimate 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 unitpoints = 5The area of the basin is 10 to 100 times the area of the unitpoints = 3The area of the basin is more than 100 times the area of the unitpoints = 0Entire unit is in the FLATS classpoints = 5	5
D	Total for D 3Add the points in the boxes above	
D	 D 4. Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion? Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. 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. <i>Note which of the following indicators of opportunity apply.</i> — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounde surface prooff protect the prior to do the provide of the stream that has flooding problems 	(see p. 49)
100 Million	 Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems Other 	multiplier
	YES multiplier is 2 NO multiplier is 1	<u> </u>
D	TOTAL - Hydrologic Functions Multiply the score from D 3 by D 4 Add score to table on p. 1	47

f

2

These questions apply to wetlands of all HABITAT FUNCTIONS - Indicators that unit	I HGM classes. functions to provide importa	nt habitat	Points (only 1 scor per box)
H 1. Does the wetland unit have the potential	l to provide habitat for mar	y species?	
H 1.1 Vegetation structure (see p. 72) Check the types of vegetation classes present (as a class is ¼ acre or more than 10% of the area ij Aquatic bed Aquatic bed Emergent plants Forested (areas where shrubs have > Forested (areas where trees have >30% If the unit has a forested class check if: The forested class has 3 out of 5 strata moss/ground-cover) that each cover Add the number of vegetation structures that quality Map of Cowardin vegetation classes	defined by Cowardin)- Size thre f unit is smaller than 2.5 acres. >30% cover) o cover) (canopy, sub-canopy, shrubs, h 20% within the forested poly.	erbaceous, on points = 4 points = 2	Figure
	1 structure	points = 1 points = 0	
Check the types of water regimes (hydroperiod regime has to cover more than 10% of the wetla descriptions of hydroperiods) Permanently flooded or inundated Seasonally flooded or inundated Occasionally flooded or inundated Saturated only Permanently flowing stream or river in, o Seasonally flowing stream in, or adjacent Lake-fringe wetland = 2 points Lake-fringe wetland = 2 points Freshwater tidal wetland = 2 points	4 or more types presen 3 types present 2 types present 1 type present	for t points = 3 points = 2 point = 1 points = 0	1
Count the number of plant species in the wetlar of the same species can be combined to meet th You do not have to name the species. Do not include Eurasian Milfoil, reed canan If you counted: List species below if you want to:	e stze threshold)		1

Total for page _____



ø

•

H 2. Does the wetland unit have the opportunit. H 2.1 Buffers (see p. 80)	y to provide nabitat for many species?		
Choose the description that best represents our difference		Figure	
Choose the description that best represents condition of criterion that applies to the wetland is to be used in the "undisturbed."	of buffer of wetland unit. The highest scoring		
"undisturbed."	e rating. See text for definition of		
- 100 m (330ft) of relatively undisturbed vegetet	4 1		
 — 100 m (330ft) of relatively undisturbed vegetat of circumference. No structures are within the 	ted areas, rocky areas, or open water >95%		
of circumference. No structures are within the	e undisturbed part of buffer. (relatively		
undisturbed also means no-grazing, no landsca	pping, no daily human use) $Points = 5$		
 — 100 m (330 ft) of relatively undisturbed vegeta 50% circumference. 			
	Points = 4		
 — 50 m (170ft) of relatively undisturbed vegetate circumference. 	ed areas, rocky areas, or open water >95%		
	Points = 4		
 — 100 m (330ft) of relatively undisturbed vegetate circumference, . 	red areas, rocky areas, or open water > 25%		
cheminerence, .	D_{0} into -2		
- 50 m (170ft) of relatively undisturbed vegetate	ed areas, rocky areas, or open water for >		
50% cheumelence.	Points = 3		
If buffer does not meet any	of the criteria above		
— No paved areas (except paved trails) or building	gs within 25 m (80ft) of wathen $1 > 0.59$		
circumerence. Light to moderate grazing or la	awns are OK D state - 2	2	
\rightarrow No paved areas or buildings within 50m of weth	land for >50% circumference.	<u> </u>	
Light to moderate grazing, or lawns are OK.	Points = 2		
— Heavy grazing in buffer.	Dointe - 1		
- Vegetated buffers are <2m wide (6.6ft) for more fields paying baselt badrook autor back	e than 95% of the circumference (o g tilled		
neids, paving, basal oculock extend to edge of	wetland $Points = 0.$		
— Buffer does not meet any of the criteria above.	Points = 0		
Aer	rial photo showing buffers		
H 2.2 Corridors and Connections (see p. 81)			
H 2.2.1 Is the wetland part of a relatively undistur	bed and unbroken vegetated corridor		
(critici riparian or upland) that is at least 150 ft wid	de has at least 30% cover of charles former		
or native undisturbed prairie, that connects to estiv	aries other wetlands or undistants 1		
uprands that are at least 250 acres in size? (dams i	in riparian corridors beguily used annual		
rouus, priver rouus, are considered breaks in the c	corridor).		
YES = 4 points (go to H 2 3)	$NO = a_0 t_0 U (2.2.2)$		
H 2.2.2 Is the wetland part of a relatively undisturb	bed and unbroken vegetated corridor		
(ention inpartail or upland) that is at least 50ft wide	has at least 30% cover of shmiles or		
Torest, and connects to estuaries, other wetlands or	Undisturbed unlands that are at least 25		
acres in size: OK a Lake-Iringe wetland, if it doe	es not have an undisturbed corridor as in		
the question above?			
YES = 2 points (go to H 2.3)	NO = H 2.2.3	8	
H 2.2.3 Is the wetland:			
\succ within 5 mi (8km) of a brackish or salt wate	er estuary OR		
within 3 mi of a large field or pasture (>40 a	acres) OR		
within 1 mi of a lake greater than 20 acres?			
YES = 1 point	NO = 0 points		

Total for page 3

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

H 2.3 <u>Near or adjacent to other priority habitats listed by WDFW</u> (see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in	
the PHS report <u>http://wdfw.wa.gov/hab/phslist.htm</u>)	
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 (<i>full descriptions in WDFW PHS report p</i> 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 (<i>full descriptions in WDFW PHS</i>	
report p. 158). Binarian: The area a linear terms of a second se	
Riparian : The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and targetticle and the system 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 PUG	2
form of a dry prairie or a wet prairie (<i>full descriptions in WDFW PHS report p. 161</i>). Instream: The combination of physical, biological, and chemical processes and conditions	
that interact to provide functional life history requirements for instream fish and wildlife	
resources.	-
Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore,	
Open Coast Nearshore, and Puget Sound Nearshore. (full descriptions of habitats and the	
definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in	
Appendix A).	
Caves: A naturally occurring cavity, recess, void, or system of interconnected passages under	
the earth in soils, rock, ice, or other geological formations and is large enough to contain a	
human.	
Cliffs: Greater than 7.6 m (25 ft) high and occurring below 5000 ft.	
Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft).	
composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine	
tailings. May be associated with cliffs.	
Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient	
decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a	
diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in	
height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft)	
long.	
If wetland has 3 or more priority habitats = 4 points	
If wetland has 2 priority habitats = 3 points	
If wetland has I 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)	

•

. . . .

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. The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile, BUT the connections between them are disturbed The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe wetlands within ½ mile, BUT the connections between them are disturbed The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe wetland within ½ mile The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe points = 5 There are at least 1 wetland within ½ mile. There is at least 1 wetland within ½ mile. There are no wetlands within ½ mile.	3
H 2. TOTAL Score - opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4	£ 7
TOTAL for H 1 from page 14	2
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	\$ 9

5

\$.

WETLAND RAT	FING FORM – WESTERN WASHINGTON
Updated Oct 20	08 with the new WDTW 4.5
Name of wetland (if known): D	- Shell PSP
Pull P Hamid:	$\frac{-Shell}{PSR}$ Date of site visit: $\frac{1-23}{3}$
Rated by	Trained by Ecology? Yes XNo_ Date of training 2005
SEC: <u>33</u> 3 [¶] TWNSHP: <u>35</u> № RNGE: 2	In a find by Ecology? Yes X No Date of training $2\infty S$ Is S/T/R in Appendix D? Yes No X
Mon star it	Nos I'R in Appendix D? Yes Nox
Map of wetland uni	t: Figure Estimated size
	MMARY OF RATING
Category based on FUNCTION	IS provided by wotland
	provided by wettand
Category I = Score >=70	Score for Water Quality Functions
Category II = Score $51-69$	Score for Hudrol, in the
Category III = Score 30-50 Category IV = Score < 30	
eaceory iv = score < 30	
	TOTAL score for Functions 50
Category based on SPECIAL Cl	HARACTERISTICS of an A
I II Does not App	$J_{\rm W} \times$
	ny <u>/</u> ~
Final Catagony	
	oose the "highest" category from above)
C	
Summary of basic Wetland Unit has Special	information about the wetland unit

Welland I nit has Special	and a country unit	
Wetland Unit has Special Characteristics	Wetland HGM Class	
Estuarine	used for Rating	
Natural Heritage Wetland	Depressional	X
Partial Heritage wetland	Riverine	
Bog	Lake-fringe	
Mature Forest		
Old Growth Forest	Slope	\times
Coastal Lagoon	Flats	
	Freshwater Tidal	
Interdunal		
None of the above		
	★ Check if unit has multiple HGM classes present	\times

1

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.		Х
 SP2. Has the wetland unit been documented as habitat for any State listed Threatened or Endangered animal species? For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form). 		×
SP3. Does the wetland unit contain individuals of Priority species listed by the $WDFW$ for the state? Bald Eagles	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.		Х

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 $\underline{\mathcal{D}}$

D	Depressional and Flats Wetlands WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to improve water quality	Points (only 1 score per box)
D	D 1. Does the wetland unit have the <u>potential</u> to improve water quality?	(see p.38)
D	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 (<i>permanently flowing</i>) points = 1 Unit is a "flat" depression (O, 7 on key), on in the Plate	Figure
********	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 S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS	2
D	YES points = 4 NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class)Wetland has persistent, ungrazed, vegetation > = 95% of areaWetland has persistent, ungrazed, vegetation > = 1/2 of areaWetland has persistent, ungrazed, vegetation > = 1/2 of areapoints = 3	Figure
	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 D1.4 Characteristics of seasonal ponding or inundation.	>
D	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.	Figure
	Area seasonally ponded is > $\frac{1}{2}$ total area of wetlandpoints = 4Area seasonally ponded is > $\frac{1}{4}$ total area of wetlandpoints = 2Area seasonally ponded is < $\frac{1}{4}$ total area of wetlandpoints = 0Map of Hydroperiods	2
D	Total for D 1Add the points in the boxes above	
D	 D 2. Does the wetland unit have the <u>opportunity</u> to improve water quality? Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity. X Grazing in the wetland or within 150 ft Y Untreated stormwater discharges to 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 W Wetland is fed by groundwater high in phosphorus or nitrogen Other	(see p. 44) multiplier
\mathbf{n}^{\dagger}	YES multiplier is 2 NO multiplier is 1	
\mathbf{D}	<u>TOTAL</u> - Water Quality Functions Multiply the score from D1 by D2 Add score to table on p. 1	L.

;

2 ×

:

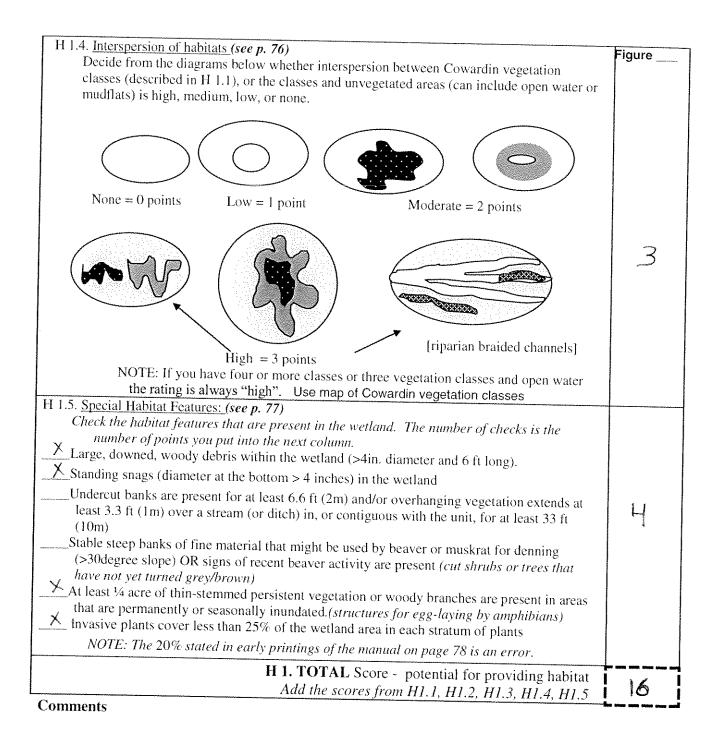
D	Depressional and Flats Wetlands HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation	Points (only 1 score per box)
	D 3. Does the wetland unit have the <u>potential</u> to reduce flooding and erosion?	(see p.46)
D	D 3.1 Characteristics of surface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

1000

۰,

I 1. Does the wetland unit have the potential to provide habitat for many species? I.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.	These questions apply to wetlands of all H IABITAT FUNCTIONS - Indicators that unit fun	GM classes. ctions to provide importan	t habitat	Points (only 1 sec per box
1.1 Vegetation structure (see p. 72) Figure				
_X Scrub/shrub (areas where shrubs have >30% cover) _X Forested (areas where trees have >30% cover) _K Forested (areas where trees have >30% cover) If the unit has a forested class check if:	11.1 <u>Vegetation structure</u> (see p. 72) Check the types of vegetation classes present (as deficute class is ¼ acre or more than 10% of the area if un Aquatic bed	ned by Cowardin). Size three		Figure
Map of Cowardin vegetation classes 4 structures or more points = 4 3 structures points = 2 2 structures points = 1 1 structure points = 0 1.2. Hydroperiods (see p. 73) Figure points = 0 Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods) Figure	 X_Scrub/shrub (areas where shrubs have >30 X_Forested (areas where trees have >30% co If the unit has a forested class check if: X_The forested class has 3 out of 5 strata (ca moss/ground-cover) that each cover 20 	ver) mopy, sub-canopy, shrubs, he % within the forested polygo	rbaceous, n	Ч
1.2. Hydroperiods (see p. 73) Figure		4 structures or more 3 structures 2 structures	points = 2 points = 1	
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) The water for the wetland or ¼ acre to count. (see text for descriptions of hydroperiods) Permanently flooded or inundated 4 or more types present points = 3 X Seasonally flooded or inundated 3 types present points = 2 X Occasionally flooded or inundated 2 types present points = 2 X Seasonally flooded or inundated 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 X Seasonally flowing stream in, or adjacent to, the wetland K Seasonally flowing stream in, or adjacent to, the wetland X Seasonally flowing stream in, or adjacent to, the wetland K Seasonally flowing stream in, or adjacent to, the wetland X Seasonally flowing stream in, or adjacent to, the wetland K Seasonally flowing stream in, or adjacent to, the wetland X Seasonally flowing stream in, or adjacent to, the wetland K Seasonally flowing stream in, or adjacent to, the wetland X Seasonally flowing stream in, or adjacent to, the wetland K Seasonally flowing stream in, or adjacent to, the wetland X Seasonally flowing stream in, or adjacent to, the wetland K Seasonally flowing stream in, or adjacent to, the wetland Y Seasonally flowing stream in, or adj	1.2. Hydroperiods (see p. 73)			Figure
1.3. <u>Richness of Plant Species</u> (see p. 75) Count the number of plant species in the wetland that cover at least 10 ft ² . (different patches of the same species can be combined to meet the size threshold) You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle If you counted: > 19 species List species below if you want to: 5 - 19 species	 Permanently flooded or inundated X Seasonally flooded or inundated X Occasionally flooded or inundated X Saturated only Permanently flowing stream or river in, or a X Seasonally flowing stream in, or adjacent to Lake-fringe wetland = 2 points 	4 or more types present 3 types present 2 types present 1 type present djacent to, the wetland , the wetland	points = 3 points = 2 point = 1 points = 0	3
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		Map of hydr	operiods	
	Count the number of plant species in the wetland to of the same species can be combined to meet the s You do not have to name the species. Do not include Eurasian Milfoil, reed canaryg If you counted:	<i>ize threshold)</i> <i>rass, purple loosestrife, Can</i> > 19 species 5 - 19 species	adian Thistle points = 2 points = 1	2

Wetland name or number $\underline{\mathcal{D}}$



 No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. Points = 2 No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. Points = 2 Heavy grazing in buffer. Points = 1 Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland Points = 0. Buffer does not meet any of the criteria above. Points = 1 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 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 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 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 unlands that are at least 255 	
 Index of problem in the best represents condition of buffer of wetland unit. The highest scoring 'undisturbed 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 >25% 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 >25% circumference, . Points = 3 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >25% circumference No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland >95% circumference. Light to moderate grazing, or lawns are OK. Points = 2 No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. Points = 1 Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basht bedrock extend to edge of wetland Points = 0 Puints = 1 Vegetated buffers are <2m wide the cirteria above. Points = 1 Aerial photo showing buffers H 2.2 Corridors and Connections (see p. 81) H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie,	ure
 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 	2
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

۲ د که ۲

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see new and complete	T
descriptions of WDFW priority habitats, and the counties in which they can be found in	
uie rhs report http://wdiw.wa.gov/hab/nhslist htm)	
Which of the following priority habitats are within 330ft (100m) of the wetland unit? NOTE: the	
Connections ao 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 (<i>full descriptions in WDFW PHS report p. 152</i>).	
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	
capopy coverage of the oak component is important (6.11.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	
canopy coverage of the oak component is important (<i>full descriptions in WDFW PHS report p. 158</i>).	
X Rinarian. The area adjacent to acupatic sustance with flowing to all	
X Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial accousteme which many all is <i>Q</i>	
both aquatic and terrestrial ecosystems which mutually influence each other.	
Westside Prairies: Herbaccous, non-forested plant communities that can either take the	
form of a dry prairie or a wet prairie (<i>full descriptions in WDFW PHS report p. 161</i>).	
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.	
X Nearshare: Relativaly undisturbed many hard to the mutation of the	
Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore,	
Open Coast Nearshore, and Puget Sound Nearshore. (<i>full descriptions of habitats and the definition of relatively undisturbed one is</i> WDEW)	
definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).	
Caves: A naturally occurring cavity, recess, void, or system of interconnected passages under	
the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.	
Cliffs: Greater than 7.6 m (25 ft) high and occurring below 5000 ft.	
Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft),	
composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
Snags and Logs: Trace are considered and 10 d	
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 > 20 cm (12 i) 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 we that 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)	

~ ~ \$ # {

There is at least 1 wetland within $\frac{1}{2}$ mile.points = 3There are no wetlands within $\frac{1}{2}$ mile.points = 2 H 2. TOTAL Score - opportunity for providing habitat Add the scores from H2.1,H2.2, H2.3, H2.4 TOTAL for H 1 from page 14	10
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 = 3	3
 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. 	

Wetland name or number <u></u>

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): <u>E - Shell PSR</u> Date of site visit: <u>6 Feb</u> 2013
Rated by <u>P Hamili B. Killer</u> Trained by Ecology? Yes <u>No</u> Date of training 2005
SEC: 34 TWNSHP: 31N RNGE: 26 Is S/T/R in Appendix D? Yes No X
Map of wetland unit: Figure Estimated size

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III_X__ IV___

Category I = Score >=70 Category II = Score 51-69 Category III = Score 30-50 Category IV = Score < 30 Score for Water Quality Functions Score for Hydrologic Functions Score for Habitat Functions

TOTAL score for Functions

Category based on SPECIAL CHARACTERISTICS of wetland

I____ II___ Does not Apply 🗸

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



Summary of Dasic Informati	on about the wetland unit	
Wetland Unit has Special Characteristics	Wetland HGM Class used for Rating	
Estuarine	Depressional	
Natural Heritage Wetland	Riverine	К
Bog	Lake-fringe	╂━──
Mature Forest	Slope	17
Old Growth Forest	Flats	۲×
Coastal Lagoon	Freshwater Tidal	
Interdunal		
None of the above	Check if unit has multiple HGM classes present	\checkmark

Summary of basic information about the wetland unit

3

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

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

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

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

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

. ب

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)? (NQ) – 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. $NO \rightarrow go to 3$

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)?

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

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

Wetland name or number

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

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

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

NO $\frac{1}{2}$ 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.

*

. 4

D	Depressional and Flats Wetlands WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to improve water quality	Points (only 1 score per box)	
D	D 1. Does the wetland unit have the <u>potential</u> to improve water quality?	(see p.38)	
D	D 1.1 Characteristics of surface water flows out of the wetland: points = 3 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")	Figure	
	Provide photo or drawing		
D	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions) YES NO	0	
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	Figure	
	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	1	
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 > $\frac{1}{2}$ total area of wetlandpoints = 4Area seasonally ponded is > $\frac{1}{4}$ total area of wetlandpoints = 2Area seasonally ponded is < $\frac{1}{4}$ total area of wetlandpoints = 0Map of HudrapointsPoints = 0	2	
D	Map of HydroperiodsTotal for D 1Add the points in the boxes above		
D	 D 2. Does the wetland unit have the <u>opportunity</u> to improve water quality? Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity. X Grazing in the wetland or within 150 ft X Untreated stormwater discharges to wetland Tilled fields or orchards within 150 ft of wetland X 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 W Wetland is fed by groundwater high in phosphorus or nitrogen Other		
D	YES multiplier is 2 NO multiplier is 1 TOTAL - Water Quality Functions Multiply the score from D1 by D2		
	Add score to table on p. 1	10	

ж

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 <u>potential</u> 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 (nermanently flowing) points = 0	2
D	D 3.2 Depth of storage during wet periodsEstimate the height of ponding above the bottom of the outlet. For units with no outletmeasure 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 outletpoints = 7The wetland is a "headwater" wetland"Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	3
	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 unitpoints = 5The area of the basin is 10 to 100 times the area of the unitpoints = 3The area of the basin is more than 100 times the area of the unitpoints = 0Entire unit is in the FLATS classpoints = 5	5
D	Total for D 3Add the points in the boxes above	10
D	 D 4. Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion? Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. 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. <i>Note which of the following indicators of opportunity apply</i>. — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems 	
	- Other	multiplier
	YES multiplier is 2 NO multiplier is 1	1
D	TOTAL - Hydrologic Functions Multiply the score from D 3 by D 4 Add score to table on p. 1	61

, ¥

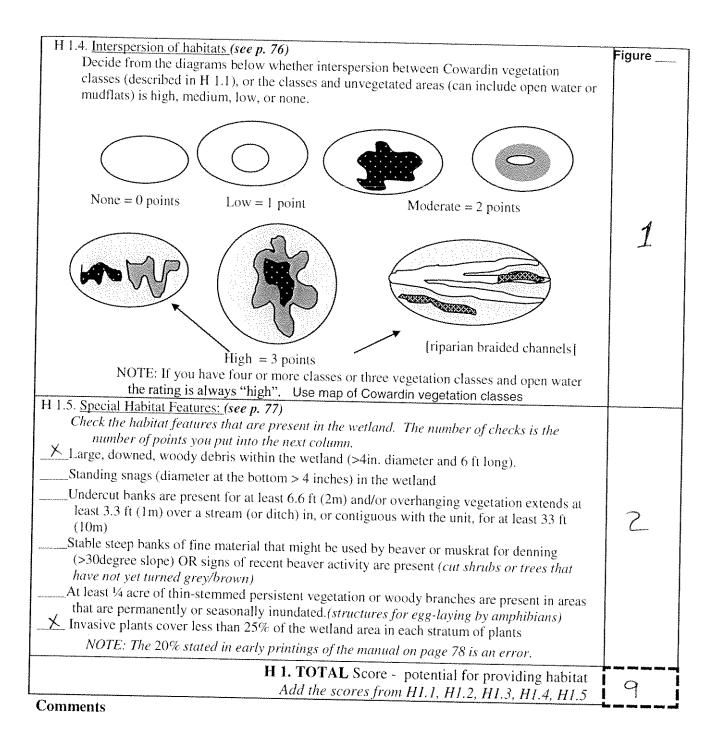
ţ

,*

These questions apply to wetlands of al ABITAT FUNCTIONS - Indicators that unit	Il HGM classes.	at habitat	Points (only 1 sc
			per bo
H 1. Does the wetland unit have the potentia H 1.1 Vegetation structure (see p. 72) Check the types of vegetation classes present (as class is ¼ acre or more than 10% of the area is	defined by Cowardin)- Size threa if unit is smaller than 2.5 acres. >30% cover) % cover) a (canopy, sub-canopy, shrubs, h	shold for each	Figure _
moss/ground-cover) that each cove Add the number of vegetation structures that quad Map of Cowardin vegetation classes	<i>tr 20%</i> within the forested polyge <i>lify. If you have;</i> 4 structures or more 3 structures 2 structures 1 structure	points = 4 points = 2 points = 1 points = 0	
 1.2. <u>Hydroperiods (see p. 73)</u> Check the types of water regimes (hydroperio regime has to cover more than 10% of the weth descriptions of hydroperiods) Permanently flooded or inundated X Seasonally flooded or inundated M Occasionally flooded or inundated M Saturated only Permanently flowing stream or river in, Seasonally flowing stream in, or adjacer Lake-fringe wetland = 2 points Freshwater tidal wetland = 2 points 	and or ¼ acre to count. (see text 4 or more types presen 3 types present 2 types present 1 type present or adjacent to, the wetland	for t points = 3 points = 2 point = 1 points = 0	Figure
 1.3. <u>Richness of Plant Species</u> (see p. 75) Count the number of plant species in the wetla of the same species can be combined to meet t You do not have to name the species. Do not include Eurasian Milfoil, reed cana If you counted List species below if you want to: 	the size threshold) arygrass, purple loosestrife, Cai		2

Total for page <u>6</u>

Wetland name or number E



.*

Г

, »

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

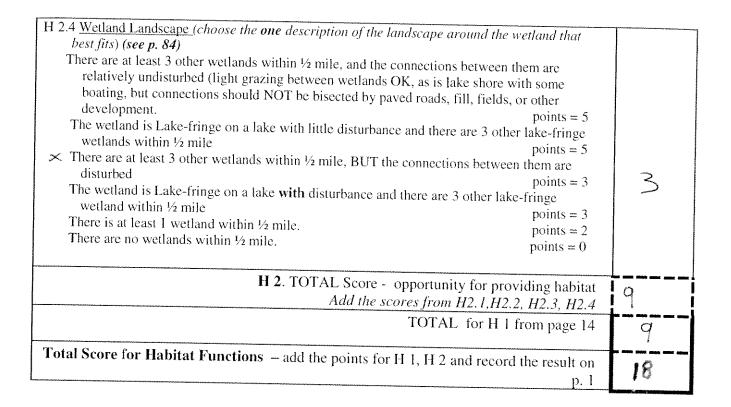
Total for page 3

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

د به ب

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see new and complete	1
descriptions of WDFW priority habitats, and the counties in which they can be found, in	
the PHS report <u>http://wdfw.wa.gov/hab/phslist.htm</u>)	
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 (<i>full descriptions in WDFW PHS report p. 152</i>).	
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 (<i>full descriptions in WDFW PHS</i>	
report p. 158).	
<u>Riparian</u> : 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: Herbaccous, non-forested plant communities that can either take the	
form of a dry prairie or a wet prairie (<i>full descriptions in WDFW PHS report p. 161</i>).	
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,	2
Open Coast Nearshore, and Puget Sound Nearshore. (full descriptions of habitats and the	مستنتي
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 3ε

Version 2 - Updated July 2006 to in	ncrease accu	WESTERN WASHINGTON racy and reproducibility among use OFW definitions for priority habitat	brs
Name of wetland (if known): 3E		Date of site	visit: <u>5/9/13</u>
Rated by P. Hamid:	Trained b	y Ecology? Yes <u>X</u> No Da	ate of training 2005
SEC:TWNSHP: RNGE: Is	S/T/R in .	Appendix D? Yes No	-*
Map of wetland unit: Fig	ure	Estimated size	-
SUMM	ARY O	FRATING	
Category based on FUNCTIONS pr	ovided l	oy wetland	
<u>і п ш іv Х</u>			
	Score	for Water Quality Functions	4
Category I = Score >=70	Sc	ore for Hydrologic Functions	P
Category II = Score 51-69 Category III = Score 30-50	50	Score for Habitat Functions	
Category IV = Score < 30		Score for Habitat Functions	
]	FOTAL score for Functions	99 🌒
Category based on SPECIAL CHAI I II Does not Apply_ Final Category (choose	<u>X</u>		IV
Summary of basic inf	formation	about the wetland unit	
Wetland Unit has Special	1 SALE	Wetland HGM Class	
Characteristics		used for Rating	
Estuarine		Depressional	X
Natural Heritage Wetland		Riverine	
Bog		Lake-fringe	
Mature Forest		Slope	
Old Growth Forest		Flats	
Coastal Lagoon		Freshwater Tidal	
Interdunal			
None of the above	X	Check if unit has multiple HGM classes present	

1

August 2004

Wetland name or number 3E

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		x
categorized as Category I Natural Heritage Wetlands (see p. 19 of data form). SP3. Does the wetland unit contain individuals of Priority species listed by the		
WDFW for the state? SP4. Does the wetland unit have a local significance in addition to its functions?		X
For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		×

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

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

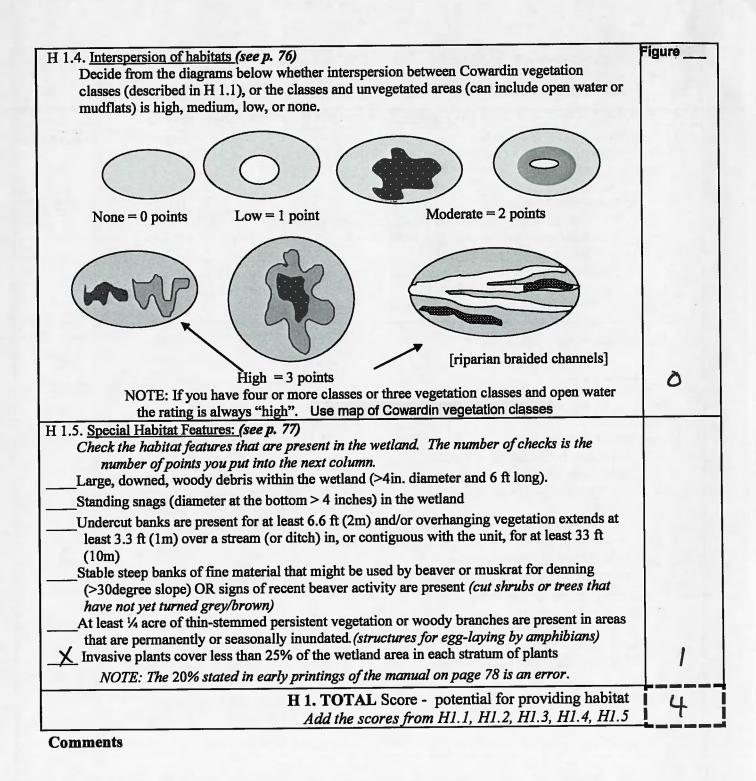
Wetland name or number <u>3</u>E

D	Depressional and Flats Wetlands	Points	
	WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to	(only I score	
	improve water quality	per box)	
D	D 1. Does the wetland unit have the <u>potential</u> to improve water quality?	(see p.38)	
	D 1.1 Characteristics of surface water flows out of the wetland:	Figure	
D	Unit is a depression with no surface water leaving it (no outlet)points = 3Unit has an intermittently flowing, OR highly constricted permanently flowing outletpoints = 2Unit has an unconstricted, or slightly constricted, surface outlet (<i>permanently flowing</i>) points = 11Unit 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 ditchpoints = 1		
	(If ditch is not permanently flowing treat unit as "intermittently flowing") Provide photo or drawing	2	
D	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions) YES NO	0	
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class)	Figure	
D	Wetland has persistent, ungrazed, vegetation $> = 95\%$ of areapoints = 5Wetland has persistent, ungrazed, vegetation $> = 1/2$ of areapoints = 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	0	
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.	Figure	
	Area seasonally ponded is > $\frac{1}{2}$ total area of wetlandpoints = 4Area seasonally ponded is > $\frac{1}{4}$ total area of wetlandpoints = 2Area seasonally ponded is < $\frac{1}{4}$ total area of wetlandpoints = 0	0	
	Map of Hydroperiods		
D	Total for D 1Add the points in the boxes above	2	
D	 D 2. Does the wetland unit have the <u>opportunity</u> to improve water quality? Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity. A Grazing in the wetland or within 150 ft Untreated stormwater discharges to wetland Tilled fields or orchards within 150 ft of wetland A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging Residential, urban areas, golf courses are within 150 ft of wetland Wetland is fed by groundwater high in phosphorus or nitrogen Other YES multiplier is 2 NO multiplier is 1 		
D	TOTAL - Water Quality Functions Multiply the score from D1 by D2	4	
	Add score to table on p. 1	/	

· · · · · ·

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 <u>potential</u> to reduce flooding and erosion?	(see p.46)
D	D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch points = 1 (If ditch is not permanently flowing treat unit as "intermittently flowing") Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0	2
D	D 3.2 Depth of storage during wet periodsEstimate the height of ponding above the bottom of the outlet. For units with no outletmeasure 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 outletpoints = 7The wetland is a "headwater" wetland"Marks of ponding between 2 ft to < 3 ft from surface or bottom of outletpoints =: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	1
D	D 3.3 Contribution of wetland unit to storage in the watershed Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself. The area of the basin is less than 10 times the area of unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 The area of the basin is more than 100 times the area of the unit points = 0 Entire unit is in the FLATS class points = 5	5
D	Total for D 3Add the points in the boxes above	8
D	 D 4. Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion? Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. Note which of the following indicators of opportunity apply. — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems 	(see p. 49) multiplier
	- Other	,
	YES multiplier is 2 (NO) multiplier is 1	
D	TOTAL - Hydrologic Functions Multiply the score from D 3 by D 4 Add score to table on p. 1	8

HABITAT FUNCTIONS - Indicators that unit	HGM classes. functions to provide importan	t habitat	Points (only 1 scor per box)
H 1. Does the wetland unit have the potential	to provide habitat for many	y species?	
H 1.1 <u>Vegetation structure</u> (see p. 72) Check the types of vegetation classes present (as a class is ¼ acre or more than 10% of the area ij Aquatic bed K Emergent plants Scrub/shrub (areas where shrubs have > Forested (areas where trees have >30% If the unit has a forested class check if:	defined by Cowardin)- Size thres f unit is smaller than 2.5 acres. >30% cover)		Figure
The forested class has 3 out of 5 strata moss/ground-cover) that each cover	r 20% within the forested polygo	erbaceous, n	
Add the number of vegetation structures that qual. Map of Cowardin vegetation classes	<i>ify. If you have:</i> 4 structures or more 3 structures	points = 4 points = 2	
H 1.2. Hydroperiods (see p. 73)	2 structures 1 structure	points = 1 $points = 0$	0
Check the types of water regimes (hydroperiod regime has to cover more than 10% of the wetle descriptions of hydroperiods) Permanently flooded or inundated Seasonally flooded or inundated Occasionally flooded or inundated	4 or more types present 3 types present 2 types present	for t points = 3 points = 2 point = 1	
X Saturated only Permanently flowing stream or river in, of Seasonally flowing stream in, or adjacent Lake-fringe wetland = 2 points	l type present or adjacent to, the wetland t to, the wetland	points = 0	2
Permanently flowing stream or river in, of Seasonally flowing stream in, or adjacen <i>Lake-fringe wetland</i> = 2 points <i>Freshwater tidal wetland</i> = 2 points H 1.3. <u>Richness of Plant Species</u> (see p. 75) Count the number of plant species in the wetla	or adjacent to, the wetland t to, the wetland Map of hydr and that cover at least 10 ft ² . (<i>dif</i>	operiods	5
Permanently flowing stream or river in, of Seasonally flowing stream in, or adjacen <i>Lake-fringe wetland</i> = 2 points <i>Freshwater tidal wetland</i> = 2 points	or adjacent to, the wetland t to, the wetland Map of hydr and that cover at least 10 ft ² . (<i>dif</i> <i>he size threshold</i>) wygrass, purple loosestrife, Can	operiods ferent patches	2



. .

2. Does the wetland unit have the opportunity to provide habitat for many species? 2.1 <u>Buffers</u> (see p. 80)	Figure
hoose the description that best represents condition of buffer of wetland unit. The highest scoring iterion that applies to the wetland is to be used in the rating. See text for definition of	Figure
ndisturbed."	
- 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.	
- 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	12
— 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 $Points = 0$.	封
- Buffer does not meet any of the criteria above. Points = 1	4
Aerial photo showing buffers	
I 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	11.64
uplands that are at least 250 acres in size? (dams in riparian corridors, heavily used gravel	0.12
roads, paved roads, are considered breaks in the corridor).	100
$YES = 4 \text{ points} (go to H 2.3) \qquad NO = go to H 2.2.2$	
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?	
$YES = 2 \text{ points } (go \text{ to } H 2.3) \qquad NO = H 2.2.3$	
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	

2.1

2.3 Near or adjacent to other priority habitats listed by WDFW (see new and complete	
descriptions of WDFW priority habitats, and the counties in which they can be found, in	
the PHS report http://wdfw.wa.gov/hab/phslist.htm)	
Which of the following priority habitats are within 330ft (100m) of the wetland unit? NOTE: the	
connections do not have to be relatively undisturbed.	
Aspen Stands: Pure or mixed stands of aspen greater than 0.4 ha (1 acre).	
Biodiversity Areas and Corridors: Areas of habitat that are relatively important to various	
species of native fish and wildlife (full descriptions in WDFW PHS report p. 152).	
Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.	
Old-growth/Mature forests: (Old-growth west of Cascade crest) Stands of at least 2 tree	
species, forming a multi-layered canopy with occasional small openings; with at least 20	
trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands	
with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%;	
crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of	
large downed material is generally less than that found in old-growth; 80 - 200 years old	
west of the Cascade crest.	
Oregon white Oak: Woodlands Stands of pure oak or oak/conifer associations where	
canopy coverage of the oak component is important (full descriptions in WDFW PHS	
report p. 158).	
Riparian : The area adjacent to aquatic systems with flowing water that contains elements of	
both aquatic and terrestrial ecosystems which mutually influence each other.	
Westside Prairies: Herbaceous, non-forested plant communities that can either take the	
form of a dry prairie or a wet prairie (full descriptions in WDFW PHS report p. 161).	
Instream: The combination of physical, biological, and chemical processes and conditions	
that interact to provide functional life history requirements for instream fish and wildlife	
resources.	
Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore,	
Open Coast Nearshore, and Puget Sound Nearshore. (full descriptions of habitats and the	
definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in	
Appendix A).	
Caves: A naturally occurring cavity, recess, void, or system of interconnected passages under	
the earth in soils, rock, ice, or other geological formations and is large enough to contain a	
human.	
Cliffs: Greater than 7.6 m (25 ft) high and occurring below 5000 ft.	
Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft),	
composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine	
tailings. May be associated with cliffs.	
Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient	
decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a	
diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in	
height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft)	
long.	
If wetland has 3 or more priority habitats = 4 points	
If wetland has 2 priority habitats = 3 points	
If wetland has 1 priority habitat = 1 point No habitats = 0 points	
Note: All vegetated wetlands are by definition a priority habitat but are not included in this	D
list. Nearby wetlands are addressed in question H 2.4)	-

3

1.5

4

H 2.4 <u>Wetland Landscape (choose the one description of the landscape around the wetland that</u> 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 1/2 mile, BUT the connections between them are	
disturbed points $\neq 3$	
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 $\frac{1}{2}$ mile. points = 2	
There are no wetlands within $\frac{1}{2}$ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat	
Add the scores from H2.1,H2.2, H2.3, H2.4	46
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	AIT

Wetland name or number <u>5E+4</u> E+6E

\$

	Version 2 - Updated July 2006 to incre Updated Oct 2008 with the	PRM – WESTERN WASHINGTON ease accuracy and reproducibility among users new WDFW definitions for priority habitats	
Name of wetla	and (if known): Wetland 5	Et 4E+6E Date of site visit: 5-9-13	
Rated by . H	amidi Shell PSR	E + $\frac{9}{5}$ + $\frac{6}{6}$ Date of site visit: $\frac{5-9-13}{2}$, Crude by Paric ained by Ecology? Yes XNo Date of training 22	25
SEC: TW	NSHP: RNGE: Is S/	T/R in Appendix D? Yes No	
	Map of wetland unit: Figur	e Estimated size	
	SUMMAI	RY OF RATING	
Category ba	ased on FUNCTIONS prov	vided by wetland	
I	п <u> п тv х</u>		
		Score for Water Quality Functions	
	= Score >=70 = Score 51-69	Score for Hydrologic Functions	
Category III	= Score 30-50	Score for Habitat Functions	
Category IV	= Score < 30	TOTAL score for Functions 25	
	ased on SPECIAL CHARA		
		e "highest" category from above)	
	Summary of basic infor Wetland Unit has Special	mation about the wetland unit Wetland HGM Class	
22	Characteristics	used for Rating	
	Estuarine	Depressional X	
]	Natural Heritage Wetland	Riverine	

Lake-fringe

Freshwater Tidal

Check if unit has multiple

HGM classes present

Slope

Flats

X

Bog

Mature Forest

Coastal Lagoon

None of the above

Interdunal

Old Growth Forest

×

¥

Wetland name or number <u>5E, 4E, 6E</u>

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).	34	X
SP3. Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?		×
SP4. Does the wetland unit have a local significance in addition to its functions? For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		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 <u>5EME</u>, GE

×.

D	Depressional and Flats Wetlands WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to improve water quality	Points (only 1 score per box)			
D	D 1. Does the wetland unit have the <u>potential</u> to improve water quality?	(see p.38)			
	D 1.1 Characteristics of surface water flows out of the wetland:	Figure			
D	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 (<i>permanently flowing</i>) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and 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	2			
	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic <i>(use NRCS</i>				
D	<i>definitions)</i> YES NO points = 0	0			
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class)	Figure			
D	Wetland has persistent, ungrazed, vegetation $> = 95\%$ of areapoints = 5Wetland has persistent, ungrazed, vegetation $> = 1/2$ of areapoints = 3Wetland has persistent, ungrazed vegetation $> = 1/10$ of areapoints = 1	0			
	Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	Figure			
D	D1.4 Characteristics of seasonal ponding or inundation. This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate				
-	area as the average condition 5 out of 10 yrs.	_			
	Area seasonally ponded is $> \frac{1}{2}$ total area of wetland points = 4	2			
	Area seasonally ponded is > $\frac{1}{4}$ total area of wetlandpoints = 2Area seasonally ponded is < $\frac{1}{4}$ total area of wetlandpoints = 0				
	Area seasonarry ponded is < 1/2 total area of wetland points – 0 Map of Hydroperiods				
D	Total for D 1Add the points in the boxes above	4			
D	D 2. Does the wetland unit have the <u>opportunity</u> to improve water quality? Answer YES if you know or believe there are pollutants in groundwater or surface water	(see p. 44)			
	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.				
	Sources, but any single source would qualify as opportunity. Grazing in the wetland or within 150 ft				
	 Untreated stormwater discharges to wetland 				
	— Tilled fields or orchards within 150 ft of wetland				
	 A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging 				
	 Residential, urban areas, golf courses are within 150 ft of wetland 	multiplier			
	 Wetland is fed by groundwater high in phosphorus or nitrogen Other 	2			
	YES multiplier is 2 NO multiplier is 1	<u> </u>			
D	<u>TOTAL</u> - Water Quality Functions Multiply the score from D1 by D2 Add score to table on p. 1	ନ୍ତି			

Wetland name or number 5E, 4E, 6E

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 <u>potential</u> 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				
D	D 3.2 Depth of storage during wet periodsEstimate the height of ponding above the bottom of the outlet. For units with no outletmeasure 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 outletpoints = 7The wetland is a "headwater" wetland"points = 5Marks of ponding between 2 ft to < 3 ft from surface or bottom of outletpoints = 5Marks are at least 0.5 ft to < 2 ft from surface or bottom of outletpoints = 3Unit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap watermarks of ponding less than 0.5 ft	0			
D	D 3.3 Contribution of wetland unit to storage in the watershedEstimate the ratio of the area of upstream basin contributing surface water to the wetlandto the area of the wetland unit itself.The area of the basin is less than 10 times the area of unitpoints = 5The area of the basin is 10 to 100 times the area of the unitpoints = 3The area of the basin is more than 100 times the area of the unitpoints = 0Entire unit is in the FLATS classpoints = 5	5			
D	Total for D 3Add the points in the boxes above	7 (see p. 49)			
D	 D 4. Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion? Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. 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. <i>Note which of the following indicators of opportunity apply</i>. — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems — Other 				
	YES multiplier is 2 NO multiplier is 1	1			
D	TOTAL - Hydrologic Functions Multiply the score from D 3 by D 4 Add score to table on p. 1	7			

11

These questions apply to wetlands of all H HABITAT FUNCTIONS - Indicators that unit fun		habitat	Points (only 1 score per box)
H 1. Does the wetland unit have the <u>potential</u> to	provide habitat for many	species?	
H 1.1 Vegetation structure (see p. 72) Check the types of vegetation classes present (as defi class is ¼ acre or more than 10% of the area if un Aquatic bed Emergent plants Scrub/shrub (areas where shrubs have >30	it is smaller than 2.5 acres.	hold for each	Figure
Forested (areas where trees have >30% co If the unit has a forested class check if: The forested class has 3 out of 5 strata (ca moss/ground-cover) that each cover 20 Add the number of vegetation structures that qualify.	anopy, sub-canopy, shrubs, he 10% within the forested polygo	n	0
Map of Cowardin vegetation classes	3 structures 2 structures 1 structure	points = 4 $points = 2$ $points = 1$ $points = 0$	
 H 1.2. <u>Hydroperiods (see p. 73)</u> Check the types of water regimes (hydroperiods) regime has to cover more than 10% of the wetland descriptions of hydroperiods) Permanently flooded or inundated ✓ Seasonally flooded or inundated ✓ Occasionally flooded or inundated ✓ Saturated only Permanently flowing stream or river in, or a Seasonally flowing stream in, or adjacent to Lake-fringe wetland = 2 points Freshwater tidal wetland = 2 points 	4 or more types present 3 types present 2 types present 1 type present adjacent to, the wetland	for t points = 3 points = 2 point = 1 points = 0	Figure
H 1.3. <u>Richness of Plant Species</u> (see p. 75) Count the number of plant species in the wetland of the same species can be combined to meet the You do not have to name the species. Do not include Eurasian Milfoil, reed canary If you counted: List species below if you want to:	that cover at least 10 ft ² . (<i>digsize threshold</i>)	fferent patches	1
		Total for	3

٠,

H 1.4. Interspersion of habitats (see p. 76) Decide from the diagrams below whether interspersion between Cowardin vegetation	Figure
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	0
NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes	
H 1.5. <u>Special Habitat Features:</u> (see p. 77) Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.	
Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long). Standing snags (diameter at the bottom > 4 inches) in the wetland	
Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)	
 Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned grey/brown) At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas 	
that are permanently or seasonally inundated. (structures for egg-laying by amphibians) \checkmark 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.	
H 1. TOTAL Score - potential for providing habitat Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5	4
Comments	

· · · ·

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
H 2.1 <u>Buffers</u> (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%	Figure
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 >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 > 25% circumference, . Points = 3 — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. Points = 3 — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. Points = 3 — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. Points = 3 — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. Points = 3 — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. Points = 3 — Mo paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference.	2
Aerial photo showing buffersH 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 2.2.2H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs 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 2.2.3H 2.2.3 Is the wetland: W within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR 	Ĭ

۲.,

Total for page 3

Wetland name or number 5E, 4E, 6E

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 <u>http://wdfw.wa.gov/hab/phslist.htm</u>)	
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 (<i>full descriptions in WDFW PHS report p. 152</i>).	
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	040
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	7
that interact to provide functional life history requirements for instream fish and wildlife	
resources.	
Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore,	
Open Coast Nearshore, and Puget Sound Nearshore. (full descriptions of habitats and the	
definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in	
Appendix A).	
Caves: A naturally occurring cavity, recess, void, or system of interconnected passages under	
the earth in soils, rock, ice, or other geological formations and is large enough to contain a	
human.	
Cliffs: Greater than 7.6 m (25 ft) high and occurring below 5000 ft.	
Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft),	
composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine	
tailings. May be associated with cliffs.	
Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient	
decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a	
diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in	
height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft)	
long.	
If wetland has 3 or more priority habitats = 4 points	
If wetland has 2 priority habitats = 3 points	
If wetland has 1 priority habitat = 1 point No habitats = 0 points	
Note: All vegetated wetlands are by definition a priority habitat but are not included in this	
list. Nearby wetlands are addressed in question H 2.4)	

.

. · · ·

 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, BUT the connections between them are disturbed The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe wetland within ½ mile, BUT the connections between them are disturbed The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe wetland within ½ mile The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe points = 5 There are at least 1 wetland within ½ mile. There is at least 1 wetland within ½ mile. points = 0 	3
H 2. TOTAL Score - opportunity for providing habitat Add the scores from H2.1,H2.2, H2.3, H2.4	6
TOTAL for H 1 from page 14	4
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	10

Wetland name or number 11.

.

.

Version 2 - Updated July 2006 to incre	ase acc	WESTERN WASHINGTO uracy and reproducibility among u DFW definitions for priority habita	sers	8-20-13
Name of wetland (if known): <u>11-5</u>	shel	PSR Date of site	e visit	-
Rated by Hamidi Tr	ained	by Ecology? Yes_Not I	Date of	ftraining 2005
SEC: 3 TWNSHP: 34N RNGE: 2E Is S/				
Map of wetland unit: Figure	e	_ Estimated size <u>>10</u>	<u>a</u> cre	.5
SUMMAR	RY C	OF RATING		
Category based on FUNCTIONS prov	ided	by wetland		
і <u>п шх</u> іх_				
	Scor	e for Water Quality Function	s	14
Category I = Score >=70 Category II = Score 51-69	S	core for Hydrologic Function	-	
Category II = Score 31-69 Category III = Score 30-50	Di			8
Category $III = Score < 30$		Score for Habitat Function	s	23
	;	TOTAL score for Function	s	45
Category based on SPECIAL CHARA	СТЕ	RISTICS of wetland		
I II_ K Does not Apply				
			Г	
Final Category (choose the	e "hig	hest" category from above)		Π
Summary of basic inform	natior	about the wetland unit		
Wetland Unit has Special		Wetland HGM Class		
Characteristics		used for Rating		
Estuarine	X		X	
Natural Heritage Wetland		Riverine		
Bog		Lake-fringe		
Mature Forest		Slope	×	
Old Growth Forest		Flats		
Coastal Lagoon		Freshwater Tidal		
Interdunal				

None of the above

August 2004

×

1

Check if unit has multiple HGM classes present

Wetland name or number <u><u>1</u></u>

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	x	
appropriate state or federal database. SP2. Has the wetland unit been documented as habitat for any State listed Threatened or Endangered animal species? For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).	¥	
SP3. Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?	8	
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.

Classification of Wetland Units in Western Washington

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

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

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

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

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

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

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

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

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

- (without any vegetation on the surface) at least 20 acres (8 ha) in size;
- __At least 30% of the open water area is deeper than 6.6 ft (2 m)?

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

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

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

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

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

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

- NO go to 6 **YES** The wetland class is **Riverine**
- 6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. This means that any outlet, if present, is higher than the interior of the wetland.

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

- 7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
 - NO go to 8 YES The wetland class is Depressional

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

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

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

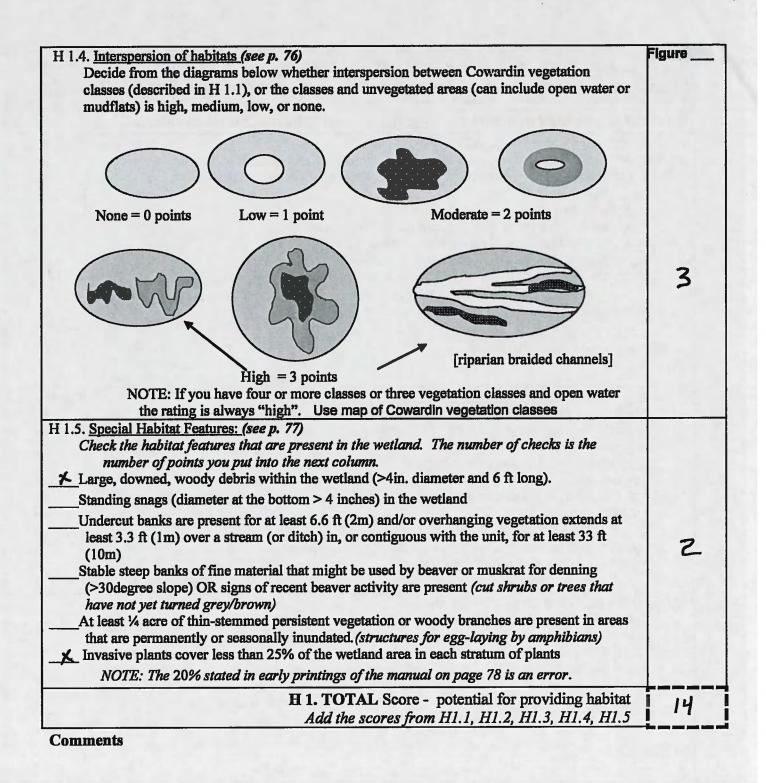
D	Depressional and Flats Wetlands WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to improve water quality	Points (only 1 score per box)
D	D 1. Does the wetland unit have the <u>potential</u> to improve water quality?	(see p.38)
D	D 1.1 Characteristics of surface water flows out 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 (<i>permanently flowing</i>) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and 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
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	Ð
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class) Wetland has persistent, ungrazed, vegetation > = 95% of areapoints = 5Wetland has persistent, ungrazed, vegetation > = 1/2 of areapoints = 3Wetland has persistent, ungrazed vegetation > = 1/10 of areapoints = 1Wetland has persistent, ungrazed vegetation <1/10 of area	Figure
D	D1.4 Characteristics of seasonal ponding or inundation. This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs. Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ½ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland	Figure
D	Total for D 1Add the points in the boxes above	7
D	 D 2. Does the wetland unit have the <u>opportunity</u> to improve water quality? Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity. Grazing in the wetland or within 150 ft Untreated stormwater discharges to wetland A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging 	(see p. 44)
	 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 	multiplier
D	<u>TOTAL</u> - Water Quality Functions Multiply the score from D1 by D2 Add score to table on p. 1	14

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 <u>potential</u> 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 If ditch is not permanently flowing treat unit as "intermittently flowing") Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0	2
D	D 3.2 Depth of storage during wet periodsEstimate the height of ponding above the bottom of the outlet. For units with no outletmeasure 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 outletpoints = 7The wetland is a "headwater" wetland"points = 5Marks of ponding between 2 ft to < 3 ft from surface or bottom of outletpoints = 5Marks are at least 0.5 ft to < 2 ft from surface or bottom of outletpoints = 3Unit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap waterwaterpoints = 1Marks of ponding less than 0.5 ft	3
D	D 3.3 Contribution of wetland unit to storage in the watershed Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself. The area of the basin is less than 10 times the area of unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 The area of the basin is more than 100 times the area of the unit points = 0 Entire unit is in the FLATS class points = 5	3
D	Total for D 3Add the points in the boxes above	8
D	 D 4. Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion? Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. Note which of the following indicators of opportunity apply. — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise 	(see p. 49)
	flow into a river or stream that has flooding problems	multiplier
	— Other YES multiplier is 2 NO multiplier is 1	1
D	TOTAL - Hydrologic Functions Multiply the score from D 3 by D 4 Add score to table on p. 1	8

. •

.

These questions apply to wetlands of all 1	HGM classes.	No. Contraction	Points
HABITAT FUNCTIONS - Indicators that unit fu	inctions to provide importan	t habitat	(unly 1 sou per box)
H 1. Does the wetland unit have the potential t	to provide habitat for man	y species?	
H 1.1 Vegetation structure (see p. 72) Check the types of vegetation classes present (as defined and the class is % acre or more than 10% of the area if the formal set of the class is % acre or more than 10% of the area if the formal set of the class is % acre or more than 10% of the area if the class is % acre or more than 10% of the area if the class is % acre or more than 10% of the area if the class is % acre or more than 10% of the area if the class is % acre or more than 10% of the area if the class is % acre or more than 10% of the area if the class is % acre or more than 10% of the area if the class is % acre or more than 10% of the area if the class is % acre or more than 10% of the area if the class is % acre or more than 10% of the area if the class is % acre or more than 10% of the area if the class is % acre or more than 10% of the area if the class is % acre or more than 10% of the area if the area if the class is % acre or more than 10% of the area if the area if the class is % acre or more than 10% of the area if the	efined by Cowardin)- Size three unit is smaller than 2.5 acres. 30% cover)		Figure
If the unit has a forested class check if: The forested class has 3 out of 5 strata (moss/ground-cover) that each cover 2	canopy, sub-canopy, shrubs, h		4
Add the number of vegetation structures that qualify			
Map of Cowardin vegetation classes	4 structures or more 3 structures 2 structures 1 structure	points = 4 $points = 2$ $points = 1$ $points = 0$	
I 1.2. Hydroperiods (see p. 73)		pomis – v	Figure
Permanently flooded or inundated Y Seasonally flooded or inundated Y Occasionally flooded or inundated Y Occasionally flooded or inundated Y Saturated only Permanently flowing stream or river in, or X Seasonally flowing stream in, or adjacent Lake-fringe wetland = 2 points Freshwater tidal wetland = 2 points		points = 2 point = 1 points = 0	3
 I 1.3. <u>Richness of Plant Species</u> (see p. 75) Count the number of plant species in the wetlan of the same species can be combined to meet the You do not have to name the species. Do not include Eurasian Milfoil, reed canan If you counted: List species below if you want to: 	e size threshold)	~	2



6

2. Does the wetland unit have the opportunity to provide habitat for many species? 2.1 Buffers (see p. 80)	Figure
hoose the description that best represents condition of buffer of wetland unit. The highest scoring iterion 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 >95% circumference. Points = 4 100 m (330ft) 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 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. If buffer does not meet any of the criteria above No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. Points = 2 No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. Points = 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. Points = 1 Aerial photo showing buffers 	2
H 2.2 <u>Corridors and Connections (see p. 81)</u> 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? (<i>dams in riparian corridors, heavily used gravel</i> 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

Wetland Rating Form – western Washington15version 2Updated with new WDFW definitions Oct. 2008

Wetland name or number **<u>T1</u>**

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).	13
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	2
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).	
K 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	3
human.	-
Cliffs: Greater than 7.6 m (25 ft) high and occurring below 5000 ft.	
Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft),	
composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine	
tailings. May be associated with cliffs.	
Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient	
decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a	
decay characteristics to enable cavity excavation use by windine. Friority shags 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 such as the 2 and some subjects habitate = 4 points	
If wetland has 3 or more priority habitats = 4 points	
If wetland has 2 priority habitats = 3 points	
If wetland has 1 priority habitat = 1 point No habitats = 0 points	
Note: All vegetated wetlands are by definition a priority habitat but are not included in this	
list. Nearby wetlands are addressed in question H 2.4)	

4

 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, 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 points = 3 The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe points = 3 The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe points = 3 The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe points = 3 The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe points = 3 There is at least 1 wetland 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	9
TOTAL for H 1 from page 14	14
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	23

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

Wetland Type Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.	Category
SC 1.0 Estuarine wetlands (see p. 86)	
Does the wetland unit meet the following criteria for Estuarine wetlands?	
The dominant water regime is tidal, Vegetated, and With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO go to SC 1.2	Cat. I
SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the	Cat. I
 following three conditions? YES = Category I (NO) = Category II — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native Spartina spp. are the only species that cover 	Cat. I Cat. II
more than 10% of the wetland, then the wetland should be given a dual	Dual
rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre.	rating I/II
- At least ³ / ₄ of the landward edge of the wetland has a 100 ft buffer of	
shrub, forest, or un-grazed or un-mowed grassland. The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	

Wetland name or number $\underline{12}$

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):
Rated by P Hamidi, B. Killer Trained by Ecology? Yes No Date of training 2005
SEC: <u>TWNSHP</u> : <u>NOK</u> RNGE: <u>2</u> Is S/T/R in Appendix D? Yes No X
Map of wetland unit: Figure Estimated size

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I II II II \cdot IV \checkmark

Category I = Score >=70 Category II = Score 51-69 Category III = Score 30-50 Category IV = Score < 30 Score for Water Quality Functions Score for Hydrologic Functions Score for Habitat Functions

TOTAL score for Functions

2	1
2	the second se
9	
/3	

Category based on SPECIAL CHARACTERISTICS of wetland

I____ II___ Does not Apply_/__

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



<u>Summary of basic information</u>	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	J
Old Growth Forest	Flats	·····
Coastal Lagoon	Freshwater Tidal	
Interdunal		****
None of the above $$	Check if unit has multiple HGM classes present	

Summary of basic information about the wetland unit

Wetland name or number I 2

ŝ,

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)?		1
For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		V
 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). 		\checkmark
SP3. Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?		V
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.		J

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

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

Classification of Wetland Units in Western Washington

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

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

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 4YES - The wetland class is Lake-fringe (Lacustrine Fringe)
- 4. Does the entire wetland unit meet all of the following criteria?
 - $-\sqrt{1}$ The wetland is on a slope (*slope can be very gradual*),
 - $-\sqrt{}$ 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.
 - $\sqrt{}$ 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 I foot deep).

NO - go to 5 $\mathbf{YES} \rightarrow \mathbf{The}$ wetland class is Slope Wetland name or number $\underline{I2}$

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 **Depressiona**

- 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.

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

Comments

*

÷

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

Comments

ŵ

hese questions apply to wetlands of all H ABITAT FUNCTIONS - Indicators that unit fur	방법 사람은 사람은 사람은 것은 것을 위한 것을 얻는 것을 가지 않는 것을 가지 않는 것을 했다.	t habitat	Points (only 1 scor per box)
1. Does the wetland unit have the <u>potential</u> to	provide habitat for man	y species?	
 1.1 Vegetation structure (see p. 72) Check the types of vegetation classes present (as def class is ¼ acre or more than 10% of the area if usAquatic bedEmergent plantsScrub/shrub (areas where shrubs have >3%Forested (areas where trees have >30% construction of the unit has a forested class check if: 	nit is smaller than 2.5 acres. 0% cover)	hold for each	Figure
The forested class has 3 out of 5 strata (c moss/ground-cover) that each cover 2 Add the number of vegetation structures that qualify Map of Cowardin vegetation classes	0% within the forested polygo		Ð
 1.2. <u>Hydroperiods</u> (see p. 73) Check the types of water regimes (hydroperiods regime has to cover more than 10% of the wetlan descriptions of hydroperiods) Permanently flooded or inundated Seasonally flooded or inundated Saturated only Permanently flowing stream or river in, or Seasonally flowing stream in, or adjacent to Lake-fringe wetland = 2 points 	<i>d or ¼ acre to count. (see tex.</i> 4 or more types presen 3 types presen 2 types present 1 type present adjacent to, the wetland	t for points = 3 points = 2 point = 1	Figure
Freshwater tidal wetland = 2 points 1.3. <u>Richness of Plant Species</u> (see p. 75) Count the number of plant species in the wetlan of the same species can be combined to meet the You do not have to name the species. Do not include Eurasian Milfoil, reed canar If you counted: List species below if you want to:	e size threshold)	ifferent patches	× Ø

13

ý

з

H 1.4. Interspersion of habitats (see p. 76) Decide from the diagrams below whether interspersion between Cowardin vegetation	Figure
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	
Figh = 3 points NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes	Ø
 H 1.5. Special Habitat Features: (see p. 77) Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column. Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long). Standing snags (diameter at the bottom > 4 inches) in the wetland Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m) Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned grey/brown) At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated.(structures for egg-laying by amphibians) MOTE: The 20% stated in early printings of the manual on page 78 is an error. 	Antonio
H 1. TOTAL Score - potential for providing habitat Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5	1 2
Comments	* **** **** **** ****

Comments

÷.

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

Total for page_3____

Wetland name or number $\underline{12}$

, *****

H 2.3 Near or adjacent to other priority hebitote listed by WDEW (see new and see list	
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 <u>http://wdfw.wa.gov/hab/phslist.htm</u>) Which of the following priority hebitate are within 2200 (100). Sales at a 10 MOTT	
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	i
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. (<i>full descriptions of habitats and the</i>	1
definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in	
Appendix A).	ļ
Caves: A naturally occurring cavity, recess, void, or system of interconnected passages under	
the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.	
Cliffs: Greater than 7.6 m (25 ft) high and occurring below 5000 ft.	
Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine	
tailings. May be associated with cliffs.	
Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a	
diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height Priority logs are > 30 cm (12 in) in diameter at the loggest and each $(-(20.5))$	
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	l
If wetland has 2 priority habitats = 3 points	ł
	ŀ
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	ŀ
list. Nearby wetlands are addressed in question H 2.4)	
in the first of the function of the function of the first	

r . ∛ v

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. The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile, BUT the connections between them are disturbed The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe wetland within ½ mile, BUT the connections between them are points = 3 The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe points = 3 The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe points = 3 The wetland within ½ mile points = 2 There is at least 1 wetland 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	7
TOTAL for H 1 from page 14	2
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	

Wetland name or number $_$

ż

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): $J - Shell PSR$ Date of site visit: $2-6-13$
Rated by P. Ham; di Trained by Ecology? Yes×No Date of training 2005
SEC: <u>3</u> TWNSHP: <u>34N</u> RNGE: <u>2</u> Is S/T/R in Appendix D? Yes No X
Map of wetland unit: Figure Estimated size
SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I____ II____ IV_X

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

Score for Water Quality Functions Score for Hydrologic Functions Score for Habitat Functions **TOTAL score for Functions**

-1	
10	
10	
24	

Category based on SPECIAL CHARACTERISTICS of wetland

I____ II___ Does not Apply X

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



Summary of basic informatio	n about the wetland unit	
Wetland Unit has Special Characteristics	Wetland HGM Class used for Rating	
Estuarine	Depressional	\star
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	X

1

61 61 · · · e

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.		~
SP2. Has the wetland unit been documented as habitat for any State listed Threatened or Endangered anima l species?		
For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		×
SP3 . Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?		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.		\checkmark

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.

D	Depressional and Flats Wetlands	Points
	WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to	(only 1 score
	Improve water quality	per box)
\mathbf{D}	D 1. Does the wetland unit have the <u>potential</u> to improve water quality?	(see p.38)
	D 1.1 Characteristics of surface water flows out of the wetland:	Figure
n	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 (<i>permanently flowing</i>) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and	5
	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	
	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS	<u> </u>
h	definitions)	
\mathbf{D}	YES points = 4	0
ļ	NO points = 0	
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class)	Figure
D	Wetland has persistent, ungrazed, vegetation $> = 95\%$ of area points $= 5$	
	We that has persistent, ungrazed, vegetation $> = 1/2$ of area points = 3	
	We than the period was a set of the set of	\circ
	Wetland has persistent, ungrazed vegetation $<1/10$ of area points = 0	_
	Map of Cowardin vegetation classes 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	Figure
D	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 $> \frac{1}{2}$ total area of wetland points = 4	\cap
	Area seasonally ponded is $> \frac{1}{4}$ total area of wetland points = 2	
	Area seasonally ponded is $< \frac{1}{4}$ total area of wetland points = 0	
	Map of Hydroperiods	
D	Total for D 1Add the points in the boxes above	2
D	D 2. Does the wetland unit have the <u>opportunity</u> to improve water quality?	(see p. 44)
-	Answer YES if you know or believe there are pollutants in groundwater or surface water	(See p. 14)
	coming into the wetland that would otherwise reduce water guality in streams, lakes or	
	groundwater downgradient from the wetland. <i>Note which of the following conditions</i>	
	provide the sources of pollutants. A unit may have pollutants coming from several	
	sources, but any single source would qualify as opportunity.	
	\checkmark Grazing in the wetland or within 150 ft	
	 Untreated stormwater discharges to wetland Tilled fields or orchards within 150 ft of wetland 	
	 A stream or culvert discharges into wetland that drains developed areas, residential areas, 	
	farmed fields, roads, or clear-cut logging	
	- Residential, urban areas, golf courses are within 150 ft of wetland	multiplier
	— Wetland is fed by groundwater high in phosphorus or nitrogen	munipher
	— Other	2
	YES multiplier is 2 NO multiplier is 1	
\mathbf{D}	TOTAL - Water Quality Functions Multiply the score from D1 by D2	11
	Add score to table on p. 1	

Wetland name or number _____

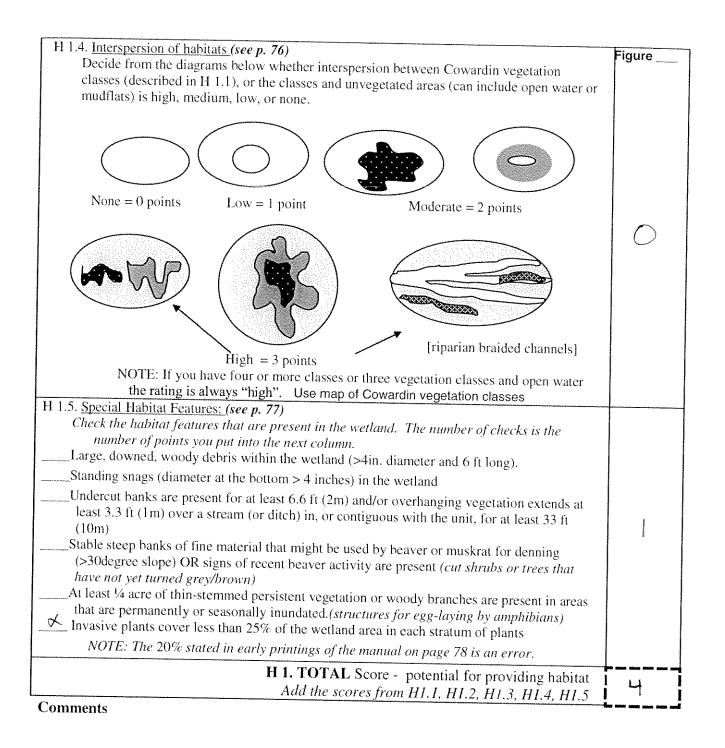
*

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

44

These questions apply to wetlands of all HABITAT FUNCTIONS - Indicators that unit fu	HGM classes.	nt habitat	Points (only 1 score per box)
H 1. Does the wetland unit have the <u>potential</u>			nie nei ene die kontraktiere.
H 1.1 Vegetation structure (see p. 72) Check the types of vegetation classes present (as de class is ¼ acre or more than 10% of the area if Aquatic bed Aquatic bed Emergent plants Forested (areas where shrubs have >3 Forested (areas where trees have >30% of If the unit has a forested class check if: The forested class has 3 out of 5 strata (moss/ground-cover) that each cover 3	efined by Cowardin)- Size thre unit is smaller than 2.5 acres. 30% cover) cover) 'canopy, sub-canopy, shrubs 4	shold for each	Figure
Add the number of vegetation structures that qualif	y. <i>If you have:</i> 4 structures or more 3 structures 2 structures 1 structure	points = 4 points = 2 points = 1 points = 0	
 H 1.2. <u>Hydroperiods</u> (see p. 73) Check the types of water regimes (hydroperiods regime has to cover more than 10% of the wetlan descriptions of hydroperiods) Permanently flooded or inundated Seasonally flooded or inundated Saturated only Permanently flowing stream or river in, or Seasonally flowing stream in, or adjacent Lake-fringe wetland = 2 points Freshwater tidal wetland = 2 points 	4 or more types preser 3 types present 2 types present 1 type present c adjacent to, the wetland	t for points = 3 points = 2 point = 1 points = 0	Figure
H 1.3. <u>Richness of Plant Species</u> (see p. 75) Count the number of plant species in the wetlan of the same species can be combined to meet the You do not have to name the species. Do not include Eurasian Milfoil, reed canar If you counted: List species below if you want to:	e size threshold)		a monocorea.

Total for page 3



: .

Thoose the description that best represents condition of buffer of wetland unit. The highest scoring riterion that applies to the wetland is to be used in the rating. See text for definition of undisturbed." - 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed ally 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 > 25% circumference. Points = 4 - 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference. Points = 4 - 50 m (170ft) 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 > 25% circumference. If buffer does not meet any of the criteria above Points = 3 - 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference. Light to moderate grazing, or lawns are OK. Points = 2 - No paved areas or buildings within 50 m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. 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 + 2.2. Corridors and Connections (see p. 81) 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 ative undisturbed prairie, that connects to estuaries, other wetlands or undisturbed praively roads, are considered breaks in the corridor. No = go to H 2.2.2 H 2.2.2 Is the wetlan	1.2.1 Different (constrained of 0.00	Eia	
Aerial photo showing buffersH 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 2.2.2H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs 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 2.2.3H 2.2.3 Is the wetland: \checkmark within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR	 riterion that applies to the wetland is to be used in the rating. See text for defi undisturbed." 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or of circumference. No structures are within the undisturbed part of buf undisturbed also means no-grazing, no landscaping, no daily human us 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or 50% circumference. 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or circumference. 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or circumference. 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or circumference, . 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or 50% circumference. 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or circumference, . 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or 50% circumference. Mo paved areas (except paved trails) or buildings within 25 m (80ft) of circumference. Light to moderate grazing, or lawns are OK. No paved areas or buildings within 50m of wetland for >50% circumference. Heavy grazing in buffer. Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumfields, paving, basalt bedrock extend to edge of wetland 	The highest scoring tion of pen water >95% er. (relatively) Points = 5 open water > Points = 4 pen water >95% Points = 3 pen water for > Points = 3 pen water for > Points = 2 Points = 2 ence. Points = 2 Points = 1 iference (e.g. tilled Points = 0.	jure Z
	Aerial photo showing bufferH 2.2 Corridors and Connections (see p. 81)H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vege (either riparian or upland) that is at least 150 ft wide, has at least 30% co o or native undisturbed prairie, that connects to estuaries, other wetlands o uplands that are at least 250 acres in size? (dams in riparian corridors, H roads, paved roads, are considered breaks in the corridor). YES = 4 points (go to H 2.3)NO = go to H H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vege (either riparian or upland) that is at least 50ft wide, has at least 30% cover forest, and connects to estuaries, other wetlands or undisturbed uplands to acres in size? OR a Lake-fringe wetland, if it does not have an undistur- the question above? YES = 2 points (go to H 2.3)NO = H 2.2.3H 2.2.3 Is the wetland: \neq within 5 mi (8km) of a brackish or salt water estuary OR	s tted corridor er of shrubs, forest indisturbed <i>avily used gravel</i> .2.2 ated corridor of shrubs or at are at least 25	1

Total for page_3____

Wetland name or number _____

₩1. .

÷

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 (<i>full descriptions in WDFW PHS report p. 152</i>).	
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. C_{1}^{1} for a first theory 7.6 m (25 ft) high and accurring halow 5000 ft	
Cliffs: Greater than 7.6 m (25 ft) high and occurring below 5000 ft. To have the reason of much ranking in guarage size $0.15 - 2.0$ m (0.5 - 6.5 ft)	
Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft),	
composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine	
tailings. May be associated with cliffs.	
Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient	
decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a	
diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in	
height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft)	
long.	
If wetland has 3 or more priority habitats = 4 points	
If wetland has 2 priority habitats = 3 points	
If wetland has 1 priority habitat = 1 point No habitats = 0 points	
Note: All vegetated wetlands are by definition a priority habitat but are not included in this	
list. Nearby wetlands are addressed in guestion H 2.4)	<u> </u>

· / ***

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, BUT the connections between them are disturbed points = 5 The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe 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 moints = 3 There are at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	3
H 2 . TOTAL Score - opportunity for providing habitat Add the scores from H2.1,H2.2, H2.3, H2.4	6
TOTAL for H from page 14	4
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	10

Wetland name or number O

٨

4

Version 2 - Updated July 2006 to increa Updated Oct 2008 with the n	RM – WESTERN WASHINGTON se accuracy and reproducibility among users sew WDFW definitions for priority habitats
Name of wetland (if known): Wetland C	- Shen PSR Date of site visit: 8-20-13
	ined by Ecology? Yes ANo Date of training 2005
SEC: 3 TWNSHP: 34N RNGE: 2E Is S/T	
Map of wetland unit: Figure	Estimated size
SUMMAR	Y OF RATING
Category based on FUNCTIONS provi	ded by wetland
<u>і п т × г </u>	
Category I = Score >=70 Category II = Score 51-69 Category III = Score 30-50 Category IV = Score < 30 Category based on SPECIAL CHARAC I II Does not Apply_X Final Category (choose the	
	ation about the wetland unit
Wetland Unit has Special Characteristics	Wetland HGM Class used for Rating
Estuarine	Depressional X
Natural Heritage Wetland	Riverine
Bog	Lake-fringe
Mature Forest	Slope
Old Growth Forest	Flats
Coastal Lagoon	Freshwater Tidal
Interdunal	

Wetland Rating Form – western Washington version 2 To be used with Ecology Publication 04-06-025

None of the above

August 2004

*

1

Check if unit has multiple HGM classes present

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).		4
SP3. Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?		4
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.	Ŧ	+

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.

4

D	Depressional and Flats Wetlands WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to improve water quality	Points (only 1 score per box)
D	D 1. Does the wetland unit have the <u>potential</u> to improve water quality?	(see p.38)
D	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 (<i>permanently flowing</i>) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and 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
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	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class)Wetland has persistent, ungrazed, vegetation > = 95% of areapoints = 5Wetland has persistent, ungrazed, vegetation > = 1/2 of areapoints = 3Wetland has persistent, ungrazed vegetation > = 1/10 of areapoints = 1Wetland has persistent, ungrazed vegetation <= 1/10 of area	Figure
D	D1.4 Characteristics of seasonal ponding or inundation. This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs. Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland	Figure
D	Map of HydroperiodsTotal for D 1Add the points in the boxes above	12
D	 D 2. Does the wetland unit have the <u>opportunity</u> to improve water quality? Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity. — Grazing in the wetland or within 150 ft — Untreated stormwater discharges to wetland — Tilled fields or orchards within 150 ft of wetland — A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging 	(see p. 44)
	 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 	multiplier
D	<u>TOTAL</u> - Water Quality Functions Multiply the score from D1 by D2 Add score to table on p. 1	24

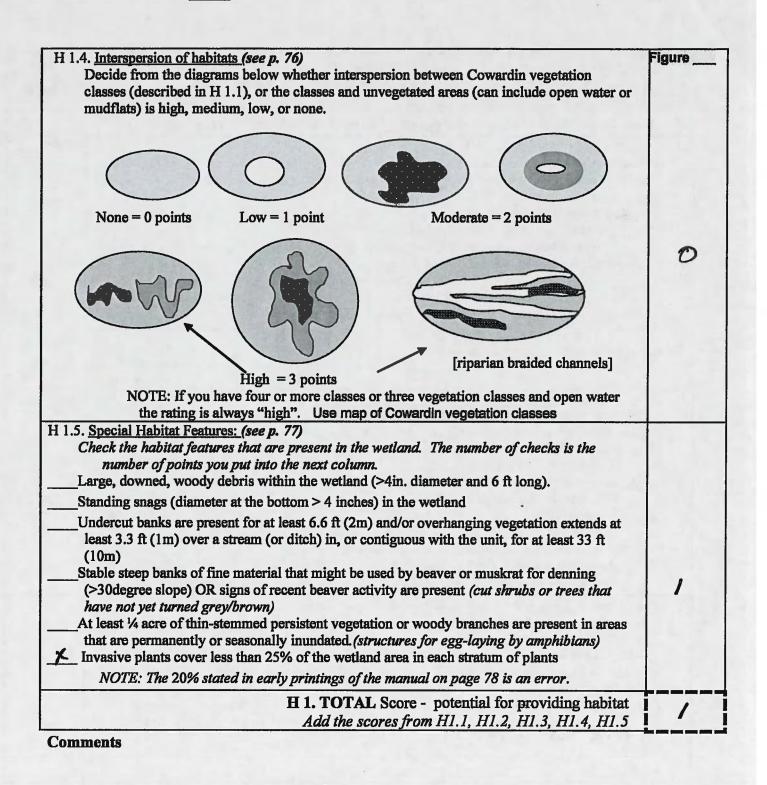
Wetland name or number _____O

D	Depressional and Flats Wetlands HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation	Points (only I score per box)
	D 3. Does the wetland unit have the <u>potential</u> to reduce flooding and erosion?	(see p.46)
D	D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch points = 1 (If ditch is not permanently flowing treat unit as "intermittently flowing") Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0	4
D	D 3.2 Depth of storage during wet periodsEstimate the height of ponding above the bottom of the outlet. For units with no outletmeasure 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 outletpoints = 7The wetland is a "headwater" wetland"marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	5
D	D 3.3 Contribution of wetland unit to storage in the watershedEstimate the ratio of the area of upstream basin contributing surface water to the wetlandto the area of the wetland unit itself.The area of the basin is less than 10 times the area of unitpoints = 5The area of the basin is 10 to 100 times the area of the unitpoints = 3The area of the basin is more than 100 times the area of the unitpoints = 0Entire unit is in the FLATS class	5
D	Total for D 3Add the points in the boxes above	14
D	 D 4. Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion? Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. 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. <i>Note which of the following indicators of opportunity apply</i>. — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise 	(see p. 49
	flow into a river or stream that has flooding problems	multiplie
	— Other The multiplier to 2 195	1
D	TOTAL - Hydrologic Functions Multiply the score from D 3 by D 4 Add score to table on p. 1	14

*

ŧ

br many species? Figure Figure Figure Figure hrubs, herbaceous, d polygon more points = 4 points = 2
Vize threshold for each i acres. hrubs, herbaceous, d polygon more points = 4
d polygon more points = 4
more points = 4
points - 2
points = 2
points = 1
points = 0
Figure
es present points = 3 s present points = 2 s present point = 1 present points = 0 and ap of hydroperiods
0 ft^2 . (different patches trife, Canadian Thistle ies points = 2 cies points = 1
$Product S = 0 \qquad O$



2.1 <u>Buffers</u> (see p. 80)	Figure
oose the description that best represents condition of buffer of wetland unit. The highest scoring	
terion that applies to the wetland is to be used in the rating. See text for definition of	
ndisturbed."	
- 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%	8.4 5 34
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 >	1
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	1.1.1
- 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 $Points = 0$.	
Aerial photo showing buffers I 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	1.1.1.1.
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).	
$YES = 4 \text{ points} (go to H 2.3) \qquad NO = go to H 2.2.2$	
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	1
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:	1
✓ 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? VTS = 1 moint	
YES = 1 point NO = 0 points	

Wetland name or number _____

H 2.3 <u>Near or adjacent to other priority habitats listed by WDFW</u> (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 (<i>full descriptions in WDFW PHS report p. 152</i>).
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 (<i>full descriptions in WDFW PHS</i> report p. 158).
Riparian: The area adjacent to aquatic systems with flowing water that contains elements of
both aquatic and terrestrial ecosystems which mutually influence each other.
Westside Prairies: Herbaceous, non-forested plant communities that can either take the
form of a dry prairie or a wet prairie (full descriptions in WDFW PHS report p. 161).
Instream: The combination of physical, biological, and chemical processes and conditions
that interact to provide functional life history requirements for instream fish and wildlife resources.
Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore,
Open Coast Nearshore, and Puget Sound Nearshore. (full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).
Caves: A naturally occurring cavity, recess, void, or system of interconnected passages under
the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
Cliffs: Greater than 7.6 m (25 ft) high and occurring below 5000 ft. Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft),
composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine
tailings. May be associated with cliffs. Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient
decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a
diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Dright, logg are > 20 cm (12 in) in diameter at the largest and $and > 6 m (20 ft)$
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)

 12.4 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, 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 wetlands within ½ mile. points = 3 The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe points = 3 The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe points = 3 The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0 	3
H 2. TOTAL Score - opportunity for providing habitat Add the scores from H2.1,H2.2, H2.3, H2.4	6
TOTAL for H 1 from page 14	1
otal Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	7

Wetland name or number Q

\$

નો

Version 2 - Updated July 2006 to	FORM – WESTERN WASHINGTON increase accuracy and reproducibility among users a the new WDFW definitions for priority habitats
Name of wetland (if known):	Date of site visit: 20 Aug 2013
	Trained by Ecology? Yes No Date of training 2005
SEC: TWNSHP: RNGE: I	s S/T/R in Appendix D? Yes No
Map of wetland unit: Fig	gure Estimated size
SUMM	ARY OF RATING
Category based on FUNCTIONS p	-
Category I = Score >=70 Category II = Score 51-69 Category III = Score 30-50 Category IV = Score < 30 Category based on SPECIAL CHA	Score for Water Quality Functions Score for Hydrologic Functions Score for Habitat Functions TOTAL score for Functions PACTERISTICS of worthand
I II Does not Apply_	
Wetland Unit has Special Characteristics	formation about the wetland unit Wetland HGM Class used for Rating
Estuarine Natural Heritage Wetland	Depressional × Riverine
Bog Mature Forest	Lake-fringe Slope
Old Growth Forest Coastal Lagoon Interdunal	Flats Freshwater Tidal

X

1

Wetland Rating Form – western Washington version 2 To be used with Ecology Publication 04-06-025

None of the above

August 2004

Check if unit has multiple HGM classes present

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		X
appropriate state or federal database. 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).		8
SP3. Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?		×
SP4. Does the wetland unit have a local significance in addition to its functions? For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		8

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.

August 2004

ŝ

Wetland name or number _____Q

.

D	Depressional and Flats Wetlands WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to improve water quality	Points (only 1 score par box)
D	D 1. Does the wetland unit have the <u>potential</u> to improve water quality?	(see p.38)
	D 1.1 Characteristics of surface water flows out of the wetland;	Figure
D	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 (<i>permanently flowing</i>) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and 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	2
	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS	
D	definitions) points = 4 NO points = 0	ø
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class)	Figure
	Wetland has persistent, ungrazed, vegetation $> = 95\%$ of area points = 5	· ·gere
D	Wetland has persistent, ungrazed, vegetation $> = 1/2$ of area points $= 3$	-
	Wetland has persistent, ungrazed vegetation $> = 1/10$ of area points $= 1$	5
	Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	
	D1.4 Characteristics of seasonal ponding or inundation.	Figure
D	This is the area of the wetland unit that is ponded for at least 2 months, but dries outsometime during the year. Do not count the area that is permanently ponded. Estimatearea as the average condition 5 out of 10 yrs.Area seasonally ponded is > ½ total area of wetlandpoints = 4Area seasonally ponded is > ½ total area of wetlandpoints = 2Area seasonally ponded is < ¼ total area of wetlandpoints = 0Map of Hydroperiods	- 4
D	Total for D 1 Add the points in the boxes above	1
D	D 2. Does the wetland unit have the <u>opportunity</u> to improve water quality?	(see p. 44)
	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.	multiplier 2
-	YES multiplier is 2 NO multiplier is 1	
D	<u>TOTAL</u> - Water Quality Functions Multiply the score from D1 by D2 Add score to table on p. 1	22

Wetland name or number _____

.

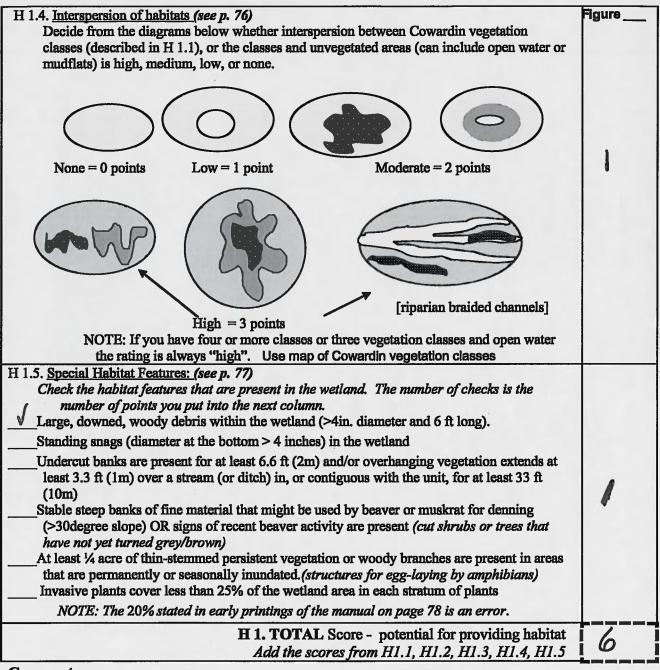
D	Depressional and Flats Wetlands HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation	Points (only 1 score per box)
	D 3. Does the wetland unit have the <u>potential</u> to reduce flooding and erosion?	(see p.46)
D	D 3.1 Characteristics of surface water flows out of the wetland unit points = 4 Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch points = 1 (If ditch is not permanently flowing treat unit as "intermittently flowing") Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0	2
D	D 3.2 Depth of storage during wet periodsEstimate the height of ponding above the bottom of the outlet. For units with no outletmeasure 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 outletpoints = 7The wetland is a "headwater" wetland"points = 5Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	3
D	D 3.3 Contribution of wetland unit to storage in the watershed Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself. The area of the basin is less than 10 times the area of unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 The area of the basin is more than 100 times the area of the unit points = 0 Entire unit is in the FLATS class points = 5	3
D	Total for D 3Add the points in the boxes above	8
D	 D 4. Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion? Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. Note which of the following indicators of opportunity apply. — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems 	
	 Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems Other 	multiplier
	YES multiplier is 2 NO multiplier is 1	1
D	TOTAL - Hydrologic Functions Multiply the score from D 3 by D 4 Add score to table on p. 1	8

These questions apply to wetlands ABITAT FUNCTIONS - Indicators the	at unit functions to provide important habitat	(only 1 scor per box)
1. Does the wetland unit have the po	otential to provide habitat for many species?	
1.1 Vegetation structure (see p. 72)		Figure
Check the types of vegetation classes press class is ¼ acre or more than 10% of the Aquatic bed Emergent plants	eent (as defined by Cowardin)- Size threshold for each e area if unit is smaller than 2.5 acres.	
$\sqrt{\frac{\sqrt{5}}{\sqrt{5}}}$ Scrub/shrub (areas where shrub)	ve >30% cover)	
	f 5 strata (canopy, sub-canopy, shrubs, herbaceous, ch cover 20% within the forested polygon	
Add the number of vegetation structures th		4
	$4 \text{ structures or more} \qquad \text{points} = 4$	
Map of Cowardin vegetation classes	3 structures points = 2	
and a consist regention oncoor	2 structures points = 1	
	1 structure points = 0	
Occasionally flooded or inundate Saturated only Permanently flowing stream or r Seasonally flowing stream in, or <i>Lake-fringe wetland</i> = 2 points	1 type present points = 0 river in, or adjacent to, the wetland r adjacent to, the wetland	
Freshwater tidal wetland = 2 po		
of the same species can be combined to You do not have to name the species Do not include Eurasian Milfoil, re If you List species below if you want to: 3 willows blackberry malus agrestis twinberry RCG rosa slough sage salmonberry juncus effusus cattail snowberry wedeparsty by tal monte (2	the wetland that cover at least 10 ft^2 . (different patches to meet the size threshold) s. reed canarygrass, purple loosestrife, Canadian Thistle counted: > 19 species points = 2 5 - 19 species points = 1 < 5 species points = 0	2
spiraea epilobium		page 4

Wetland Rating Form – western Washington13version 2Updated with new WDFW definitions Oct. 2008

Wetland name or number

4



Comments

Wetland name or number _____

. .

.

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
H 2.1 Buffers (see p. 80)	Figure
Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."	
 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) Points = 5 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. Points = 4 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. Points = 4 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. Points = 4 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >25% circumference. Points = 4 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >25% circumference, Points = 4 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >25% circumference, Points = 4 	
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	0
 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 	
H 2.2 <u>Corridors and Connections</u> (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? (<i>dams in riparian corridors, heavily used gravel</i> 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: X within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = 1 point NO = 0 points	

Total for page /

Wetland Rating Form – western Washington15version 2Updated with new WDFW definitions Oct. 2008

Wetland name or number ______

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see new and complete	
descriptions of WDFW priority habitats, and the counties in which they can be found, in	
the PHS report http://wdfw.wa.gov/hab/phslist.htm)	
Which of the following priority habitats are within 330ft (100m) of the wetland unit? NOTE: the	
connections do not have to be relatively undisturbed.	
Aspen Stands: Pure or mixed stands of aspen greater than 0.4 ha (1 acre).	
Biodiversity Areas and Corridors: Areas of habitat that are relatively important to various	
species of native fish and wildlife (full descriptions in WDFW PHS report p. 152).	
Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.	
Old-growth/Mature forests: (Old-growth west of Cascade crest) Stands of at least 2 tree	
species, forming a multi-layered canopy with occasional small openings; with at least 20	
trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands	
with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%;	
crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of	
large downed material is generally less than that found in old-growth; 80 - 200 years old	
west of the Cascade crest.	
Oregon white Oak: Woodlands Stands of pure oak or oak/conifer associations where	
canopy coverage of the oak component is important (full descriptions in WDFW PHS	
report p. 158).	
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.	
X Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore,	
Open Coast Nearshore, and Puget Sound Nearshore. (full descriptions of habitats and the	
definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in	
Appendix A).	
Caves: A naturally occurring cavity, recess, void, or system of interconnected passages under	
the earth in soils, rock, ice, or other geological formations and is large enough to contain a	
human.	
Cliffs: Greater than 7.6 m (25 ft) high and occurring below 5000 ft.	
Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft),	
composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine	
tailings. May be associated with cliffs.	
Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient	
decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a	
diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in	
height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft)	
long.	
If wetland has 3 or more priority habitats = 4 points	
If wetland has 2 priority habitats = 3 points	
If we land 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 Rating Form – western Washington16version 2Updated with new WDFW definitions Oct. 2008

- *

 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, 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 The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe points = 3 The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe points = 3 The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe points = 3 The wetland within ½ mile. points = 3 There is at least 1 wetland 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	5
TOTAL for H 1 from page 14	4
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	11

Wetland name or number

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): <u>R-3hell</u> PSR <u>Crude by Rail</u> Date of site visit: <u>15 May</u> 2013 Rated by Hamidi, Kidder _____ Trained by Ecology? Yes No___ Date of training 2005 SEC: ____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 Score for Water Quality Functions Category I = Score \geq =70 Category II = Score 51-69

Category III = Score 30-50Category IV = Score < 30

Score for Hydrologic Functions Score for Habitat Functions **TOTAL score for Functions**

4	
8	
9	
21	

Category based on SPECIAL CHARACTERISTICS of wetland I___ II___ Does not Apply √

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



Wetland Unit has Special			1
		Wetland HGM Class	
Characteristics	191	used for Rating	
Estuarine		Depressional	J
Natural Heritage Wetland		Riverine	-
Bog		Lake-fringe	+
Mature Forest		Slope	+-
Old Growth Forest		Flats	-
Coastal Lagoon		Freshwater Tidal	+
Interdunal			+
None of the above	J	Check if unit has multiple	-
	V	TICK 1	
		HGM classes present	

1

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		1
appropriate state or federal database. 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).		1
SP3. Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?		V
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.		1

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

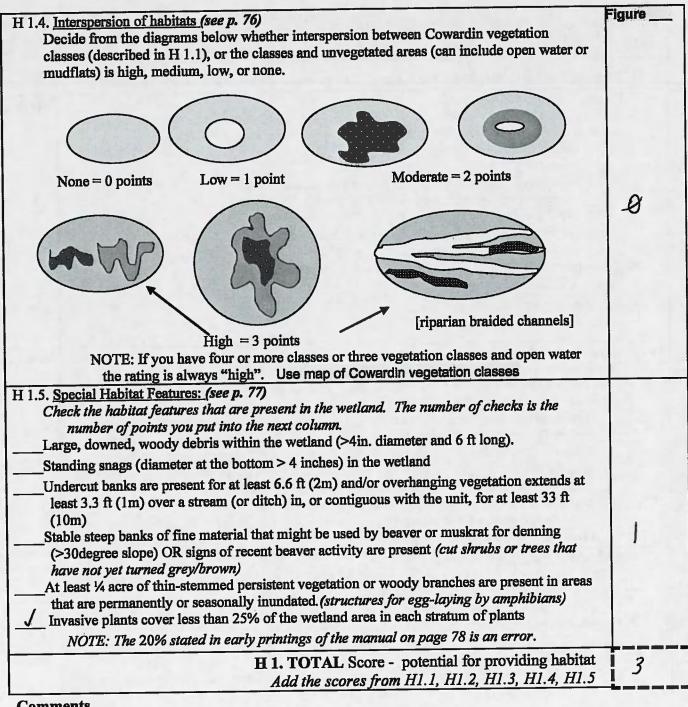
The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying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

D		Points
125	WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to	(only I score
157.5	improve water quality	per box)
D	D 1. Does the wetland unit have the <u>potential</u> to improve water quality?	(see p. 38)
	D 1.1 Characteristics of surface water flows out of the wetland:	Figure
D	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 (<i>permanently flowing</i>) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and 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")	2
	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic <i>(use NRCS)</i>	
D	YES points = 4 NO points = 0	Ð
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class)	Figure
D	Wetland has persistent, ungrazed, vegetation $> = 95\%$ of areapoints = 5Wetland has persistent, ungrazed, vegetation $> = 1/2$ of areapoints = 5Wetland has persistent, ungrazed vegetation $> = 1/10$ of areapoints = 1Wetland has persistent, ungrazed vegetation $< 1/10$ of areapoints = 1Wetland has persistent, ungrazed vegetation $< 1/10$ of areapoints = 0	ø
	Map of Cowardin vegetation classes	E 1
	D1.4 Characteristics of seasonal ponding or inundation.	Figure
D	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 wetlandpoints = 4Area seasonally ponded is > ¼ total area of wetlandpoints = 2Area seasonally ponded is < ¼ total area of wetlandpoints = 0Map of HydroperiodsMap of Hydroperiods	ø
D	Total for D 1Add the points in the boxes above	2
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 Untreated stormwater discharges to wetland Tilled fields or orchards within 150 ft of wetland A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging Residential, urban areas, golf courses are within 150 ft of wetland Wetland is fed by groundwater high in phosphorus or nitrogen Other 	(see p. 44) multiplier
	YES multiplier is 2 NO multiplier is 1	2
D	TOTAL - Water Quality Functions Multiply the score from D1 by D2	
	Add score to table on p. 1	4

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 <u>potential</u> to reduce flooding and erosion?	(see p.46)
D	D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch points = 1 (If ditch is not permanently flowing treat unit as "intermittently flowing") Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0	2
D	D 3.2 Depth of storage during wet periodsEstimate the height of ponding above the bottom of the outlet. For units with no outletmeasure 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 outletpoints = 7The wetland is a "headwater" wetland"marks of ponding between 2 ft to < 3 ft from surface or bottom of outletpoints = 5Marks are at least 0.5 ft to < 2 ft from surface or bottom of outletunit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trapwaterMarks of ponding less than 0.5 ft	Ι
D	D 3.3 Contribution of wetland unit to storage in the watershedEstimate the ratio of the area of upstream basin contributing surface water to the wetlandto the area of the wetland unit itself.The area of the basin is less than 10 times the area of unitpoints = 5The area of the basin is 10 to 100 times the area of the unitpoints = 3The area of the basin is more than 100 times the area of the unitpoints = 0Entire unit is in the FLATS classpoints = 5	5
D	Total for D 3Add the points in the boxes above	8
D	 D 4. Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion? Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. Note which of the following indicators of opportunity apply. — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems 	
	 Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems 	multiplier
	— Other YES multiplier is 2 NO multiplier is 1	_1
D	TOTAL - Hydrologic Functions Multiply the score from D 3 by D 4 Add score to table on p. 1	8

These questions apply to wetlands of all A HABITAT FUNCTIONS - Indicators that unit fu	HGM classes. anctions to provide important	t habitat	Points (only 1 score per box)
H 1. Does the wetland unit have the potential	to provide habitat for many	species?	
I 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 bedAquatic bedBenergent plantsScrub/shrub (areas where shrubs have >30% cover)Forested (areas where trees have >30% cover) If the unit has a forested class check if:The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon Add the number of vegetation structures that qualify. If you have:4 structures or more		Figure	
Map of Cowardin vegetation classes	3 structures 2 structures	points = 2 points = 1	
I 1.2. Hydroperiods (see p. 73)	1 structure	points = 0	Figure
Check the types of water regimes (hydroperiods, regime has to cover more than 10% of the wetland descriptions of hydroperiods) Permanently flooded or inundated Seasonally flooded or inundated Occasionally flooded or inundated Saturated only Permanently flowing stream or river in, or Seasonally flowing stream in, or adjacent to Lake-fringe wetland = 2 points Freshwater tidal wetland = 2 points	4 or more types present 3 types present 2 types present 1 type present adjacent to, the wetland	for points = 3 points = 2 point = 1 points = 0	1
 I 1.3. <u>Richness of Plant Species</u> (see p. 75) Count the number of plant species in the wetland of the same species can be combined to meet the You do not have to name the species. Do not include Eurasian Milfoil, reed canary If you counted: List species below if you want to: 	size threshold) ygrass, purple loosestrife, Can > 19 species 5 - 19 species		×.

Total for page λ



Comments

I 2. Does the wetland unit have the opportunity to provide hab	stat for many species:	
 H 2.1 Buffers (see p. 80) Choose the description that best represents condition of buffer of wetland iriterion that applies to the wetland is to be used in the rating. See text for undisturbed." — 100 m (330ft) of relatively undisturbed vegetated areas, rocky are of circumference. No structures are within the undisturbed part of undisturbed also means no-grazing, no landscaping, no daily hum — 100 m (330 ft) of relatively undisturbed vegetated areas, rocky are 50% circumference. — 50 m (170ft) of relatively undisturbed vegetated areas, rocky area circumference. — 100 m (330ft) of relatively undisturbed vegetated areas, rocky area 50% circumference. — 50 m (170ft) of relatively undisturbed vegetated areas, rocky area circumference, . — 50 m (170ft) of relatively undisturbed vegetated areas, rocky area 50% circumference. — 50 m (170ft) of relatively undisturbed vegetated areas, rocky area 50% circumference. — 50 m (170ft) of relatively undisturbed vegetated areas, rocky area 50% circumference. — 50 m (170ft) of relatively undisturbed vegetated areas, rocky area 50% circumference. — No paved areas (except paved trails) or buildings within 25 m (80ft) circumference. Light to moderate grazing, or lawns are OK. — No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. — Heavy grazing in buffer. — Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference fields paving head the head to find the field buffer and the field head to the field buffer area for the field buffer for the field buffer for the	a unit. The highest scoring or definition of eas, or open water >95% of buffer. (relatively han use) Points = 5 eas, or open water > Points = 4 eas, or open water >95% Points = 4 eas, or open water >25% Points = 3 eas, or open water for > Points = 3 eas, or open water for > Points = 3 eas, or open water for > Points = 2 Points = 2 unference. Points = 1	Figure_
news, paving, basait bedrock extend to edge of wetland	Encumference (e.g. tilled $Points = 0.$	
- Buffer does not meet any of the criteria above.	Points = 0. $Points = 1$	
Aerial photo showing l	buffers	
H 2.2 <u>Corridors and Connections</u> (see p. 81) H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken v (either riparian or upland) that is at least 150 ft wide, has at least 30% or native undisturbed prairie, that connects to estuaries, other wetland uplands that are at least 250 acres in size? (dams in riparian corridor roads, paved roads, are considered breaks in the corridor). YES = 4 points (go to H 2.3) NO = go to H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken v (either riparian or upland) that is at least 50ft wide, has at least 30% c forest, and connects to estuaries, other wetlands or undisturbed upland acres in size? OR a Lake-fringe wetland, if it does not have an undist the question above? YES = 2 points (go to H 2.3) NO = H 2. 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 point NO = 0 point	vegetated corridor 6 cover of shrubs, forest ds or undisturbed <i>rs, heavily used gravel</i> 0 H 2.2.2 vegetated corridor cover of shrubs or ds that are at least 25 sturbed corridor as in .2.3	** * ,

C
Ċ

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, BUT the connections between them are disturbed 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 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 points = 3 The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe points = 3 There is at least 1 wetland within ½ mile. points = 2 There are no wetlands within ½ mile. points = 0	X ₃
H 2. TOTAL Score - opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4	6
TOTAL for H 1 from page 14	3
Fotal Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	9

Wetland name or number \mathcal{S}

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): Wetland 5 - Shell PSR Date of site visit: 5-15-13 Orude by Rai's Rated by P. Hamid; B. Kidder Trained by Ecology? Yes No Date of training 2005 SEC: ____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

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

Score for Water Quality Functions Score for Hydrologic Functions Score for Habitat Functions **TOTAL score for Functions**

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II__ Does not Apply 1/2

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



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

1

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)		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		ĸ
appropriate state or federal database. SP2. Has the wetland unit been documented as habitat for any State listed Threatened or Endangered animal species? For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		×
SP3. Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?		R
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.		K

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

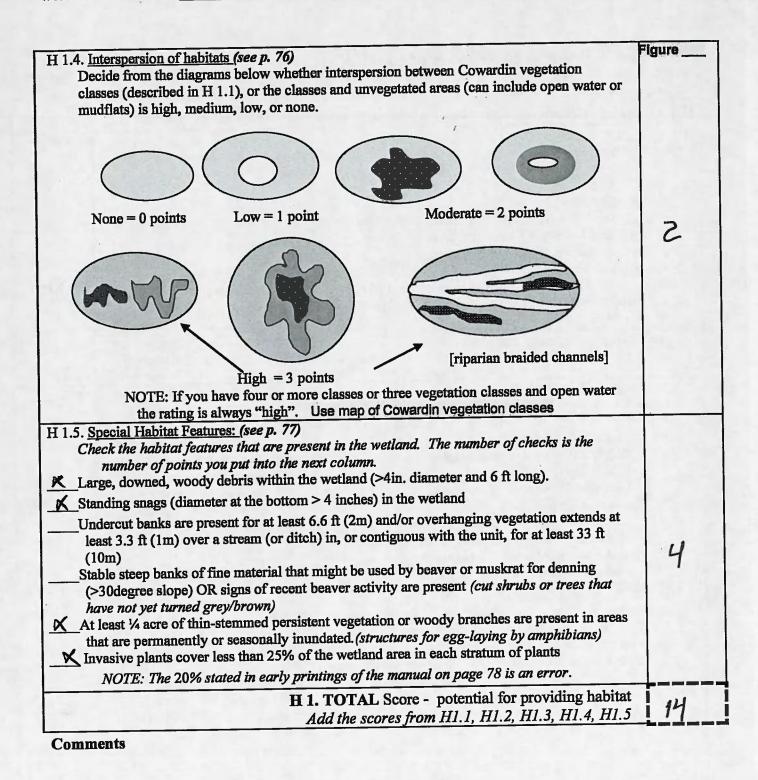
. .

D	Depressional and Flats Wetlands WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to	Points (only 1 score
	Improve water quality	per box)
D	D 1. Does the wetland unit have the <u>potential</u> 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 (<i>permanently flowing</i>) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and 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")	Figure
	Provide photo or drawing	
D	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic <i>(use NRCS definitions)</i> YES points = 4 NO points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class)	Figure
D	Wetland has persistent, ungrazed, vegetation > = 95% of areapoints = 5Wetland has persistent, ungrazed, vegetation > = 1/2 of areapoints = 3Wetland has persistent, ungrazed vegetation > = 1/10 of areapoints = 1Wetland has persistent, ungrazed vegetation <1/10 of areapoints = 0	5
	Map of Cowardin vegetation classes D1.4 Characteristics of seasonal ponding or inundation.	
D	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 > $\frac{1}{2}$ total area of wetlandpoints = 4Area seasonally ponded is > $\frac{1}{4}$ total area of wetlandpoints = 2Area seasonally ponded is < $\frac{1}{4}$ total area of wetlandpoints = 0	Figure
-	Map of Hydroperiods	
D	Total for D 1Add the points in the boxes above	//
D	 D 2. Does the wetland unit have the <u>opportunity</u> to improve water quality? Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity. ▲ Grazing in the wetland or within 150 ft ▲ Untreated stormwater discharges to wetland — Tilled fields or orchards within 150 ft of wetland ▲ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential, urban areas, golf courses are within 150 ft of wetland — Wetland is fed by groundwater high in phosphorus or nitrogen — OtherYES multiplier is 2 	(see p. 44) multiplier
D	TOTAL - Water Quality Functions Multiply the score from D1 by D2	22
	Add score to table on p. 1	

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 <u>potential</u> to reduce flooding and erosion?	(see p.46)
D	D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch points = 1 (If ditch is not permanently flowing treat unit as "intermittently flowing") Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0	2
D	D 3.2 Depth of storage during wet periods Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).	•
	Marks of ponding are 3 ft or more above the surface or bottom of outletpoints = 7The wetland is a "headwater" wetland"points = 5Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	3
D	D 3.3 Contribution of wetland unit to storage in the watershed Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself. The area of the basin is less than 10 times the area of unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 The area of the basin is more than 100 times the area of the unit points = 0 Entire unit is in the FLATS class points = 5	5
D	Entire unit is in the FLATS class Total for D 3 Add the points in the boxes above	10
D	 D 4. Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion? Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. 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. <i>Note which of the following indicators of opportunity apply</i>. — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise 	
	flow into a river or stream that has flooding problems	multiplier
	— Other YES multiplier is 2 NO multiplier is 1	1
D	TOTAL - Hydrologic Functions Multiply the score from D 3 by D 4 Add score to table on p. 1	10

-

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat			
the wetland unit have the <u>potential</u> to provide habitat for many	v species?	11-11-10	
ation structure (see p. 72) types of vegetation classes present (as defined by Cowardin)- Size thres. 4 acre or more than 10% of the area if unit is smaller than 2.5 acres. Aquatic bed Emergent plants Scrub/shrub (areas where shrubs have >30% cover) Forested (areas where trees have >30% cover)		Figure	
e unit has a forested class check if: The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, he moss/ground-cover) that each cover 20% within the forested polygon unber of vegetation structures that qualify. If you have:	rbaceous, n	4	
4 structures or more	nointa — A		
owardin vegetation classes3 structures2 structures	points = 4 $points = 2$ $points = 1$		
pperiods (see p. 73)	points = 0	Figure	
ccasionally flooded or inundated 2 types present aturated only 1 type present ermanently flowing stream or river in, or adjacent to, the wetland easonally flowing stream in, or adjacent to, the wetland ake-fringe wetland = 2 points reshwater tidal wetland = 2 points Map of hydro	points = 2 $point = 1$ $points = 0$	2	
ess of Plant Species (see p. 75) the number of plant species in the wetland that cover at least 10 ft ² . (difference and species can be combined to meet the size threshold) to not have to name the species. not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Cana If you counted: > 19 species es below if you want to: 5 - 19 species	ferent patches	2	
es below if you want to: 5 - 19 species	poi	nts = 1	



2.1 <u>Buffers</u> (see p. 80)	Figure
above the description that best represents condition of buffer of wetland unit. The highest scoring iterion that applies to the wetland is to be used in the rating. See text for definition of midisturbed."	3
Aerial photo showing buffers12.2 Corridors and Connections (see p. 81)H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor(either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forestor native undisturbed prairie, that connects to estuaries, other wetlands or undisturbeduplands that are at least 250 acres in size? (dams in riparian corridors, heavily used gravelroads, paved roads, are considered breaks in the corridor).YES = 4 points (go to H 2.3)NO = go to H 2.2.2H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor(either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs orforest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25acres in size? OR a Lake-fringe wetland, if it does not have an undisturbed corridor as inthe question above?YES = 2 points (go to H 2.3)NO = H 2.2.3H 2.2.3 Is the wetland:Ye within 5 mi (8km) of a brackish or salt water estuary ORwithin 1 mi of a large field or pasture (>40 acres) ORwithin 1 mi of a lake greater than 20 acres?YES = 1 pointNO = 0 points	1

Wetland name or number _____

and complete	H 2.3 Near or adjacent to other priority habitats listed by WDFV
they can be found, in	descriptions of WDFW priority habitats, and the countie
	the DUS report http://wdfw wa gov/hab/nhslist.htm)
wetland unit? NOTE: the	Which of the following priority habitats are within 330ft (10
	connections do not have to be relatively undisturbed.
acre).	A snon Stands. Pure or mixed stands of aspen greater than
ly important to various	Biodiversity Areas and Corridors: Areas of habitat that t
report p. 152).	managing of native fish and wildlife (full descriptions in W
ow some over dedrock.	Horboccous Bolds. Variable size patches of grass and for
ands of at least 2 liee	Old growth/Mature forests: (Old-growth west of Cascad
Alexan foresta) Stands	species, forming a multi-layered canopy with occasional
<u>Wature lorests</u>) Stands	trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 year
may be less that 10070,	with average diameters exceeding 53 cm (21 in) dbh; cro
sings, and quantity of	crown cover may be less that 100%; decay, decadence, r
ui, 80 - 200 years old	large downed material is generally less than that found i
essociations where	west of the Cascade crest.
associations where	Oregon white Oak: Woodlands Stands of pure oak or of
	canopy coverage of the oak component is important (ful
that contains elements of	report p. 158). Riparian : The area adjacent to aquatic systems with flow
ach other.	both aquatic and terrestrial ecosystems which mutually
at can either take the	Westside Prairies: Herbaceous, non-forested plant com
HS report p. 101).	form of a dry projrie or a wet projrie (full descriptions th
ocesses and conditions	Instrume The combination of physical, biological, and c
ream fish and wildlife	that interact to provide functional life history requireme resources.
de Coastal Nearshore,	Normhore: Relatively undisturbed nearshore habitats. T
ions of naottais and the	Open Coast Nearshore and Puget Sound Nearshore. (14
169 and glossary in	definition of relatively undisturbed are in WDFW repor
	Annandir A)
connected passages under	Coves A naturally occurring cavity, recess, void, or syste
arge enough to contain a	the earth in soils, rock, ice, or other geological formatio
Content of the second second	human.
15, 20 = (0.5, 6.5, f)	Cliffs: Greater than 7.6 m (25 ft) high and occurring belo
13 - 2.0 m (0.3 - 0.3 m),	Talus: Homogenous areas of rock rubble ranging in avera
iprap sides and inne	composed of basalt, andesite, and/or sedimentary rock,
ing and exhibit sufficient	tailings. May be associated with cliffs.
Priority snags have a	Snags and Logs: Trees are considered snags if they are decay characteristics to enable cavity excavation/use by
m and are $> 2 \text{ m} (6.5 \text{ ft})$ in	decay characteristics to enable cavity excavation use by diameter at breast height of > 51 cm (20 in) in western
end, and $> 6 \text{ m} (20 \text{ ft})$	height. Priority logs are > 30 cm (12 in) in diameter at
	long. If wetland has 3 or more priority habitats = 4 point
	If wetland has 2 priority habitats = 3 points
s = 0 points	If wetland has 1 priority habitat = 1 point
at are not included in this	Note: All vegetated wetlands are by definition a priority
	list. Nearby wetlands are addressed in question H 2.4

....

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 H 2. TOTAL Score - opportunity for providing habitat	3
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. The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe	

Wetland name or number 7

 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): Welfand T- Shell PSR Date of site visit: 5-/5-/3

 Crocke Raic

 Rated by P. Hamidi

 Trained by Ecology? Yesk No Date of training 2005

 SEC: 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

<u>I_ II_ IIK IV_</u>

Category I = Score >=70 Category II = Score 51-69 Category III = Score 30-50 Category IV = Score < 30 Score for Water Quality Functions Score for Hydrologic Functions Score for Habitat Functions TOTAL score for Functions



Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply X

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



Summary of basic infor	mauor	about the wetland unit	
Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		Depressional	X
Natural Heritage Wetland		Riverine	1
Bog		Lake-fringe	1
Mature Forest		Slope	-
Old Growth Forest		Flats	
Coastal Lagoon		Freshwater Tidal	
Interdunal			
None of the above	×	Check if unit has multiple HGM classes present	

1

Summary of basic information about the wetland unit

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)		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. SP2. Has the wetland unit been documented as habitat for any State listed		
Threatened or Endangered animal species? For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		×
SP3. Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?		×
SP4. Does the wetland unit have a local significance in addition to its functions? For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

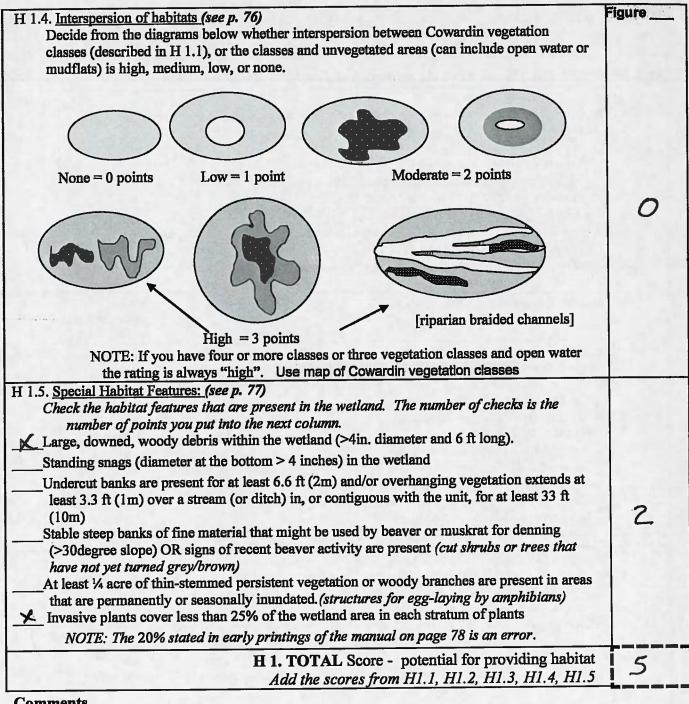
To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

• Wetland name or number <u>7</u>

D	Depressional and Flats Wetlands	Points
-	WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to	(only I score
	improve water quality	per box)
D	D 1. Does the wetland unit have the <u>potential</u> 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 (<i>permanently flowing</i>) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch points = 1	Figure
	(If ditch is not permanently flowing treat unit as "intermittently flowing") Provide photo or drawing S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS)	
D	YES points = 4 NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class)Wetland has persistent, ungrazed, vegetation >= 95% of areaWetland has persistent, ungrazed, vegetation >= 1/2 of areapoints = 3Wetland has persistent, ungrazed vegetation >= 1/10 of areapoints = 1	Figure
	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 D1.4 Characteristics of seasonal ponding or inundation.	
D	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.	Figure
	Area seasonally ponded is > $\frac{1}{2}$ total area of wetlandpoints = 4Area seasonally ponded is > $\frac{1}{4}$ total area of wetlandpoints = 2Area seasonally ponded is < $\frac{1}{4}$ total area of wetlandpoints = 0Map of Hydroperiods	4
D	Total for D 1Add the points in the boxes above	12
D	 D 2. Does the wetland unit have the <u>opportunity</u> to improve water quality? Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity. S Grazing in the wetland or within 150 ft Untreated stormwater discharges to wetland Tilled fields or orchards within 150 ft of wetland A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging Residential, urban areas, golf courses are within 150 ft of wetland Wetland is fed by groundwater high in phosphorus or nitrogen Other YES multiplier is 2 NO multiplier is 1 	(see p. 44) multiplier
D	<u>TOTAL</u> - Water Quality Functions Multiply the score from D1 by D2 Add score to table on p. 1	24

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 <u>potential</u> to reduce flooding and erosion?	(see p.46)
D	D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch points = 1 (If ditch is not permanently flowing treat unit as "intermittently flowing") Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0	4
D	Onit has an unconstructed, or singlify constructed, or singlify cons	3
D	D 3.3 Contribution of wetland unit to storage in the watershedEstimate the ratio of the area of upstream basin contributing surface water to the wetlandto the area of the wetland unit itself.The area of the basin is less than 10 times the area of unitpoints = 5The area of the basin is 10 to 100 times the area of the unitpoints = 0The area of the basin is more than 100 times the area of the unitpoints = 5The area of the basin is more than 100 times the area of the unitpoints = 0Entire unit is in the FLATS classpoints = 5	3
D	Total for D 3Add the points in the boxes above	16
D	 D 4. Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion? Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. Note which of the following indicators of opportunity apply. — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems 	(see p. 49)
	 Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems 	multiplier
	— Other YES multiplier is 2 NO multiplier is 1	1
D	YES multiplier is 2 NO multiplier is 1 TOTAL - Hydrologic Functions Multiply the score from D 3 by D 4 Add score to table on p. 1	10

These questions apply to wetlands of all A HABITAT FUNCTIONS - Indicators that unit fu		t habitat	Points (only 1 scot per box)
I 1. Does the wetland unit have the <u>potential</u> t	to provide habitat for many	y species?	
H 1.1 Vegetation structure (see p. 72)			Figure
Check the types of vegetation classes present (as de class is ¼ acre or more than 10% of the area if u Aquatic bed Emergent plants Scrub/shrub (areas where shrubs have >3 Forested (areas where trees have >30% of If the unit has a forested class check if: The forested class has 3 out of 5 strata (class ha	anit is smaller than 2.5 acres. 30% cover) cover) canopy, sub-canopy, shrubs, he	arbaceous.	
moss/ground-cover) that each cover 2	20% within the forested polygo	n	
Add the number of vegetation structures that qualify			
	4 structures or more	points = 4	
Map of Cowardin vegetation classes	3 structures	points = 2	
	2 structures 1 structure	points = 1	
1.2. Hydroperiods (see p. 73)		points = 0	Figure
Occasionally flooded or inundated Saturated only Permanently flowing stream or river in, or Seasonally flowing stream in, or adjacent t Lake-fringe wetland = 2 points	to, the wetland	points = 0	1
Freshwater tidal wetland = 2 points	Map of hydr	operiods	
 1.3. <u>Richness of Plant Species</u> (see p. 75) Count the number of plant species in the wetland of the same species can be combined to meet the You do not have to name the species. Do not include Eurasian Milfoil, reed canary If you counted: List species below if you want to: 	e size threshold)		1
		Total for p	3



Comments

I 2. Does the wetland unit have the opportunity I 2.1 <u>Buffers</u> (see p. 80)		Flaining
 Thoose the description that best represents condition of priterion that applies to the wetland is to be used in the undisturbed." 100 m (330ft) of relatively undisturbed vegetate of circumference. No structures are within the undisturbed also means no-grazing, no landscap. 100 m (330 ft) of relatively undisturbed vegetate 50% circumference. 50 m (170ft) of relatively undisturbed vegetate circumference. 100 m (330ft) of relatively undisturbed vegetate circumference. 50 m (170ft) of relatively undisturbed vegetate circumference. 50 m (170ft) of relatively undisturbed vegetate 50% circumference. 100 m (330ft) of relatively undisturbed vegetate 50% circumference. No paved areas (except paved trails) or building circumference. Light to moderate grazing, or la No paved areas or buildings within 50m of weth Light to moderate grazing, or lawns are OK. Heavy grazing in buffer. Vegetated buffers are <2m wide (6.6ft) for more fields, paving, basalt bedrock extend to edge of Buffer does not meet any of the criteria above. 	erating. See text for definition of ed areas, rocky areas, or open water >95% o undisturbed part of buffer. (relatively ping, no daily human use) Points = 5 ted areas, rocky areas, or open water > Points = 4 ed areas, rocky areas, or open water >95% Points = 4 ed areas, rocky areas, or open water > 25% Points = 3 ed areas, rocky areas, or open water for > Points = 3 of the criteria above gs within 25 m (80ft) of wetland > 95% awns are OK. Points = 2 land for >50% circumference. Points = 1 e than 95% of the circumference (e.g. tilled	Figure
H 2.2 <u>Corridors and Connections</u> (see p. 81) H 2.2.1 Is the wetland part of a relatively undistur (either riparian or upland) that is at least 150 ft wide or native undisturbed prairie, that connects to estu- uplands that are at least 250 acres in size? (dams in roads, paved roads, are considered breaks in the of YES = 4 points (go to H 2.3) H 2.2.2 Is the wetland part of a relatively undisturk (either riparian or upland) that is at least 50ft wide forest, and connects to estuaries, other wetlands or acres in size? OR a Lake-fringe wetland, if it doe the question above? YES = 2 points (go to H 2.3) H 2.2.3 Is the wetland:	de, has at least 30% cover of shrubs, forest aries, other wetlands or undisturbed in riparian corridors, heavily used gravel corridor). NO = go to H 2.2.2 bed and unbroken vegetated corridor , has at least 30% cover of shrubs or undisturbed uplands that are at least 25 as not have an undisturbed corridor as in NO = H 2.2.3 er estuary OR acres) OR	1

ĩ

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 DHS report http://wdfw.wa.gov/hah/nhslist.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 pative 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 free	
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	
Annandir A)	1
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 Spage 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 π) 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	10
list. Nearby wetlands are addressed in question H 2.4)	

H 2.4 Wetland Landscape (choose the one description of the landscape around the wetland that best fits) (see p. 84) There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile, BUT the connections between them are disturbed points = 5 The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe 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 points = 3 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	7
TOTAL for H 1 from page 14	5
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	12

1

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

Version 2 - Updated July 2006 to in	crease ac	- WESTERN WASHINGT curacy and reproducibility among VDFW definitions for priority habit	ISARS
Name of wetland (if known):	24 P.	5K Date of si	te visit: 5/8/13
Name of wetland (if known): <u>4 - sha</u> Rated by <u>klamid</u>	Frained	ε 59 Kαic by Ecology? Yes≪No :	Date of training Zeo S
SEC:TWNSHP:RNGE: Is :	S/T/R iı	Appendix D? Yes No	-
Map of wetland unit: Figu	ıre	_ Estimated size	_
SUMMA	RY	OF RATING	
Category based on FUNCTIONS pro	vided	by wetland	
<u>І П </u>			
	Saar	n for Water Onelite Franci	
Category I = Score >=70	SCOL	e for Water Quality Function	ns P
Category II = Score 51-69	S	core for Hydrologic Function	IS 10
Category III = Score 30-50		Score for Habitat Function	
Category IV = Score < 30			
		TOTAL score for Function	12 7 8
Category based on SPECIAL CHAR	ACTE	DISTICS of wotland	
I II Does not Apply_X		MISTICS OF WEURING	
FF-J	_		
Final Category (choose the			IV
Summary of basic info	rmation	about the wetland unit	
Wetland Unit has Special		Wetland HGM Class	
Characteristics Estuarine		used for Rating	
		Depressional	X
Natural Heritage Wetland		Riverine	
Bog Mature Forest	_	Lake-fringe	
Old Growth Forest		Slope	X
		Flats	
Coastal Lagoon Interdunal		Freshwater Tidal	
None of the above	1.1	Check if unit has multiple	

×

1

August 2004

×

Check if unit has multiple HGM classes present

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)		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. 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

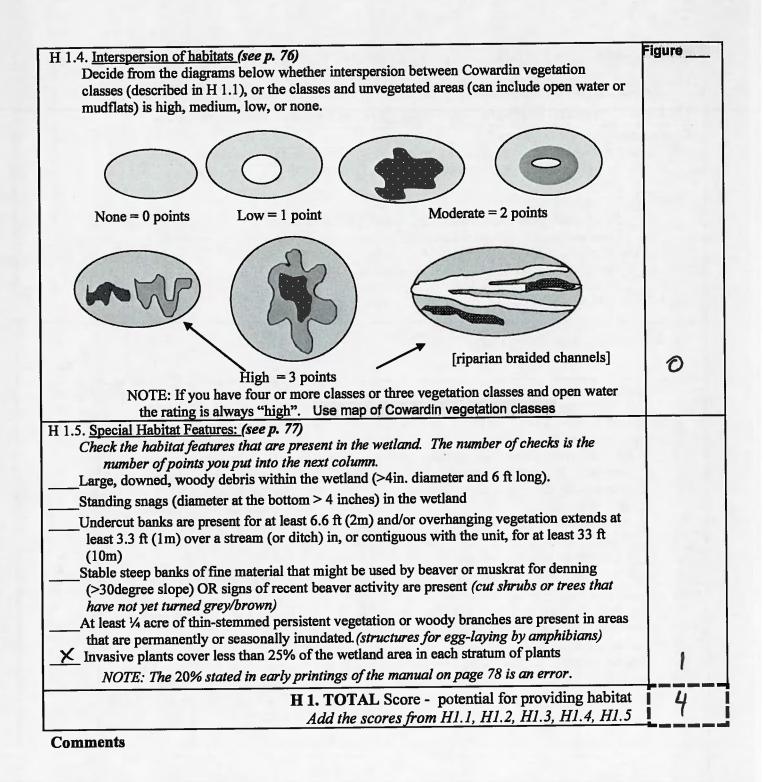
To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

.

D	Depressional and Flats Wetlands	Points
	WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to	(only I score
in the	improve water quality	per box)
D	D 1. Does the wetland unit have the <u>potential</u> 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 (<i>permanently flowing</i>) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and 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")	Figure
D	Provide photo or drawing 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	0
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	Figure
D	Map of Cowardin vegetation classes 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	Figure
D	Area seasonally ponded is < ¼ total area of wetland	
D	 D 2. Does the wetland unit have the <u>opportunity</u> to improve water quality? Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity. Grazing in the wetland or within 150 ft Untreated stormwater discharges to wetland Tilled fields or orchards within 150 ft of wetland A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging Residential, urban areas, golf courses are within 150 ft of wetland Wetland is fed by groundwater high in phosphorus or nitrogen Other 	(see p. 44) multiplier
D	YES multiplier is 2 NO multiplier is 1 TOTAL - Water Quality Functions Multiply the score from D1 by D2	4
	Add score to table on p. 1	T

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

These questions apply to wetlands of all HABITAT FUNCTIONS - Indicators that unit fu		t habitat	Points (only 1 scor per box)
H 1. Does the wetland unit have the <u>potential</u> (to provide habitat for many	y species?	
H 1.1 Vegetation structure (see p. 72) Check the types of vegetation classes present (as de class is ¼ acre or more than 10% of the area if u Aquatic bed X Emergent plants	fined by Cowardin)- Size three		Figure
Scrub/shrub (areas where shrubs have >3 Forested (areas where trees have >30% of If the unit has a forested class check if: The forested class has 3 out of 5 strata (a moss/ground-cover) that each cover 2 Add the number of vegetation structures that qualify	cover) canopy, sub-canopy, shrubs, he 20% within the forested polygo	erbaceous, n	
Map of Cowardin vegetation classes	4 structures or more 3 structures 2 structures	points = 4 points = 2 points = 1	
I 1.2. <u>Hydroperiods (see p. 73)</u>	1 structure	points = 0	ð
descriptions of hydroperiods) Permanently flooded or inundated Seasonally flooded or inundated Occasionally flooded or inundated Saturated only Permanently flowing stream or river in, or Seasonally flowing stream in, or adjacent to	4 or more types present 3 types present 2 types present 1 type present adjacent to, the wetland to, the wetland		
Lake-fringe wetland = 2 points Freshwater tidal wetland = 2 points	Map of hydr	operiode	5
 1.3. <u>Richness of Plant Species</u> (see p. 75) Count the number of plant species in the wetland of the same species can be combined to meet the You do not have to name the species. Do not include Eurasian Milfoil, reed canary If you counted: List species below if you want to: 	d that cover at least 10 ft ² . (dif e size threshold) wgrass, purple loosestrife, Can > 19 species 5 - 19 species	ferent patches	
			1



2.1 <u>Buffers</u> (see p. 80)	Figure
oose the description that best represents condition of buffer of wetland unit. The highest scoring	
terion that applies to the wetland is to be used in the rating. See text for definition of	
ndisturbed."	
- 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 >	121
50% circumference. $Points = 4$	
- 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95%	
 — 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	1
If buffer does not meet any of the criteria above	
- No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95%	
circumference. Light to moderate grazing, or lawns are OK. Points =2	
 No paved areas or buildings within 50m of wetland for >50% circumference. 	
Light to moderate grazing, or lawns are OK. Points = 2	
- Heavy grazing in buffer. Points = 1	
- Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled	
fields, paving, basalt bedrock extend to edge of wetland $Points = 0$.	2
- Buffer does not meet any of the criteria above. Points = 1	
Aerial photo showing buffers	
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).	
$YES = 4 \text{ points} (go to H 2.3) \qquad NO = go to H 2.2.2$	
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?	1
YES = 1 point NO = 0 points	

Wetland Rating Form – western Washington15version 2Updated with new WDFW definitions Oct. 2008

.3 Near or adjacent to other priority habitats listed by WDFW (see new and complete	
descriptions of WDFW priority habitats, and the counties in which they can be found, in	
the PHS report http://wdfw.wa.gov/hab/phslist.htm)	
Which of the following priority habitats are within 330ft (100m) of the wetland unit? NOTE: the	
connections do not have to be relatively undisturbed.	
Aspen Stands: Pure or mixed stands of aspen greater than 0.4 ha (1 acre).	
Biodiversity Areas and Corridors: Areas of habitat that are relatively important to various	
species of native fish and wildlife (full descriptions in WDFW PHS report p. 152).	
Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.	
Old-growth/Mature forests: (Old-growth west of Cascade crest) Stands of at least 2 tree	
species, forming a multi-layered canopy with occasional small openings; with at least 20	
trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands	
with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%;	
crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of	
large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.	
Oregon white Oak: Woodlands Stands of pure oak or oak/conifer associations where	
canopy coverage of the oak component is important (full descriptions in WDFW PHS report p. 158).	
Riparian : The area adjacent to aquatic systems with flowing water that contains elements of	
both aquatic and terrestrial ecosystems which mutually influence each other.	
Westside Prairies: Herbaceous, non-forested plant communities that can either take the	
form of a dry prairie or a wet prairie (full descriptions in WDFW PHS report p. 161).	
Instream: The combination of physical, biological, and chemical processes and conditions	
that interact to provide functional life history requirements for instream fish and wildlife resources.	
Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore,	
Open Coast Nearshore, and Puget Sound Nearshore. (full descriptions of habitats and the	
definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in	
Appendix A).	
Caves: A naturally occurring cavity, recess, void, or system of interconnected passages under	
the earth in soils, rock, ice, or other geological formations and is large enough to contain a	
human.	
Cliffs: Greater than 7.6 m (25 ft) high and occurring below 5000 ft.	
Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft),	
composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient	
decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a	
diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in	
height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft)	
long.	
If wetland has 3 or more priority habitats = 4 points	
If wetland has 2 priority habitats = 3 points	
If wetland has 1 priority habitat = 1 point No habitats = 0 points	D
Note: All vegetated wetlands are by definition a priority habitat but are not included in this	D
list. Nearby wetlands are addressed in question H 2.4)	

.

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

Wetland name or number V

8

Version 2 - Updated July 2006 to increa	RM – WESTERN WASHINGT use accuracy and reproducibility among t	lsers
Updated Oct 2008 with the n	ew WDFW definitions for priority habit	tats
Name of wetland (if known): <u>V</u> -3hell f	PSR Date of sin	te visit: <u>5/P/13</u>
Name of wetland (if known): <u>V-3hell</u> Rated by <u>P. Hanid</u> Trai	ined by Ecology? Yes <u>X</u> No]	Date of training 2005
SEC:TWNSHP:RNGE: Is S/T	/R in Appendix D? Yes No	
Map of wetland unit: Figure	Estimated size	_
SUMMAR	Y OF RATING	
Category based on FUNCTIONS provide	ded by wetland	
I II IV_X		
Category I = Score >=70	Score for Water Quality Function	ns 4
Category II = Score 51-69	Score for Hydrologic Function	
Category III = Score 30-50	Score for Habitat Function	
Category $IV = Score < 30$		
	TOTAL score for Function	is <u>24</u>
Category based on SPECIAL CHARAC	CTERISTICS of wetland	
I II Does not Apply ⊬_		
Final Category (choose the	"highest" category from above)	IV
Summary of basic inform	ation about the wetland unit	
Wetland Unit has Special Characteristics	Wetland HGM Class used for Rating	
Estuarine	Depressional	X
Natural Heritage Wetland	Riverine	
Bog	Lake-fringe	
Mature Forest	Slope	R

Flats

メ

1

Freshwater Tidal

Check if unit has multiple

HGM classes present

Old Growth Forest

Coastal Lagoon

None of the above

Interdunal

August 2004

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.

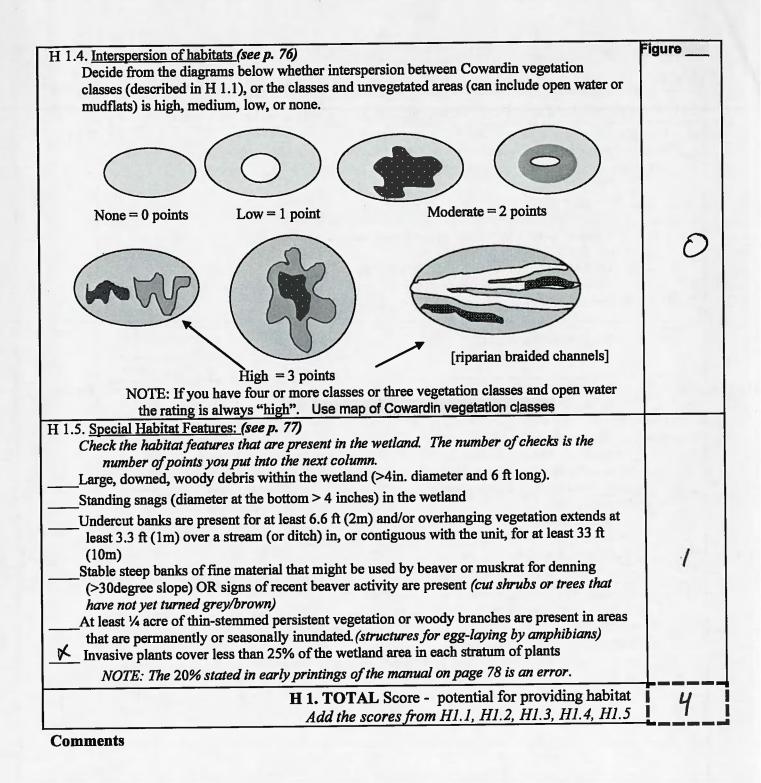
Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered animal or plant species (T/E species)? For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		K
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).		K
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.		K

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

D	Depressional and Flats Wetlands	Points
	WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to	(only 1 score
	improve water quality	per box)
D	D 1. Does the wetland unit have the potential to improve water quality?	(see p.38)
	D 1.1 Characteristics of surface water flows out of the wetland;	Figure
D	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") points = 1	2
	S 1 2 The soil 2 inches below the surface (or definition) is 1	
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	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class)	Figure
D	Wetland has persistent, ungrazed, vegetation > = 95% of areapoints = 5Wetland has persistent, ungrazed, vegetation > = 1/2 of areapoints = 3Wetland has persistent, ungrazed vegetation > = 1/10 of areapoints = 1Wetland has persistent, ungrazed vegetation <1/10 of areapoints = 0	0
	Map of Cowardin vegetation classes	
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 	Figure
	Area seasonally ponded is > $\frac{1}{4}$ total area of wetlandpoints = 4Area seasonally ponded is < $\frac{1}{4}$ total area of wetlandpoints = 0Map of Hydroperiods	
D	Total for D 1Add the points in the boxes above	7
D	D 2. Does the wetland unit have the <u>opportunity</u> to improve water quality?	
	 Des the wetland unit have the <u>opportunity</u> to improve water quality? Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity. A Grazing in the wetland or within 150 ft Untreated stormwater discharges to wetland Tilled fields or orchards within 150 ft of wetland A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging Residential, urban areas, golf courses are within 150 ft of wetland Wetland is fed by groundwater high in phosphorus or nitrogen Other 	
D	TOTAL - Water Quality Functions Multiply the score from D1 by D2	11
	Add score to table on p. 1	4

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 <u>potential</u> to reduce flooding and erosion?	(see p.46)
D	D 3.1 Characteristics of surface water flows out of the wetland unit points = 4 Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch points = 1 (If ditch is not permanently flowing treat unit as "intermittently flowing") Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing) points = 0	2
D	D 3.2 Depth of storage during wet periodsEstimate the height of ponding above the bottom of the outlet. For units with no outletmeasure 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 outletpoints = 7The wetland is a "headwater" wetland"points = 5Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	٥
D	D 3.3 Contribution of wetland unit to storage in the watershedEstimate the ratio of the area of upstream basin contributing surface water to the wetlandto the area of the wetland unit itself.The area of the basin is less than 10 times the area of unitpoints = 5The area of the basin is 10 to 100 times the area of the unitpoints = 0Entire unit is in the FLATS classpoints = 5	5
D	Total for D 3Add the points in the boxes above	7
D		
	 Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems Other 	multiplier
	YES multiplier is 2 NO multiplier is 1	
D	TOTAL - Hydrologic Functions Multiply the score from D 3 by D 4 Add score to table on p. 1	7

HGM classes. nctions to provide importan	t habitat	Points (only 1 scor per box)	
H 1.1 <u>Vegetation structure</u> (see p. 72) Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is 4 acre or more than 10% of the area if unit is smaller than 2.5 acres.			
over)			
0% within the forested polygo	erbaceous, n		
4 structures or more	points = 4	0	
2 structures	points = 1		
1 structure	points = 0	Figure	
2 types present 1 type present adjacent to, the wetland o, the wetland	point = 1 points = 0	2	
H 1.3. <u>Richness of Plant Species</u> (see p. 75) Count the number of plant species in the wetland that cover at least 10 ft ² . (different patches of the same species can be combined to meet the size threshold) You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle If you counted: > 19 species points = 2			
< 5 species	points = 0		
	nctions to provide important o provide habitat for many fined by Cowardin)- Size threes mit is smaller than 2.5 acres. (0% cover) over) eanopy, sub-canopy, shrubs, he 0% within the forested polygo over) eanopy, sub-canopy, shrubs, he 0% cover) over) eanopy, sub-canopy, shrubs, he 0% the structures or more 3 structures 2 structures 1 structure 1 structure 1 structure 1 structure 2 structures 1 structure 1 structure 2 types present 3 types present 3 types present 3 types present 1 type present adjacent to, the wetland o, the wetland o, the wetland Map of hydr 1 that cover at least 10 ft ² . (diff size threshold) pgrass, purple loosestrife, Can > 19 species 5 - 19 species	nctions to provide important habitat o provide habitat for many species? fined by Cowardin)- Size threshold for each mit is smaller than 2.5 acres. 0% cover) over) over) over) anopy, sub-canopy, shrubs, herbaceous, 0% within the forested polygon a structures or more points = 4 3 structures points = 2 2 structures points = 1 1 structure points = 0 or # acre to count. (see text for 4 or more types present points = 3 3 types present points = 2 2 types present points = 1 1 type present points = 2 2 types present points = 2 2 types present points = 2 3 types present points = 1 1 type present points = 2 2 types present points = 1 1 type present points = 2 2 types present points = 1 1 type present points = 2 2 types present points = 1 1 type present points = 1 1 type present points = 1	



2.1 Buffers (see p. 80)	Figure
hoose the description that best represents condition of buffer of wetland unit. The highest scoring	
iterion that applies to the wetland is to be used in the rating. See text for definition of	
ndisturbed."	
- 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	2
- No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95%	2
circumference. Light to moderate grazing, or lawns are OK. Points =(2)	
- No paved areas or buildings within 50m of wetland for >50% circumference.	
Light to moderate grazing, or lawns are OK. Points = 2	
- Heavy grazing in buffer. Points = 1	
- Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled	
fields, paving, basalt bedrock extend to edge of wetland Points = 0.	
- Buffer does not meet any of the criteria above. Points = 1	
Aerial photo showing buffers	
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) $NO = H 2.2.3H 2.2.3 Is the wetland:$	
× 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?	

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 (<i>full descriptions in WDFW PHS report p. 152</i>).	
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	1
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	2
human.	3
Cliffs: Greater than 7.6 m (25 ft) high and occurring below 5000 ft.	
Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine	
tailings. May be associated with cliffs.	
Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient	
decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a	
diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in	
height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft)	
long.	
If wetland has 3 or more priority habitats = 4 points	
If wetland has 2 priority habitats = 3 points	
If wetland has 1 priority habitat = 1 point No habitats = 0 points	
Note: All vegetated wetlands are by definition a priority habitat but are not included in this	
list. Nearby wetlands are addressed in question H 2.4)	

4

H 2.4 Wetland Landscape (choose the one description of the landscape around the wetland that best fits) (see p. 84) There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile, BUT the connections between them are disturbed points = 5 The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe wetlands within ½ mile, BUT the connections between them are disturbed points = 5 The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe wetland within ½ mile, BUT the connections between them are disturbed 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	9
TOTAL for H 1 from page 14	4
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	13

Wetland name or number W

4

Version 2 - Updated July 2006 to increa	RM – WESTERN WASHINGTON se accuracy and reproducibility among users ew WDFW definitions for priority habitats
Name of wetland (if known):	Date of site visit:
	ined by Ecology? Yes XNo Date of training 2005
SEC: TWNSHP: RNGE: Is S/T	
Map of wetland unit: Figure	Estimated size
SUMMAR	Y OF RATING
Category based on FUNCTIONS provid	ded by wetland
<u>і п шХ г</u> у	
	Score for Water Quality Functions
Category I = Score >=70 Category II = Score 51-69	Score for Hydrologic Functions
Category III = Score 30-50	
Category IV = Score < 30	Score for Habitat Functions 17
	TOTAL score for Functions 49
Category based on SPECIAL CHARAC	CTERISTICS of wetland
I I Does not Apply X	
Final Category (choose the '	"highest" category from above)
Summary of basic information	ation about the wetland unit
Wetland Unit has Special	Wetland HGM Class
Characteristics	used for Rating
Estuarine	Depressional X
Natural Heritage Wetland	Riverine
Bog	Lake-fringe
Mature Forest	Slope
Old Growth Forest	Flats
Coastal Lagoon	Freshwater Tidal
Interdunal	

1

None of the above

August 2004

Check if unit has multiple HGM classes present

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. SP2. Has the wetland unit been documented as habitat for any State listed Threatened or Endangered animal species? For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		×
SP3. Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?		×
SP4. Does the wetland unit have a local significance in addition to its functions? For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		x

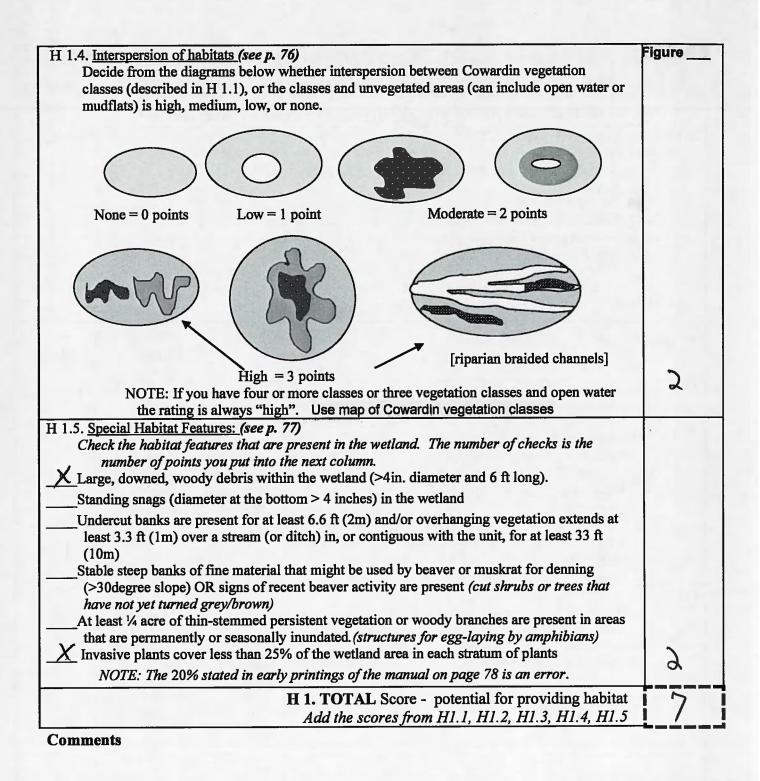
To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

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.

D	Depressional and Flats Wetlands WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to improve water quality	Points (only 1 score per box)
D	D 1. Does the wetland unit have the <u>potential</u> to improve water quality?	(see p.38)
D	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 (<i>permanently flowing</i>) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and 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")	Figure
	Provide photo or drawing	
D	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions) YES points = 4 NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class)Wetland has persistent, ungrazed, vegetation >= 95% of areaWetland has persistent, ungrazed, vegetation >= 1/2 of areapoints = 3	Figure
	Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	2
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.	Figure
	Area seasonally ponded is > $\frac{1}{2}$ total area of wetlandpoints = 4Area seasonally ponded is > $\frac{1}{4}$ total area of wetlandpoints = 2Area seasonally ponded is < $\frac{1}{4}$ total area of wetlandpoints = 0Map of HydroperiodsMap of Hydroperiods	4
D	Total for D 1Add the points in the boxes above	
D	 D 2. Does the wetland unit have the <u>opportunity</u> to improve water quality? Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity. A Grazing in the wetland or within 150 ft Untreated stormwater discharges to wetland Tilled fields or orchards within 150 ft of wetland A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging 	(see p. 44)
	 Residential, urban areas, golf courses are within 150 ft of wetland Wetland is fed by groundwater high in phosphorus or nitrogen 	multiplier
	Other YES multiplier is 2 NO multiplier is 1	2
D	<u>TOTAL</u> - Water Quality Functions Multiply the score from D1 by D2 Add score to table on p. 1	55

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 points = 4 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	Q
D	D 3.2 Depth of storage during wet periodsEstimate the height of ponding above the bottom of the outlet. For units with no outletmeasure 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 outletpoints = 7The wetland is a "headwater" wetland"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 outletpoints = 3Unit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap waterpoints = 1Marks of ponding less than 0.5 ftpoints = 0	3
D	D 3.3 Contribution of wetland unit to storage in the watershedEstimate the ratio of the area of upstream basin contributing surface water to the wetlandto the area of the wetland unit itself.The area of the basin is less than 10 times the area of unitpoints = 5The area of the basin is 10 to 100 times the area of the unitpoints = 3The area of the basin is more than 100 times the area of the unitpoints = 0Entire unit is in the FLATS class	5
D	Total for D 3Add the points in the boxes above	10
D	 D 4. Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion? Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. 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. <i>Note which of the following indicators of opportunity apply</i>. — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems 	(see p. 49)
	 Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems 	multiplier
	— Other YES multiplier is 2 NO multiplier is 1	1
D	TOTAL - Hydrologic Functions Multiply the score from D 3 by D 4 Add score to table on p. 1	10

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)	These questions apply to wetlands of all H ABITAT FUNCTIONS - Indicators that unit fur		nt habitat	Points (only 1 scor per box)
Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is % acre or more than 10% of the area if unit is smaller than 2.5 acres. Aquatic bed Emergent plants Scrub/shrub (areas where shrubs have >30% cover) If the unit has a forested class check if:	H 1. Does the wetland unit have the <u>potential</u> to	provide habitat for mai	ny species?	the second
Map of Cowardin vegetation classes 3 structures points = 2 2 structures points = 1 1 structure points = 0 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) Permanently flooded or inundated 4 or more types present points = 3 X Seasonally flooded or inundated 2 types present points = 2 Y Occasionally flooded or inundated 2 types present points = 2 Y Occasionally flooded or inundated 2 types present points = 2 Y Occasionally flooded or inundated 2 types present points = 2 Y Occasionally flowing stream or river in, or adjacent to, the wetland seasonally flowing stream in, or adjacent to, the wetland littice Lake-fringe wetland = 2 points Map of hydroperiods H littice 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 = 1	Check the types of vegetation classes present (as definition class is 4 acre or more than 10% of the area if un Aquatic bed Aquatic bed Emergent plants X Scrub/shrub (areas where shrubs have >30% constrained (areas where trees have >30% constrained (areas where trees have >30% constrained (areas where trees have >30% constrained (areas have areas the areas the areas the areas the area if the unit has a forested class check if: The forested class has 3 out of 5 strata (constrained areas the area if unit has a forested class have 20% constrained areas the ar	nit is smaller than 2.5 acres. 0% cover) over) anopy, sub-canopy, shrubs, 1 0% within the forested polyg	herbaceous,	Figure
2 structures points = 1 1 structure points = 0 H 1.2. Hydroperiods (see p. 73) Figure				
1 structure points = 0 H 1.2. Hydroperiods (see p. 73) Figure	Map of Cowardin vegetation classes			1
H 1.2. Hydroperiods (see p. 73) Figure			•	
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	Permanently flooded or inundated Seasonally flooded or inundated Occasionally flooded or inundated Saturated only Permanently flowing stream or river in, or a Seasonally flowing stream in, or adjacent to Lake-fringe wetland = 2 points Freshwater tidal wetland = 2 points	3 types presen 2 types presen 1 type presen adjacent to, the wetland o, the wetland	$\begin{array}{ll} \text{nt} & \text{points} = 2\\ \text{nt} & \text{point} = 1\\ \text{t} & \text{points} = 0 \end{array}$	1
	Count the number of plant species in the wetland of the same species can be combined to meet the You do not have to name the species. Do not include Eurasian Milfoil, reed canary If you counted:	size threshold) ograss, purple loosestrife, C > 19 species 5 - 19 species	anadian Thistle points = 2 points = 1)



٩

2.1 <u>Buffers</u> (see p. 80)	Figure
poose the description that best represents condition of buffer of wetland unit. The highest scoring iterion that applies to the wetland is to be used in the rating. See text for definition of ndisturbed."	
 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 >95% circumference. Points = 4 50 m (170ft) 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 > 25% circumference, Points = 3 50 m (170ft) 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 > 25% circumference. Points = 3 Muffer does not meet any of the criteria above No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. Points = 2 	
 No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. Points = 2 	
House and in 1, 00	
 Heavy grazing in buffer. 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 Buffer does not meet any of the criteria above. Points = 0. Points = 1 	3
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? (<i>dams in riparian corridors, heavily used gravel</i> roads, paved roads, are considered breaks in the corridor). YES = 4 points (go to H 2.3) NO = go to H 2.2.2	
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?	1
YES = 1 point NO = 0 points	,

Wetland Rating Form – western Washington15version 2Updated with new WDFW definitions Oct. 2008

.3 <u>Near or adjacent to other priority habitats listed by WDFW</u> (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 (<i>full descriptions in WDFW PHS report p. 152</i>).	
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 n_{158})	
Rinarian: 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. 101).	
Instream: The combination of physical, biological, and chemical processes and conditions	
that interact to provide functional life history requirements for instream fish and wildlife resources.	
Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore,	
Open Coast Nearshore, and Puget Sound Nearshore. (full descriptions of habitats and the	
definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in	
Appendix A).	
Caves: A naturally occurring cavity, recess, void, or system of interconnected passages under	
the earth in soils, rock, ice, or other geological formations and is large enough to contain a	
human.	
Cliffs: Greater than 7.6 m (25 ft) high and occurring below 5000 ft.	
Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft),	
composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine	
tailings. May be associated with cliffs.	
Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a	
decay characteristics to enable cavity excavation use by whence. Thorey shares 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 we thand has 3 or more priority habitats = 3 points	2
If wetland has 2 priority habitats = 3 points If wetland has 1 priority habitat = 1 point No habitats = 0 points	.5
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	1
list. Nearby wetlands are addressed in question H 2.4)	-

.

....

H 2.4 Wetland Landscape (choose the one description of the landscape around the wetland that best fits) (see p. 84) There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5 The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile, 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 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 are at least 1 wetland within ½ mile. points = 3 There are no wetlands within ½ mile. points = 0	R
H 2. TOTAL Score - opportunity for providing habitat Add the scores from H2.1,H2.2, H2.3, H2.4	10
TOTAL for H 1 from page 14	7
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	17

Wetland name or number Y

Version 2 - Updated July 2006 to incre	RM – WESTERN WASHINGTON ase accuracy and reproducibility among users new WDFW definitions for priority habitats	
	BSR Date of site visit: 5/2/13 Table Ruil ained by Ecology? Yes No Date of training 2005	
	miled by Ecology? Tesy_No Date of training	
SEC:TWNSHP:RNGE: Is S/7	Г/R in Appendix D? Yes No	
Map of wetland unit: Figure	e Estimated size	
SUMMAR	RY OF RATING	
Category based on FUNCTIONS prov	ided by wetland	
<u>і п ш гух</u>		
	Score for Water Quality Functions	
Category I = Score >=70		
Category II = Score 51-69 Score for Hydrologic Functions 7		
Category III = Score 30-50	Score for Habitat Functions	
Category IV = Score < 30	TOTAL score for Functions	
Category based on SPECIAL CHARA	CTERISTICS of wetland	
I II Does not Apply 1/2		
Final Category (choose the	e "highest" category from above)	
Summary of basic inform	nation about the wetland unit	
Wetland Unit has Special	Wetland HGM Class	
Characteristics	used for Rating	
Estuarine	Depressional ¥	
Natural Heritage Wetland	Riverine	
Bog	Lake-fringe	
Mature Forest	Slope 🖌	
Old Growth Forest	Flats	

Coastal Lagoon

None of the above

Interdunal

1

4

Freshwater Tidal

Check if unit has multiple HGM classes present

Y

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. 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.		4

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

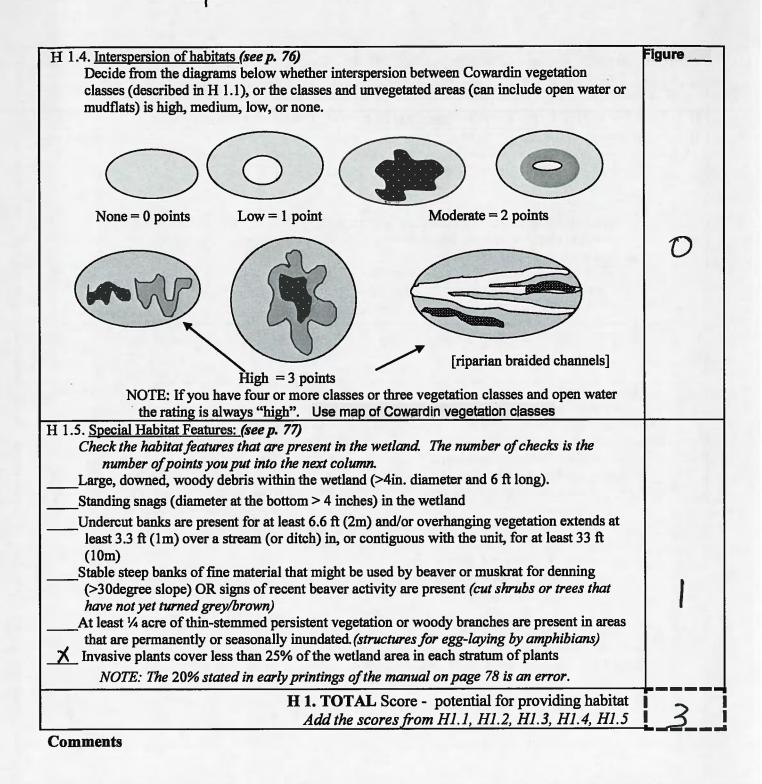
The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying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

Wetland name or number _Y

Depressional and Flats Wetlands D Points WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to (only I score per box) improve water quality D 1. Does the wetland unit have the potential to improve water quality? D (see p.38) D 1.1 Characteristics of surface water flows out of the wetland: Figure Unit is a depression with no surface water leaving it (no outlet) points = 3D 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 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") Provide photo or drawing S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions) D YES \mathbf{O} points = 4NO points = 0D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class) Figure Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5D Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 \mathcal{O} Wetland has persistent, ungrazed vegetation <1/10 of area points = 0Map of Cowardin vegetation classes D1.4 Characteristics of seasonal ponding or inundation. Figure This is the area of the wetland unit that is ponded for at least 2 months, but dries out D 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 $> \frac{1}{2}$ total area of wetland points = 4Area seasonally ponded is $> \frac{1}{4}$ total area of wetland points = 2Area seasonally ponded is $< \frac{1}{4}$ total area of wetland points = 0Map of Hydroperiods Total for D1 Add the points in the boxes above D 2 D 2. Does the wetland unit have the opportunity to improve water quality? D (see p. 44) 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. K Grazing in the wetland or within 150 ft - Untreated stormwater discharges to wetland - Tilled fields or orchards within 150 ft of wetland --- A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging - Residential, urban areas, golf courses are within 150 ft of wetland multiplier - Wetland is fed by groundwater high in phosphorus or nitrogen — Other と YES multiplier is 2 NO multiplier is 1 **TOTAL** - Water Quality Functions Multiply the score from D1 by D2 D Ч Add score to table on p. 1

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 <u>potential</u> 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	Z
D	D 3.2 Depth of storage during wet periodsEstimate the height of ponding above the bottom of the outlet. For units with no outletmeasure 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 outletpoints = 7The wetland is a "headwater" wetland"Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	D
D	D 3.3 Contribution of wetland unit to storage in the watershedEstimate the ratio of the area of upstream basin contributing surface water to the wetlandto the area of the wetland unit itself.The area of the basin is less than 10 times the area of unitpoints = 5The area of the basin is 10 to 100 times the area of the unitpoints = 3The area of the basin is more than 100 times the area of the unitpoints = 0Entire unit is in the FLATS class	5
D	Total for D 3Add the points in the boxes above	7
D	 D 4. Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion? Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. 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. <i>Note which of the following indicators of opportunity apply</i>. — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems 	(see p. 49)
-	 Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems 	multiplier
-	— Other	1
D	YES multiplier is 2 NO multiplier is 1 TOTAL - Hydrologic Functions Multiply the score from D 3 by D 4 Add score to table on p. 1	7

These questions apply to wetlands of all H HABITAT FUNCTIONS - Indicators that unit fur		nt habitat	Points (only 1 scor per box)
I 1. Does the wetland unit have the <u>potential</u> to	provide habitat for ma	ny species?	
H 1.1 Vegetation structure (see p. 72) Check the types of vegetation classes present (as def class is ¹ / ₄ acre or more than 10% of the area if us Aquatic bed Emergent plants Scrub/shrub (areas where shrubs have >30 Forested (areas where trees have >30% cd	nit is smaller than 2.5 acres. 0% cover)	eshold for each	Figure
If the unit has a forested class check if: The forested class has 3 out of 5 strata (c moss/ground-cover) that each cover 20 Add the number of vegetation structures that qualify.	0% within the forested polyg		0
Map of Cowardin vegetation classes	3 structures 2 structures 1 structure	points = 2 $points = 1$ $points = 0$	
Check the types of water regimes (hydroperiods) regime has to cover more than 10% of the wetland descriptions of hydroperiods) Permanently flooded or inundated Seasonally flooded or inundated Saturated only Permanently flowing stream or river in, or Seasonally flowing stream in, or adjacent to Lake-fringe wetland = 2 points	d or ¼ acre to count. (see tex 4 or more types preser 3 types preser 2 types preser 1 type presen adjacent to, the wetland	$\begin{array}{ll} \text{ set for} \\ \text{ ent } \text{ points} = 3 \\ \text{ at } \text{ points} = 2 \\ \text{ at } \text{ point} = 1 \end{array}$	1
Freshwater tidal wetland = 2 points 1.3. <u>Richness of Plant Species</u> (see p. 75) Count the number of plant species in the wetland of the same species can be combined to meet the You do not have to name the species. Do not include Eurasian Milfoil, reed canary If you counted: List species below if you want to:	l that cover at least 10 ft ² . (a size threshold)		1
		Total for p	Dage 2



2. Does the wetland unit have the opportunity to provide habitat for many species?	Figure
 2.1 Buffers (see p. 80) hoose the description that best represents condition of buffer of wetland unit. The highest scoring iterion that applies to the wetland is to be used in the rating. See text for definition of mdisturbed." — 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 >95% circumference. Points = 3 	Figure
— 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%	2
circumference. Light to moderate grazing, or lawns are OK. Points = 2	1 -
 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	18
Aerial photo showing buffers	
H 2.2 Corridors and Connections (see p. 81)	
H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest	
or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed	
uplands that are at least 250 acres in size? (dams in riparian corridors, heavily used gravel	
roads, paved roads, are considered breaks in the corridor).	
$YES = 4 \text{ points} (go to H 2.3) \qquad NO = go to H 2.2.2$	
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 $H2.3$) NO = H 2.2.3	
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	

Wetland name or number

I 2.3 <u>Near or adjacent to other priority habitats listed by WDFW</u> (see new and complete	
descriptions of WDFW priority habitats, and the counties in which they can be found, in	
the PHS report <u>http://wdfw.wa.gov/hab/phslist.htm</u>)	
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 (<i>full descriptions in WDFW PHS report p. 152</i>).	
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 Buget Sound Nearshore (full descriptions of habitate and the	
Open Coast Nearshore, and Puget Sound Nearshore. (full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).	
Caves: A naturally occurring cavity, recess, void, or system of interconnected passages under	
the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.	
Cliffs: Greater than 7.6 m (25 ft) high and occurring below 5000 ft.	
Talus: Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft),	
composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.	
Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient	
decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a	
diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in	
height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft)	
long.	
If wetland has 3 or more priority habitats = 4 points	
If wetland has 2 priority habitats = 3 points	
If we than that $1 \text{ priority habitat} = 1 \text{ points}$ If we than that $1 \text{ priority habitat} = 1 \text{ points}$ 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)	

• •

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. 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 = 5 The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe wetlands within ½ mile, BUT the connections between them are disturbed points = 5 The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe moints = 5 fill fields is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe moints = 5 The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe moints = 3 fill fields	3
H 2. TOTAL Score - opportunity for providing habitat Add the scores from H2.1,H2.2, H2.3, H2.4	7
TOTAL for H 1 from page 14	3
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	10

Wetland name or number _____

	Version 2 - Updated July 2006 to in	ncrease accu	WESTERN WASHINGTO racy and reproducibility among u DFW definitions for priority habita	sers	
Name of	wetland (if known): <u>Wetland</u> Hamidi	2-51	rell PSR Date of sit	e visit:	5-6-13
Rated by_	Hamidi	Trained b	y Ecology? Yes <u>x</u> No I	Date of	training 2005
SEC:	TWNSHP: RNGE: Is	S/T/R in	Appendix D? Yes No_	_	
	Map of wetland unit: Fig	ure	Estimated size		
	SUMM	ARY O	F RATING		
Categor	ry based on FUNCTIONS pr	ovided	by wetland		
I	<u> </u>				
				_	
Categor	ry I = Score \geq =70	Score	e for Water Quality Function	IS	6
	ry II = Score 51-69	Sc	ore for Hydrologic Function	ıs 🗌	10
-	ry III = Score $30-50$		Score for Habitat Function		12
	ry IV = Score < 30				10
			FOTAL score for Function	IS	28
0	ry based on SPECIAL CHAI II Does not Apply_; Final Category (choose	¥			N
	Summary of basic inf	formation	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	x	Check if unit has multiple HGM classes present	۲	

1

August 2004

Wetland name or number L

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.		×
SP2. Has the wetland unit been documented as habitat for any State listed Threatened or Endangered animal species? For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		×
SP3. Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?		×
SP4. Does the wetland unit have a local significance in addition to its functions? For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		×

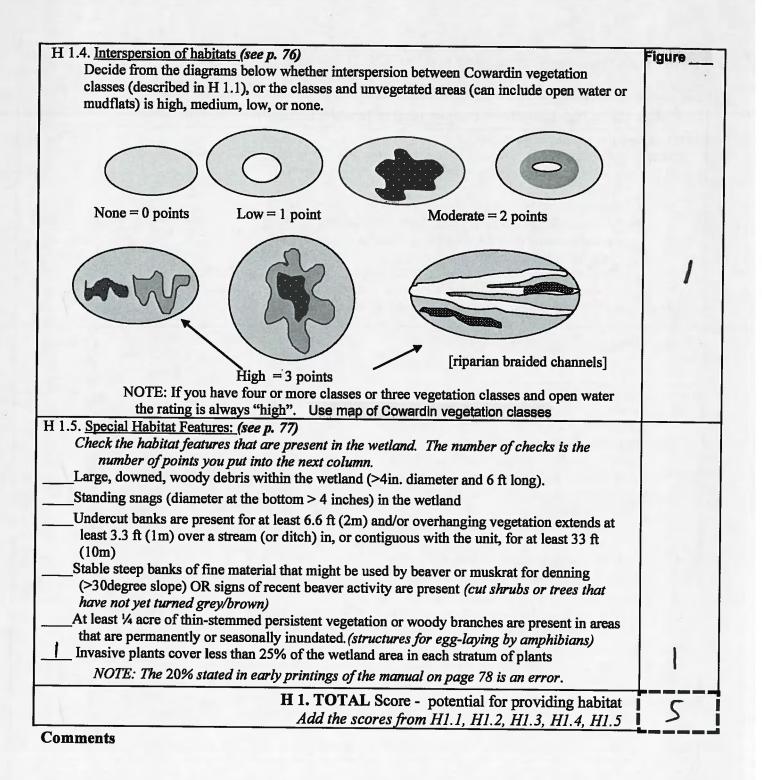
To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

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

D	Depressional and Flats Wetlands WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to improve water quality	Points (only 1 score per box)
D	D 1. Does the wetland unit have the <u>potential</u> to improve water quality?	(see p.38)
D	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 (<i>permanently flowing</i>) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and 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
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	0
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
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	Figure
D	Area seasonally ponded is < ¼ total area of wetland points = 0 Map of Hydroperiods Total for D 1 Add the points in the boxes above	2
D		3
D	 D 2. Does the wetland unit have the <u>opportunity</u> to improve water quality? Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity. Grazing in the wetland or within 150 ft Untreated stormwater discharges to wetland Tilled fields or orchards within 150 ft of wetland A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging 	(see p. 44)
	 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 	multiplier
D	<u>TOTAL</u> - Water Quality Functions Multiply the score from D1 by D2 Add score to table on p. 1	6

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

These questions apply to wetlands of all H HABITAT FUNCTIONS - Indicators that unit fun		abitat	Points (only 1 score per box)
H 1. Does the wetland unit have the <u>potential</u> to	provide habitat for many s	pecies?	
H 1.1 Vegetation structure (see p. 72) Check the types of vegetation classes present (as defined and the types) of vegetation classes present (as defined and the types) of the area if understanding and the types of types of the types of types of the types of types of types of the types of typ	ined by Cowardin)- Size threshanit is smaller than 2.5 acres. 19 own 2.5 acres.		Figure
The forested class has 3 out of 5 strata (ca moss/ground-cover) that each cover 20 Add the number of vegetation structures that qualify. Map of Cowardin vegetation classes	0% within the forested polygon	points = 4 points = 2 points = 1 points = 0	1
H 1.2. Hydroperiods (see p. 73)			Figure
Check the types of water regimes (hydroperiods) regime has to cover more than 10% of the wetland descriptions of hydroperiods) Permanently flooded or inundated Seasonally flooded or inundated Saturated only Permanently flowing stream or river in, or Seasonally flowing stream in, or adjacent to Lake-fringe wetland = 2 points Freshwater tidal wetland = 2 points H 1.3. Richness of Plant Species (see p. 75)	d or ¼ acre to count. (see text for 4 or more types present 3 types present 2 types present 1 type present • adjacent to, the wetland	points = 3 points = 2 point = 1 points = 0	1
A 1.3. <u>Kichness of Frant Species</u> (see p. 73) Count the number of plant species in the wetland of the same species can be combined to meet the You do not have to name the species. Do not include Eurasian Milfoil, reed canary If you counted: List species below if you want to:	e size threshold) ygrass, purple loosestrife, Can > 19 species 5 - 19 species		1
			page 3



2. Does the wetland unit have the opportunity to provide habitat for many spe	Figure
 2.1 Buffers (see p. 80) hoose the description that best represents condition of buffer of wetland unit. The highest so iterion 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 of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) Points = 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water 50% circumference. — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water > circumference. — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 00 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 00 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 00 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 00 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 00 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 00 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 00 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 00 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 00 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 00 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 00 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 00 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 00 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 00 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 00 m (330ft) of relatively undisturbed	coring 95% y = 5 = 4 95% = 4 • 25%
circumference Follus	- 3
- 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for Points	
	-5
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 — Doint	%
	=2
 circumference. Light to moderate grazing, or lawns are OK. Points No paved areas or buildings within 50m of wetland for >50% circumference. 	
Light to moderate grazing, or lawns are OK.	= 2
Henry grazing in huffer Point	
Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.	, tilled
fields paying hasalt bedrock extend to edge of wetland Point	s – U.
- Buffer does not meet any of the criteria above.	s=1
Aerial photo showing butters	
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 shrubsor native undisturbed prairie, that connects to estuaries, other wetlands or undisturbeduplands that are at least 250 acres in size? (dams in riparian corridors, heavily used to roads, paved roads, are considered breaks in the corridor).YES = 4 points (go to H 2.3)NO = go to H 2.2.2H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor(either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs of forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least acres in size? OR a Lake-fringe wetland, if it does not have an undisturbed corridorWES = 2 points (go to H 2.3)NO = H 2.2.3H 2.2.3 Is the wetland:	gravel
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?	
VES = 1 point NO = 0 points	

Wetland Rating Form – western Washington15version 2Updated with new WDFW definitions Oct. 2008

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see new and complete
uescriptions of WDFW priority habitats, and the counties in which they can be found in
(and I IIS report <u>nup://wuiw.wu.gov/nab/nhslist.htm</u>)
Which of the following priority habitats are within 330ft (100m) of the wetland unit? NOTE: the
connections at 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 (<i>full descriptions in WDFW PHS report p. 152</i>).
IPI Daceous Dailos: Variable size patches of grass and forbs on shallow soils even be denoted
Old-growill/Mature lorests: (Uld-growth west of Cascade crest) Stands of at least 2 to a
species, forming a multi-layered canopy with occasional small openings, with at loss 20
1005/114 (0 $1005/40$ $rest > 31$ cm (32 in) dbh or > 200 years of age (Moture forests). See 1
will average diameters exceeding 5.3 cm (21 in) dbh crown cover may be loss that 1000/
crown cover may be less that 100%; decay, decadence numbers of space 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).
Rinarian : The area adjacent to aquetia mutana mill G
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
numan,
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, all esite, and/or sedimentary rock, including rinran slides and mine
cannings. Whay be associated with cliffs
Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient
docay characteristics to enable cavity excavation/use by wildlife. Driority anage have
utaincies at oreast neight of > 31 cm (20 in) in western Washington and are > 2 m (6.5 θ) in
in light. Finding logs are > 30 cm (12 m) 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 guestion U.2.4
list. Nearby wetlands are addressed in question H 2.4)

 H 2.4 Wetland Landscape (choose the one description of the landscape around the wetland that best fits) (see p. 84) There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe points = 3 The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe There is at least 1 wetland within ½ mile. There are no wetlands within ½ mile. 	3
H 2. TOTAL Score - opportunity for providing habitat Add the scores from H2.1, H2.2, H2.3, H2.4	7
TOTAL for H 1 from page 14	5
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	12

APPENDIX E

LIST OF PLANT SPECIES OBSERVED IN THE STUDY AREA

Family	Species	Common Name	Synonym	n/i	Indicator Status
TREES					
Pinaceae	Abies grandis	grand fir		n	FACU
Betulaceae	Alnus rubra	red alder		n	FAC
Ericaceae	Arbutus menziesii	Pacific madrone		n	NOL
Betulaceae	Betula papyrifera	paper birch		n	FAC
Fabaceae	Laburnum anagyroides	golden chain-tree		i	NOL
Pinaceae	Cedrus deodara	deodar cedar		i	NOL
Salicaceae	Populus balsamifera	black cottonwood		n	FAC
Salicaceae	Populus tremuloides	quaking aspen		n	FACU
Pinaceae	Pseudotsuga menziesii var. menziesii	Douglas-fir		n	FACU
Cupressaceae	Thuja plicata	western redcedar		n	FAC
SHRUBS					
Cornaceae	Cornus sericea ssp. sericea	red-osier dogwood		n	FACW
Rosaceae	Crataegus monogyna	English hawthorn		i	FAC
Fabaceae	Cytisus scoparius	Scot's broom		i	NOL
Thymelaeaceae	Daphne laureola	spurgelaurel		i	NOL
Rhamnaceae	Frangula purshiana	cascara	Rhamnus p.	n	FAC
Rosaceae	Holodiscus discolor	oceanspray		n	FACU
Aquifoliaceae	Ilex aquifolium	English holly		i	NOL
Caprifoliaceae	Lonicera involucrata	black twinberry		n	FAC
Berberidaceae	Mahonia aquifolium	tall Oregon-grape	Berberis a.	n	FACU
Rosaceae	Malus fusca	western crabapple		n	FACW
Rosaceae	Oemleria cerasiformis	osoberry		n	FACU
Grossulariaceae	Ribes divaricatum var. divaricatum	coast black gooseberry		n	FAC
Grossulariaceae	Ribes lacustre	prickly currant		n	FAC
Rosaceae	Rosa gymnocarpa	wood rose		n	FACU
Rosaceae	Rosa nutkana var. nutkana	Nootka rose		n	FAC
Rosaceae	Rubus armeniacus	Himalayan blackberry	R. discolor	i	FACU
Rosaceae	Rubus laciniatus	evergreen blackberry		i	FACU
Rosaceae	Rubus spectabilis	salmonberry		n	FAC
Rosaceae	Rubus ursinus	dewberry		n	FACU
Salicaceae	Salix scouleriana	Scouler's willow		n	FAC
Salicaceae	Salix sitchensis	Sitka willow		n	FACW
Salicaceae	Salix sp.	willow		n	
Caprifoliaceae	Sambucus racemosa	red elderberry		n	FACU
Rosaceae	Spiraea douglasii var. douglasii	Douglas' spiraea		n	FACW
Caprifoliaceae	Symphoricarpos albus var. laevigatus	common snowberry		n	FACU

Family	Species	Common Name	Synonym	n/i	Indicator Status
HERBS				1	
Brassicaceae	Arabidopsis thaliana	thalecress		i	NOL
Asteraceae	Arctium minus	common burdock		i	UPL
Asteraceae	Artemisia suksdorfii	coastal wormwood		n	FACU
Chenopodiaceae	Atriplex sp.	atriplex			
Asteraceae	Bellis perennis	English daisy		i	NOL
Callitrichaceae	Callitriche stagnalis	pond water-starwort		i	OBL
Brassicaceae	Cardamine sp.	bittercress			
Caryophyllaceae	Cerastium glomeratum	sticky mouse-ear chickweed		i	FACU
Asteraceae	Cirsium arvense	Canada thistle		i	FAC
Asteraceae	Cirsium vulgare	bull thistle		i	FACU
Portulacaceae	Claytonia sibirica	Siberian spring beauty		n	FAC
Portulacaceae	Claytonia sp.			n	
Lamiaceae	Clinopodium douglasii	yerba buena	Satureja d.	n	NOL
Apiaceae	Conium maculatum	poison hemlock		?	FAC
Dipsacaceae	Dipsacus fullonum	Fuller's teasel		i	FAC
Onagraceae	Epilobium ciliatum	willowherb		n	FACW
Rosaceae	Fragaria vesca	woodland strawberry		n	FACU
Rubiaceae	Galium aparine	common bedstraw		n	FACU
Geraniaceae	Geranium dissectum	cut-leaf geranium		i	NOL
Geraniaceae	Geranium molle	dovefoot geranium		i	NOL
Rosaceae	Geum macrophyllum var. macrophyllum	large-leaved avens		n	FAC
Clusiaceae	Hypericum perforatum	common St. John's wort		i	FACU
Asteraceae	Hypochaeris radicata	hairy cat's-ear		i	FACU
Lamiaceae	Lamium purpureum	red deadnettle		i	NOL
Asteraceae	Leontodon saxatilis ssp. saxatilis	lesser hawkbit		i	FACU
Asteraceae	Leucanthemum vulgare	ox-eye daisy	Chrysanthemum v.	i	FACU
Fabaceae	Lotus corniculatus	bird's-foot trefoil		i	FAC
Fabaceae	Medicago lupulina	black medick		i	FACU
Portulacaceae	Montia fontana	water chickweed		n	FACW
Boraginaceae	Myosotis discolor	yellow and blue forget-me-not		i	FAC
Amaryllidaceae	Narcissus pseudonarcissus	common daffodil		,	NOL
Apiaceae	Oenanthe sarmentosa	Pacific water-parsley		n	OBL
Scrophulariaceae	Parentucellia viscosa	yellow glandweed		i	FAC
Plantaginaceae	Plantago lanceolata	English plantain		i	FACU
Ranunculaceae	Ranunculus acris	tall buttercup		i	FAC
Ranunculaceae	Ranunculus orthorhynchus	straight-beak buttercup		n	FACW
Ranunculaceae	Ranunculus repens	creeping buttercup		i	FAC
Ranunculaceae	Ranunculus sardous	hairy buttercup		i	FAC

Family	Species	Common Name	Synonym	n/i	Indicator Status
Polygonaceae	Rumex crispus	curly dock		i	FAC
Caryophyllaceae	Sagina apetala	annual pearlwort		i	FAC
Apiaceae	Sanicula crassicaulis var. crassicaulis	Pacific sanicle		n	NOL
Chenopodiaceae	Sarcocornia perennis	pickleweed	Salicornia virginic	n	OBL
Asteraceae	Senecio sylvaticus	woodland ragwort		n	UPL
Asteraceae	Senecio vulgaris	common groundsel		i	FACU
Caryophyllaceae	Stellaria calycantha	northern starwort		n	FACW
Caryophyllaceae	Stellaria crispa	crisped starwort		n	FAC
Caryophyllaceae	Stellaria media	common chickweed		i	FACU
Asteraceae	Tanacetum vulgare	common tansy		i	FACU
Asteraceae	Taraxacum officinale	common dandelion		i	FACU
Saxifragaceae	Tellima grandiflora	fringecup		n	FACU
Fabaceae	Trifolium dubium	suckling clover		i	FACU
Fabaceae	Trifolium repens	white clover		i	FAC
Fabaceae	Trifolium subterraneum	subterranean clover		i	NOL
Juncaginaceae	Triglochin maritima	seaside arrow-grass		n	OBL
Typhaceae	Typha latifolia	common cattail		n	OBL
Urticaceae	Urtica dioica	stinging nettle		n	FAC
Scrophulariaceae	Verbascum thapsus	common mullein		i	FACU
Scrophulariaceae	Veronica arvensis	common speedwell		i	FACU
Scrophulariaceae	Veronica persica	Persian speedwell		i	NOL
Scrophulariaceae	Veronica serpyllifolia var. serpyllifolia	thyme-leaf speedwell		i	FAC
Fabaceae	Vicia hirsuta	hairy vetch		n	NOL
Fabaceae	Vicia sativa	garden vetch		i	UPL
Apocynaceae	Vinca sp.	periwinkle		i	

Family	Species	Common Name	Synonym	n/i	Indicator Status
GRASSES, RUSH	ES, SEDGES				
Poaceae	Agropyron sp.	wheatgrass		i	
Poaceae	Agrostis capillaris	colonial bentgrass		i	FAC
Poaceae	Agrostis stolonifera	creeping bentgrass		i	FAC
Poaceae	Alopecurus pratensis	meadow foxtail		i	FAC
Poaceae	Bromus sp.	brome			
Cyperaceae	Carex leptopoda	slender-foot sedge		n	FAC
Cyperaceae	Carex obnupta	slough sedge		n	OBL
Cyperaceae	Carex ovalis	hare sedge		i	FACW
Cyperaceae	Carex pachystachya	thick-head sedge		n	FAC
Poaceae	Cynosurus cristatus	crested dogtail		i	FACU
Poaceae	Distichlis spicata	salt grass		n	FACW
Poaceae	Festuca arundinacea	tall fescue		i	FAC
Poaceae	Holcus lanatus	common velvetgrass		i	FAC
Juncaceae	Juncus sp.	rush			
Juncaceae	Juncus arcticus	Arctic rush		n	FACW
Poaceae	Phalaris arundinacea	reed canarygrass		i	FACW
Poaceae	Poa pratensis	Kentucky bluegrass		i	FAC
Poaceae	Vulpia bromoides	brome six-weeks grass		i	FACU
FERNS and HOR	<u>SETAILS</u>			·	
Dryopteridaceae	Dryopteris expansa	northern woodfern		n	FACW
Equisetaceae	Equisetum arvense	field horsetail		n	FAC
Dryopteridaceae	Polystichum munitum	western sword fern		n	FACU
Dennstaedtiaceae	Pteridium aquilinum var. pubescens	bracken fern		n	FACU
n/i = native or intro					
red type = noxious	weed species				